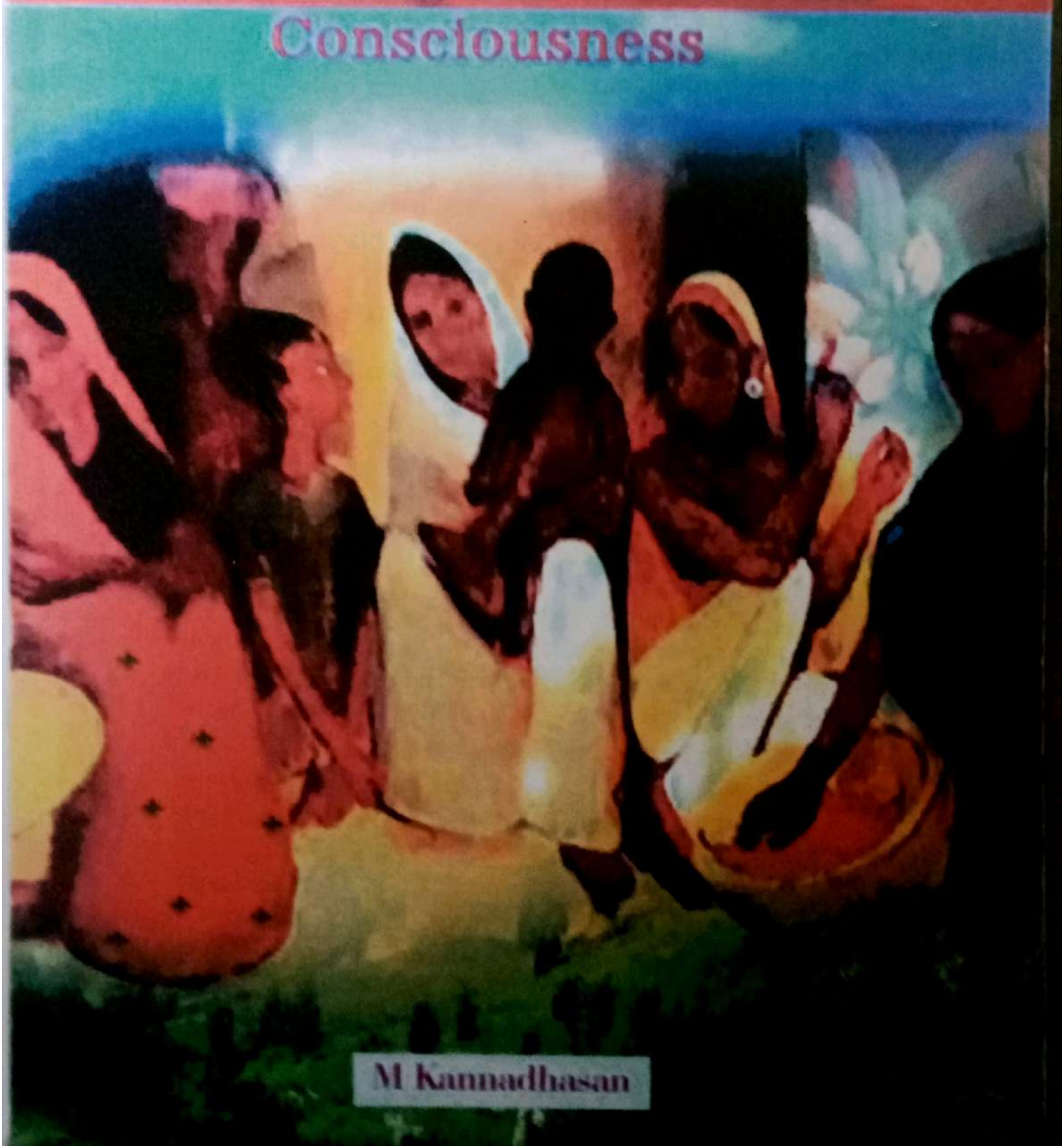
Dalit Aesthetics:

Theorizing the Subaltern Consciousness



M Kannadhasan

Discrimination Never Ends: A Painful Portrayal of Surviving Dalit Society on K.A. Gunasekaran's *The Scar*



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Caste oppression is a millenniums long lasting system of slavery in India and in the Hindu religion. The social construction of caste in India has demoted the dalits to the lowest layer in society. The movements for their rights began in the late nineteenth century with the thinkers like Ayothidhasar and Periyar E.V. Ramasamy and the cult Dalit spiritualists like Narayanaguru. The writings and speeches of Dr. B.R. Ambedkar came to be the core force for the dalit movements since 1930s which gained a radical force with the abandoning of Hindu religion by around one hundred and fifty thousand Mahars in the 1950s. The influence of these movements has its impact in the states like Maharastra, Karnataka and Tamil Nadu where the caste oppression is

NOVEL TRENDS AND TECHNIQUES IN LITERATURE AND LANGUAGE RESEARCH

Volume-2

Editors

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Bharathi Book House
32, 1st Floor,
Corporation New shopping Complex,
Opp. Gandhi Statue,
Old Bus Stand, Vellore,
Tamil Nadu - 632004

Book Title : NOVEL TRENDS AND TECHNIQUES IN LITERATURE AND LANGUAGE RESEARCH (VOLUME-2)

Editors : **Dr.J.Karthikeyan,**
Dr.R.Srinivasan,
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Department of English
School of Social Sciences and Languages
Vellore Institute of Technology
Vellore-632014, Tamil Nadu, India

Book Subject : English Language
Book Category : Research Outcomes
Copy Right : Editors
First Edition : August 2019
Book Size : B5
Page : X + 537 = 547
Paper : B5-21 kg, Maplitho NS
Price : Rs.400/-

Published by : **Bharathi Book House**
32, 1st Floor, Corporation New shopping Complex,
Opp. Gandhi Statue, Old Bus Stand, Vellore,
Tamil Nadu 632004
E-mail:bharathibookhousevlr@gmail.com
Mobile: 9942441715.

Book Layout : **S.Jegaveeran Cell : 98658 20640.**
Saravana Graphics & Printers
Rangapuram, Vellore-9.

ISBN Assigned by Raja Ram Mohan Roy
National Agency for ISBN,
New Delhi – 110066 (India)
ISBN:978-93-86890-37-5



Published by Bharathi Book House

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First Published in August 2019

ISBN:978-93-86890-37-5

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EDUCATION DURING THE ROMANTIC ERA: AN ANALYSIS OF THE POEMS OF MARY AND CHARLES LAMB

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ABSTRACT

Mary Ann Lamb, elder to Charles Lamb, and was one amongst the three children of John Lamb Senior and Elizabeth Lamb to survive childhood. Mary in her lifetime had suffered from Bipolar Disorder and in a sudden outburst she stabbed her own mother. Mary was from then certified insane and was taken to various madhouses. On her release, she was placed under the care of Charles, her brother. Charles was devoted completely to the care of his sister until his death. Mary throughout her life had suffered from this recurring fit of mania, until her death. The poems taken for analysis are based on type of education given to the feminine gender during the Romantic era which are "The Sister's Expostulation on the Brother's learning Latin" (Lamb, 1903) and "The Brother's Reply." (Lamb, 1903).

Keywords: Mary Lamb, Charles Lamb, Education, Romantic Era, Bipolar Disorder,

Romantic Literature, Insanity, Children's Literature, Poetry

INTRODUCTION

Mary Ann Lamb, sister to Charles Lamb, and had suffered from Bipolar Disorder and in a sudden outburst, she stabbed her own mother. Mary was from then certified insane and was taken to various madhouses. Mary throughout her life had suffered from recurring fits of mania, until her death. The objective of this paper is to show, how education was differentiated between the genders during the Romantic Era which is falls during the seventeenth- and eighteenth-centuries.

BACKGROUND

This paper is written in a way to find how the education was declined to the feminine gender during the seventeenth- and eighteenth-centuries. This had been, seen as a worry for Mary and she had written a poem on it and Charles had given his reply too and in a delicate way the Lamb's had portrayed the partiality of the education system through two selected poem. The work of the Lambs, more appropriately Mary's has not been given much focus and so the review of literature for this paper is relatively less.

FOCUS OF THE PAPER

The poems taken for analysis are based on type of education given to the feminine gender during the Romantic era and the poems are "The Sister's Expostulation on the Brother's learning Latin" (Lamb, 1903) and "The Brother's Reply." (Lamb, 1903)

THE ISSUE

The education during the Romantic Era was, "the main cause of social dysfunction, Wollstonecraft argues that without a proper education and understanding of the world, women are not able to be the partners that their husbands needed, in order to manage the household effectively and educate the children that they were expected to produce. As she notes in Vindication,

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A green synthesis of spiro[acridine-9,3'-indole]-4,4'(5'H,10H)-dione derivatives under catalyst-free one-pot conditions

Nangagoundan Vinoth[a] and Appaswami Lalith[a*]

Keywords: *Green synthesis, four component reaction, isatin, spiro compound.*

INTRODUCTION

Isatin is an important heterocyclic compound in organic chemistry and also in medicinal chemistry.[1,2] Acridine containing molecules have been reported to have an efficient binding capacity with DNA and lead to disruption of DNA function in cells.[3] The spiro[acridine-indole] derivatives have been reported to possess very diverse biological and pharmaceutical properties.[4]

MATERIALS AND METHODS

Dimedone, amines, substituted isatins and solvents were purchased from commercial sources (Sigma-Aldrich) and were used as received. Reactions were monitored by TLC using pre-coated silica gel 60 F254 aluminium sheets with ethyl acetate/hexane as the eluting solvent. Melting points were determined with an electrothermal apparatus by open capillary method and are uncorrected. IR spectra were recorded on a BRUKER FT-IR27 spectrometer using KBr optics. NMR spectra were recorded on a BRUKER DRX- 400 MHz spectrometer in DMSO-d_6 and δ values are expressed in ppm using tetramethyl silane (TMS) as an internal standard.

General procedure for the synthesis of spiro[acridine-9,3'-indole] 2',4,4'(1'H,5'H,10H)-trionederivatives:

A mixture of dimedone (2 mmol), amine (1 mmol) and isatin (1 mmol) was added to a 50ml RB flask containing 10 ml ethanol: water (1:1). Then the resulting solution was stirred at room temparature for the appropriate times (Table 2). After completion of the reaction as monitored by TLC, the solid products obtained were filtered and washed with water. The crude products were recrystallized from hot ethanol to obtain pure spiro[acridine-indole]-trione derivatives.

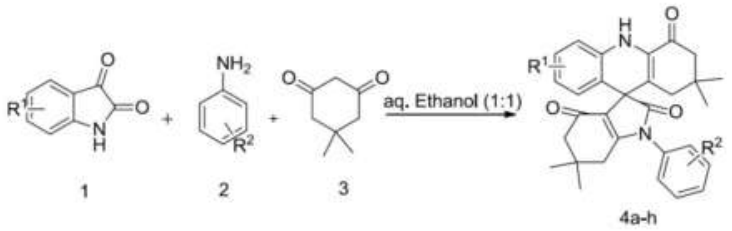
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ISBN 978-93-86712-63-9

6-methoxy-2,2,6',6'-tetramethyl-1'-phenyl-2,3,6',7'-tetrahydro-1*H*-spiro[acridine -9,3'-indole]-2',4,4'(1'*H*,5'H,10*H*)-trione (4b): White solid; yield 0.2 g (72%); mp: 260-262 °C; ^{1}H NMR (400 MHz, $CDCl_3$): δ 8.72 (s, 1H, NH), 6.71-7.30 (Ar-H, 7H), 3.88 (s, 3H, -OCH3), 3.48 (S, 3H, -OCH3), 2.43 (S, 2H, -CH_2), 2.20 (S, 2H, -CH2), 2.16 (S, 2H, -CH_2), 1.68 (S, 2H, -CH_2), 1.10 (S, 12H, -CH3). ^{13}C NMR (100 MHz, $CDCl_3$): δ 202.36, 195.46, 181.19, 169.54,141.80,133.55, 127.74, 125.51, 120.71, 114.67, 111.23, 100.23, 60.50, 55.58, 48.01, 46.81, 43.28, 33.08, 31.60, 29.13, 27.01.

RESULTS & DISCUSSION

In the present study, to investigate the effect of reaction media, we have employed different solvents for the model reaction with isatin, dimedone and 4-methoxy aniline. In order to obtain a high yield of the product in a shorter reaction time, the degree of the polarity of the reaction medium was optimized by the addition of ethanol as a co-reaction medium with water in different concentrations



Scheme 1. One-pot synthesis of spiro [acridine-9,3'-indole]-trione.

Table 1. Optimization of suitable solvent systema

Entry	Solvent	Temp (°C)	Time (min)	[b]Yied (%)
1	Ethanol	80°C	35	65
2	Water	80°C	40	54
3	Glycerol	80°C	30	72
4	Ethanol:Water(1:1)	80°C	35	85
5	Methanol:Water(1:1)	80°C	30	82

[a] Isatin (1 mmole), aryl amine (1 mmole), dimedone (2 mmole) and solvent (10 ml) 80°C.

[b] Isolated yield

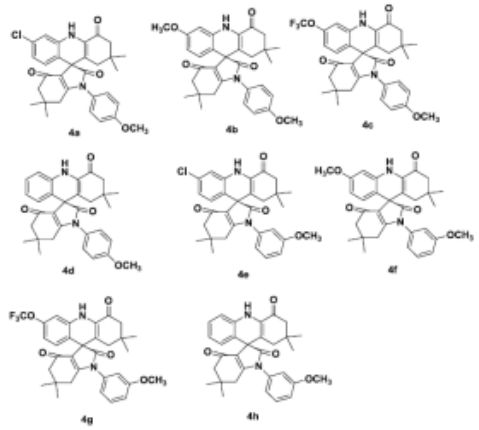
We have synthesized the spiro[acridine-indole] derivatives by a newer methodology. With the optimized reaction conditions in hand, we have investigated the scope of the reaction with respect to various isatins andaryl amines (Table 2). The reactions were carried out with isatins (1), aryl amines (2) and dimedone (3) to give the corresponding products (4a-h) which were confirmed by FT-IR, 1H NMR , 13C NMR spectroscopic techniques.

ISBN 978-93-86712-63-9

Table 2. Synthesis of spiro[acridine-9,3'- indole]-trione derivatives.

Entry	R^1	R^2	Time(min)	Product4(a-h)	[b]Yield(%)
1	5-Cl	4-OCH3	35	4a	85
2	5-OCH3	4-OCH3	35	4b	72
3	5-CF3	4-OCH3	35	4c	74
4	H	4-OCH3	35	4d	78
5	5-Cl	3-OCH3	35	4e	81
6	5-OCH3	3-OCH3	35	4f	70
7	5-CF3	3-OCH3	35	4g	80
8	H	3-OCH3	35	4h	75

aReaction condition: isatin (1 mmol), arylamine(1mmol), dimedone (2 mmol), ethanol:water (1:1, v/v) stirred at 80°C, bIsolated yield.



CONCLUSIONS

In conclusion, we have described a four-component reaction for the synthesis of spiro[acridine-indole]-triones in good yields, with an energy-efficient simple procedure under greener condition.

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ISBN 978-93-86712-63-9

INTERNATIONAL CONFERENCE ON ADVANCED MATERIALS CHEMISTRY AT THE INTERFACES OF ENERGY, ENVIRONMENT AND MEDICINE

(AMCI - 2019)



EDITOR

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40.	A green synthesis of nitrogen rich aceanthrylene derivatives from isatin under catalyst-free conditions Nangagoundan Vinoth[a] And Appaswami Lalitha[a,*]	143
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International Conference on Advanced Materials Chemistry at the Interfaces of Energy, Environment and Medicine AMCI-2019

ISBN: 978-93-81402-64-1
2(143-146)2019

A green synthesis of nitrogen rich aceanthrylene derivatives from isatin under catalyst-free conditions

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Abstract

A facile and convenient synthetic protocol has been developed for the synthesis of 2-phenyl-2,3,5,6-tetraazaaceanthrylene-1,4(2*H*,5*H*)-diones via a one-pot, three component reaction of barbituric acid, aryl amine and isatin in aqueous ethanol as an efficient green solvent system.

Keywords Multicomponent reaction, Green synthesis, Isatin, Tetraazaaceanthrylene

Introduction

Polycyclic aromatic hydrocarbons (PAHs) and their heterocyclic analogues possessing π-expanded structures are having great significance in the field of organo electronics. Most of the work in this area focused on linear heteroacenes.[1-4] The nitrogen containing heterocycles are significantly found in several naturally occurring plant materials and in medicinal chemistry[5,6] due to their vast biological applications.[7]

Result and discussion

A model reaction with barbituric acid (1), 4-chloroaniline (2a) and isatin (3) was screened with various solvents such as glycerol, methanol, ethanol:water at 80°C, among which the ethanol:water system was found to be the most suitable medium on the basis of yield of the product and reaction time (Table 1, entry 4).

International Conference on AMCI-2019 Jan 30-31,2019
Published by Department of Chemistry
Manonmaniam Sundaranar University,Tirunelveli,Tamilnadu,India.

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IMPACT OF CLIMATE CHANGE ON WATER RESOURCES

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Conference Abstracts



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Title	: **Impact of Climate Change on Water Resources**
Editors	: **S. Anbazhagan, A. Jothibasu, S. Uma Maheswaran**
Language	: English
Edition	: First Edition 2018
Pages	: 126
Paper	: 70 Gsm Maplihto Paper
Size	: Royal Octavo
Published by	: **Vasagan Publication,** Salem
ISBN	: **978 - 93 - 83188 - 79 - 6**
Authour Addr ess	: **Prof. Dr. S. Anbazhagan** Professor and Director, CGIPS, Periyar University, Salem - 11 Mobile : 94430 45889, E-mail : anbu02@gmail.com **Dr. A. Jothibasu** UGC Post Doctoral Fellow, CGIPS, Periyar University, Salem - 11 **Dr. S. Uma Maheswaran** Research Associate, CGIPS, Periyar University, Salem - 11
Design / Printed by :	**Kaandhal Acchuk Kalaiyagam** 19/3, Perumal Koil Street, Salem - 636 004. Mobile : 99436 76060

Climate Change and Impact of Drought on Crop Plants - A Review

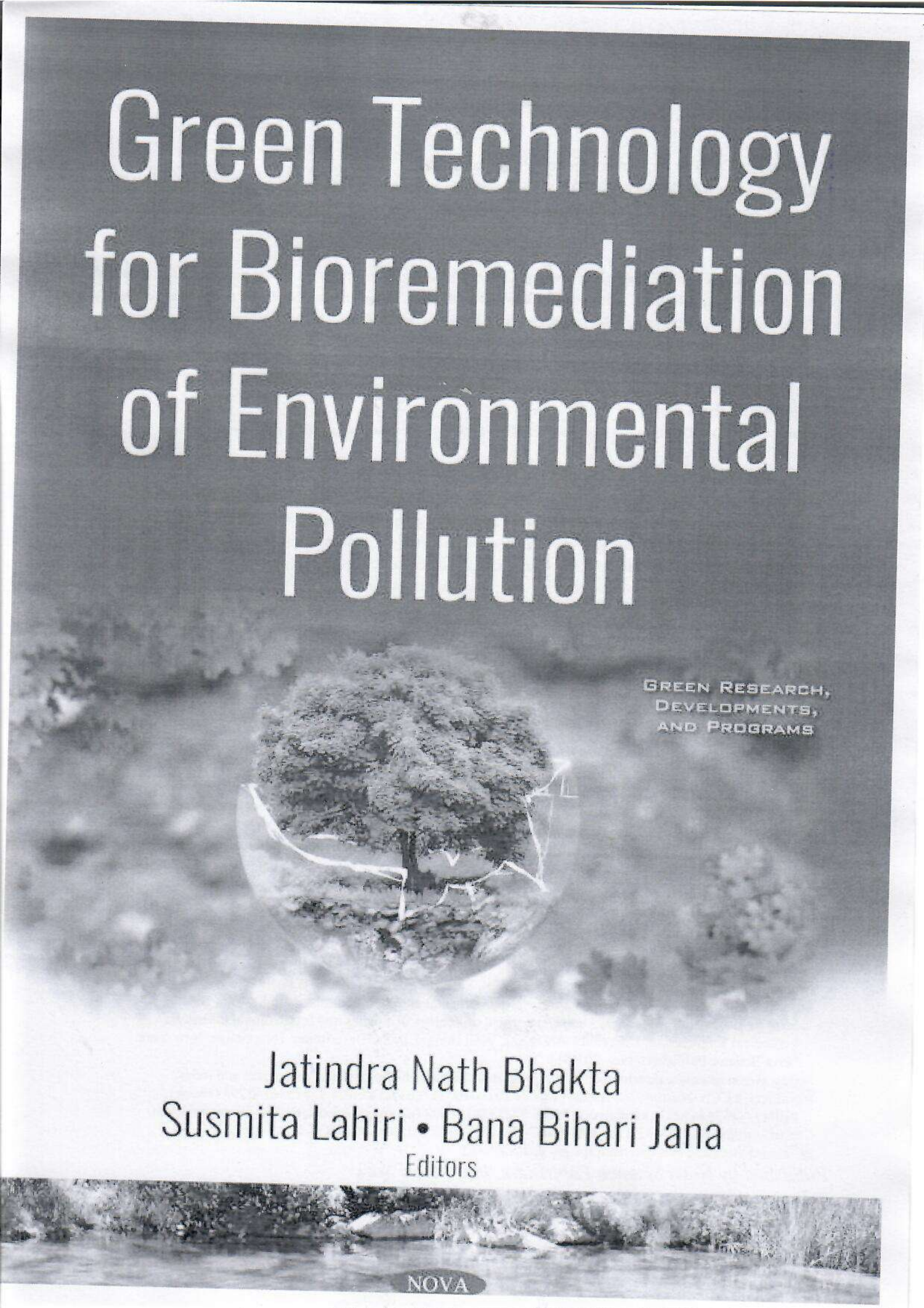
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Climate change is very likely to affect food security at the global, regional, and local level. Climate change can disrupt food availability, reduce access to food, and affect food quality. Increases in drought, temperature, precipitation changes in extreme weather events, and reductions in water availability may all result reduced agricultural productivity. Crops yield is required to meet the needs of future population growth, but drought causes significant yield reductions for rain fed and irrigated crops. Water deficit resulting from drought reduces crop yield because of its negative impacts on plant growth. Drought is a major problem in arid and semi-arid regions, which is the primary cause of crop loss worldwide, reducing average yields for most of the crops. Drought stress because of insufficient rainfall or deficient soil moisture might induce various biochemicals, physiological and genetic responses in plants, which severely restricted crop growth. Many regions, such as Europe, South Asia, Australia, and North America, have experienced impacts of drought. The key concept of this review is there is a need for regular revision and updating taking the prospects of future climate change into consideration, especially the impact of temperature extremes on the yield of agricultural crops to feed alarming population in future. In the present review, climate change induced drought and its impact on crop yield and loss, water table in ground level have been discussed.

Key words : Climate change, Drought, Geographic zone, Crop yield.

Green Technology for Bioremediation of Environmental Pollution



GREEN RESEARCH, DEVELOPMENTS, AND PROGRAMS

Jatindra Nath Bhakta
Susmita Lahiri • Bana Bihari Jana
Editors

NOVA

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Additional color graphics may be available in the e-book version of this book.

Library of Congress Cataloging-in-Publication Data

Names: Bhakta, Jatindra Nath, 1972- editor. | Lahiri, Susmita, editor. | Jana, B. B., editor.
Title: Green technology for bioremediation of environmental pollution / editors, Jatindra Nath Bhakta, Susmita Lahiri andBana Bihari Jana, Department of Ecological Studies and International Centre for Ecological Engineering, University ofKalyani, West Bengal, India. Description: Hauppauge, New York : Nova Science Publisher's Inc., [2018] |
Series: Green research, developments, and programs | Includes bibliographical references and index.
Identifiers: LCCN 2018044362 (print) | LCCN 2018046054 (ebook) | ISBN 9781536145298 (ebook) | ISBN9781536145281 (hardcover) | ISBN 9781536145298 (ebook). Subjects: LCSH: Bioremediation.
Classification: LCC TD192.5 (ebook) | LCC TD192.5 .G74 2018 (print) | DDC 628.5--dc23
LC record available at https://lccn.loc.gov/2018044362

Published by Nova Science Publishers, Inc. † New York

In: Green Technology for Bioremediation ... ISBN: 978-1-53614-528-1 Editors: Jatindra Nath Bhakta, Susmita Lahiri et al. © 2019 Nova Science Publishers, Inc.

Chapter 9

REMEDIATION POTENTIAL OF AGRICULTURAL PLANTS IN WASTE DUMPS OF MAGNESITE MINES:A GREEN REMEDIATION TECHNOLOGICAL APPROACH

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ABSTRACT

The processed mines wastes are contains metal elements, which can create soil pollution. Hence a greenhouse experiment was performed to study the phytoremediation efficiency of crops (*Vigna radiata, V. mungo, V. unguiculata, Eleusine coracana, Cajanus cajan, Pennisetum glaucum, Macrotyloma uniflorum, Oryza sativa, Sorghum bicolour, Sesamum indicum, Ricinus communis, Brassica juncea, Gossypium hirsutum* and *Jatropha curcas*) on waste dump of magnesite mine, it contains impermissible limits of two heavy metals i.e., Cd (2070 mg/kg) and Pd (443 mg/kg). The results of total biomass value of crops obtained from mine soil was almost similar to crops from adjacent soil and the output of phytochemical analysis showed average amount of chlorophyll a&b (2.8 to 10 mg/g), carbohydrate (7 to 175 mg/g) and protein contents (100 to 400 mg/g) in mine soil similar to adjacent soil. Out of 14 crops, *V. ungiculata, O. sativa, S. bicolour, S. indium, R. communis M. uniflorum, G. hirsutum* and *J. curcas* was moderately observed Cd and Pb followed by others. Subsequently, the crops from farm soil also had a few quantities of metals (Cd and Pb), which confirms that they polluted from mine waste. The values of metal tolerant index, metal transfer factor, translocation factor and MREI index are indicated that these crops are fairly fine for metals extraction and it may be suitable for phytoextraction process.

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ABOUT THE EDITOR



Dr. G. Hema is currently working as an Assistant Professor in the Department of Education at Periyar University, Salem, Tamil Nadu, India. She has got rich teaching experience of 20 years, as teacher, Lecturer, and Principal in reputed institutions of schools and colleges of Teacher Education. She has published 2 books and contributed more than 50 articles in National and International Journals and papers presented in seminars/conferences from international level to regional level. Under her guidance, one scholar was awarded with Ph.D and nine pre-doctorate scholars are currently pursuing. 14 scholars were awarded with M.Phil. Her areas of interest are Cognitive Psychology and Educational Technology. She is a life member in AIAER and S.R.S.D. Memorial Shiksha Shodh Sansthan, Agra, UP. She is an editor of Maha Journal of Education, The Kongu Regional Educational and Research Foundation, Salem. She is an active reviewer of Universal Journal of Educational Research of Horizon Research Publishing Corporation, USA, i-Manager's publications and JETIR. She is honoured with Best Teachers Award and a special award, the Best NSS Programme Officer for her meritorious and commendable contributions in the field of Education and Social activities.

Published by
L ORDINE NUOVO PUBLICATION
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ISBN 938678297-9
9 789386 782977

2019

Learning Disability: Assessment, Diagnosis and Cognitive Scaffolding

Learning Disability: Assessment, Diagnosis and Cognitive Scaffolding







Editor
Dr. G. Hema

PERIYAR UNIVERSITY

NAAC 'A' Grade – State University – NIRF Rank 68
Salem – 636 011, Tamil Nadu, India.

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Salem – 636 011, Tamil Nadu, India.

Book Title : **LEARNING DISABILITY: ASSESSMENT, DIAGNOSIS AND COGNITIVE SCAFFOLDING**

Editor : **Dr. G. HEMA**
Assistant Professor
Department of Education
Periyar University
Salem, Tamil Nadu, India

Book Subject : Education
Book Category : Edited Volume
Copy Right : Editor
First Edition : October 2019
Book Size : B5
Paper : 21 kg, Maplitho NS
Price : Rs.500/-
Published by : **L ORDINE NUOVO PUBLICATION**
E-mail: crrpspublication@gmail.com
www.nuovopublication.com
Mobile: 9944212131.

ISBN Supported by
Raja Ram Mohan Roy National Agency for ISBN, New Delhi – 110066 (India)

ISBN: 978-93-86782-97-7



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FOSTERING MATHEMATICAL PROBLEM SOLVING COMPETENCE THROUGH METACOGNITIVE STRATEGIES

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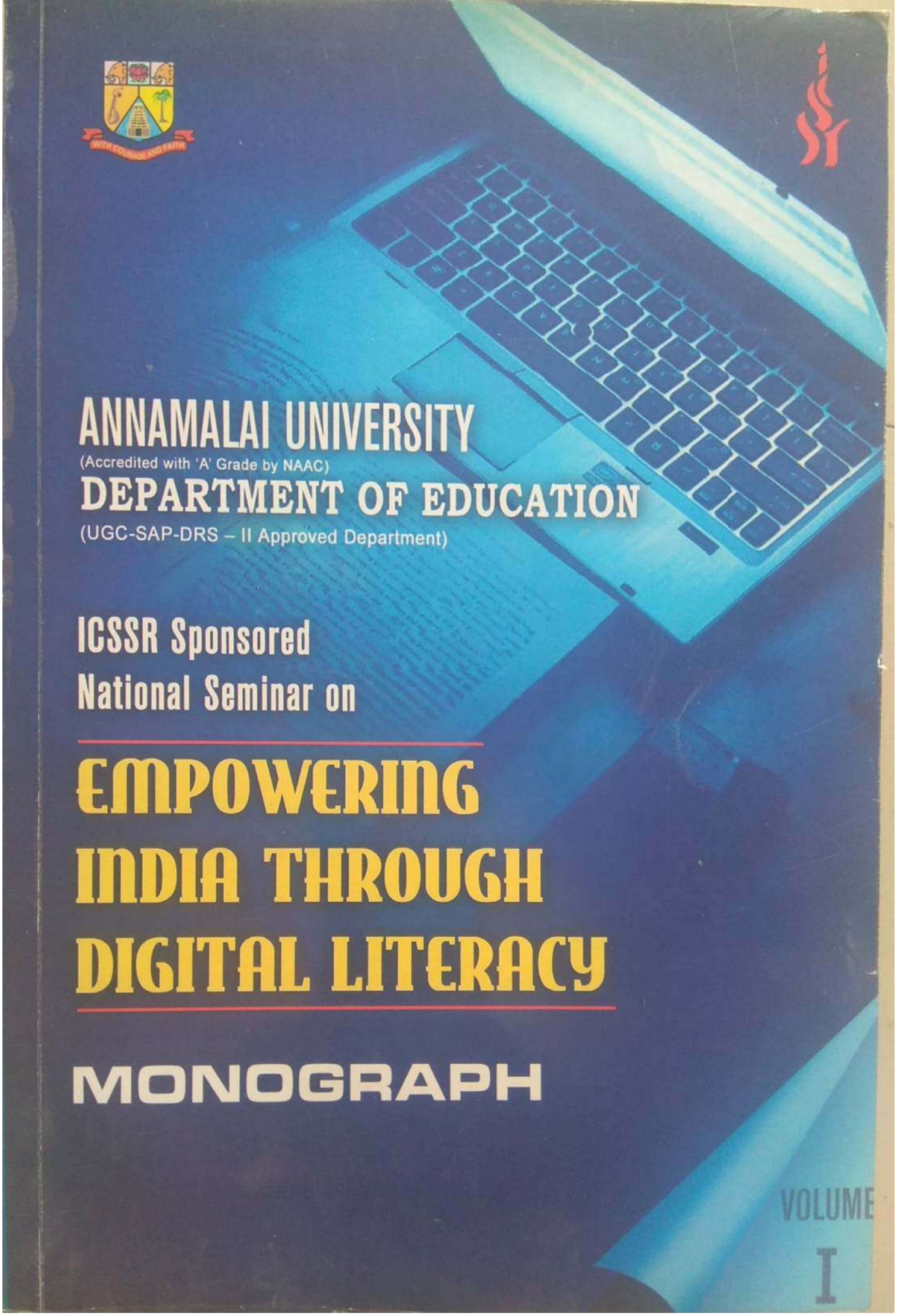
Abstract

Problem solving is thinking about the relationship between mathematical ideas,doing a mathematical activity, and as a result can stimulate higher order-thinking and divergent thinking in students which are intended in mathematics' learning outcome. Metacognitive strategies are chronological processes that one practices to control cognitive activities, and to ensure that a cognitive goal has been met. These processes help to regulate and consist of planning and monitoring cognitive activities, as well as checking the outcomes of those activities. However, the majority of studentsroutinely obtain metacognitive knowledge and skills from their teachers, metacognitive strategies instructions demand to enhance metacognition and learning in a wide spectrum of students, particularly low achievement learners. Problem solving and metacognitive activities involve learners in specific learning process by shifting of responsibility generating new problem and reformulating given problem from teachers to students. In this esteem, teachers as facilitators of learning must be able to create tasks with suitable situations which engage their students in problem solving activities and improve them. Therefore, this article describes an innovation in teaching and learning through problem solving tasks and metacognition strategies. In this connection,in order to active of metacognition skills, educators can change the learning environment and provide new and alternative tasks that help pupils to think about focuses. It can be recommended implementing problem solving and metacognitive activities in the classrooms, due to can facilitate successful learning and establish high levels of emotional support and trust between the teacher and students.

Keywords: *Metacognitive strategies; Problem solving task; Mathematics education; Teaching and learning; Higher order-thinking.*

Introduction

Problem solving task is a natural tendency for all people; so that human characteristic inquiry has controlled him to revolve his life by generate novel, original, resourceful problems, solutions and techniques. Most significant, this curious capacity can be cultivated and developed by preparing teaching- learning materials to valid tasks that can transmit on with a certain degree of expectancy, new ideas, fresh discoveries, and deepened interests (Ghasempour, Bakar, &Jahanshahloo, 2013). In this respect, it is essential a novel trend in mathematics activities, so that students are asked to formulate problems from given situations and create new problems by modifying the conditions of a given problem. In the other word, appropriate problem solving or guessing activities should be associated in mathematics classrooms to enrich relevant assignments. In this tactic, mathematicians' tasks were never finished, because it is almost always possible to generate further problems when looking back at the original problem or its solution.



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VOLUME I

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ISBN 978-0-359-52763-2



Published by
Lulu.com
3101, Hillsborough St.,
Raleigh, NC 27607,
United States.

DEPARTMENT OF EDUCATION
Annamalai University
Annamalainagar-608002
Ph.No:04144-238282 extn:389
Website: www.auteachereducation.org
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ISBN 978-0-359-52763-2

Techno Medium for Inclusion Of Learners With Adhd In Special Needs

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Abstract

Technology is commonly incorporated into educational programs and practice to facilitate learning for students of all abilities across all grade bands. As focused sort are offered within majority products, students with disabilities are increasingly able to interact with classroom technologies and teachers are increasingly able to modify content for varying students' needs or preferences. Additionally, innovative technology uses and learning applications specifically for students with disabilities emerge daily from researchers, curriculum developers, teachers, parents and even students themselves. These factors are causative to a national exchange of ideas on changes in policies and instructional methodologies that can affect when and how technology is used in special education. While digital tools can help students stay on task, improve focus, and increase assignment completion, it is important to monitor students to confirm they are actually concentrating and learning from the app or device. There is the possibility that students are using their devices for non-learning related activities. The technology should be enabling students to connect with their lessons, stay organized, and perform academic skills.

Keywords: Attention deficit hyperactivity disorder, Inclusive learners, Individualized Education Programme, Learning Apps, and Academic Skills.

Introduction

The learning of science seeks to be aware of the relationship between brain development, social interaction, and learning by drawing on the fields of psychology, neuroscience, machine learning, and education. This learning holds great secure for improving our teaching practices for all students and helping us develop more effective approaches to teaching children with sensory and learning disabilities. A lot of universal devise kind built into hardware and software offer simple but powerful ways to support diverse learners' needs, both in classrooms and at home. This document provides a general idea of learning technology policy and practice with concrete examples of how teachers, students, and parents can use technology to make a difference for students with sensory and learning disabilities.

ADHD

Students with ADHD have a chronic, long-term disorder and experience symptoms of inattention and impulsivity across settings, though their symptoms may be most apparent at school because of the structure and expectations within that environment (Friend, 2011). These students are also more likely to demonstrate academic problems that significantly impact their success in the classroom (Reid, 1999). Because of the substantial impact of the disorder on educational performance, over 50% of students with ADHD qualify for special education services under IDEA, most frequently in the Other Health Impairment (OHI) grouping as a disability under Section 504 (Reid, 1999). Moreover, a substantial number of students with ADHD qualify for services under learning or emotional disabilities (Reid, Maag, Vasa, & Wright, 1994). Children who qualify for services under IDEA are provided with an Individualized Education Program (IEP). The IEP describes the impact of the disorder on the student's performance, the specific learning problems manifested, and how these will be addressed through specially designed instruction and supplementary aids and services to increase access to the general education curriculum (Friend, 2011). Nonetheless, it is important to emphasize that ADHD is not an exclusively special education issue; in fact, most students with ADHD will be educated in the general education

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ONE DAY NATI[illegible]INAR ON
PERSPECTIVES IN [illegible]CHER EDUCATION
(PTE - 2019)

978-81-923575-7-7

ISBN 978-81-923575-7-7

MNEMONICS: A DEVICE FOR REMEMBERING

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Abstract:

Mnemonic instruction is a way to help students remember information more effectively and easily. It involves linking unfamiliar to be learned information with familiar already known information through the use of a visual picture or letter/word combinations. The use of mnemonics instruction with students at the secondary level had been of particular interest as secondary-school students, specifically those with disabilities, are particularly at risk in academic settings. Mnemonics are effective when they speed up learning, reduce confusion among similar items, and enhance long-term retention and application of the information.

Key words: *Mnemonics Instruction. Secondary level and Long-term retention.*

Introduction

Mnemonic strategies are systematic procedures for enhancing the memory and making information more meaningful. Their particular use is in developing better ways to encode information so that it will be much easier to retrieve and remember the information. Although there are many different retrieval strategies that can be implemented to retrieve forgotten information, research has demonstrated that the way information is initially encoded facilitates memory and the recall of this information better (Ananthi & Raja, 2015; Akinsola & Odeyemi, 2014). The fundamental aspect in developing mnemonic strategies is to find a way to relate new information to information that is already in the long-term memory of students. If this connection can be made, the memory of this information has the potential of being remembered for a very long time. Mnemonics instruction with school age students is commonly implemented as an instructional strategy for teaching word recognition and vocabulary (Akinsola & Odeyemi, 2014). The effectiveness of the use of these strategies is well documented. Research shows that students, including secondary and college level, remember 2 to 3 times as much factual information (Kumar, 2014; Ananthi & Raja, 2015; Maghy, 2015; Nja et al., 2017; Hema, 2014; Koksal et al., 2013), maintain information over delayed recall periods, and enjoy using them. Other research findings "provide evidence that instruction involving the use of mnemonic devices does enhance a student's formal reasoning skills and that this has the potential for application of knowledge to more varied tasks" (Laing, 2010). In addition, "the use of mnemonics with college age students might have enough potential for making learning easier and possibly more fun" (Higbee, 1994).

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Perspectives in Teacher Education (PTE-2019) *ISBN 978-81-923575-7-7*

COMPUTERIZED TEST IN COMPETITIVE EXAMINATION

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INTRODUCTION

Education is important among all of us. Education plays a very important role in our life. For living an opulent life or for living a more robust life, we must always be educated. Education is that which transforms a person to live a better life and even in a social wellbeing. Education is the one that doing something constructive in our close to future. It helps someone to point out their best by their mind and spirit. It gives we a lot of knowledge in whatever aspects. Education plays a vital role in individual success in the personal growth. A person who gets good education will come to be good citizen, more dependable worker. Wanting education a person is incomplete, so education makes man a right thinker and a correct decision – maker.

COMPUTERIZED TEST

In today's world the learning capability is judged by means of examinations. Examinations are very important in judging one's personality. Thus, the necessity of exams today in universities, schools, colleges and even companies for recruitment purposes. The general paper- pen tests/exams are now slowly being replaced by the computerized testing system. Computer based testing is already used successfully for military training exams, job application exams in the private sector, state drivers' license exams, entrance exams into postsecondary educational institutions, and certification exams by professional groups (Bridgeman, 2009; Clariana & Wallace, 2002).

Today, there is nothing that the internet could not do. Read the news, browse e-shops, shopping, etc., followed by online ordering, online restaurants, and online bidding, all of which have awed its precedents, along with the most recent and happening online classes. In the future, neither will students be required to go to school for classes nor teachers be required to go to school to teach. Based on the inconsistency of research results and the many still unanswered questions surrounding the comparability of computer-based and paper-and-pencil tests, Lee (2009) suggested that the transition from paper-and-pencil to computer-based tests be made cautiously.

NEED FOR COMPUTERIZED TEST

Computer-based tests can be adapted to individual students' ability levels. Computer- adaptive tests adjust item difficulty based on students' responses to previous items. Incorrect responses evoke less difficult items, while correct responses evoke

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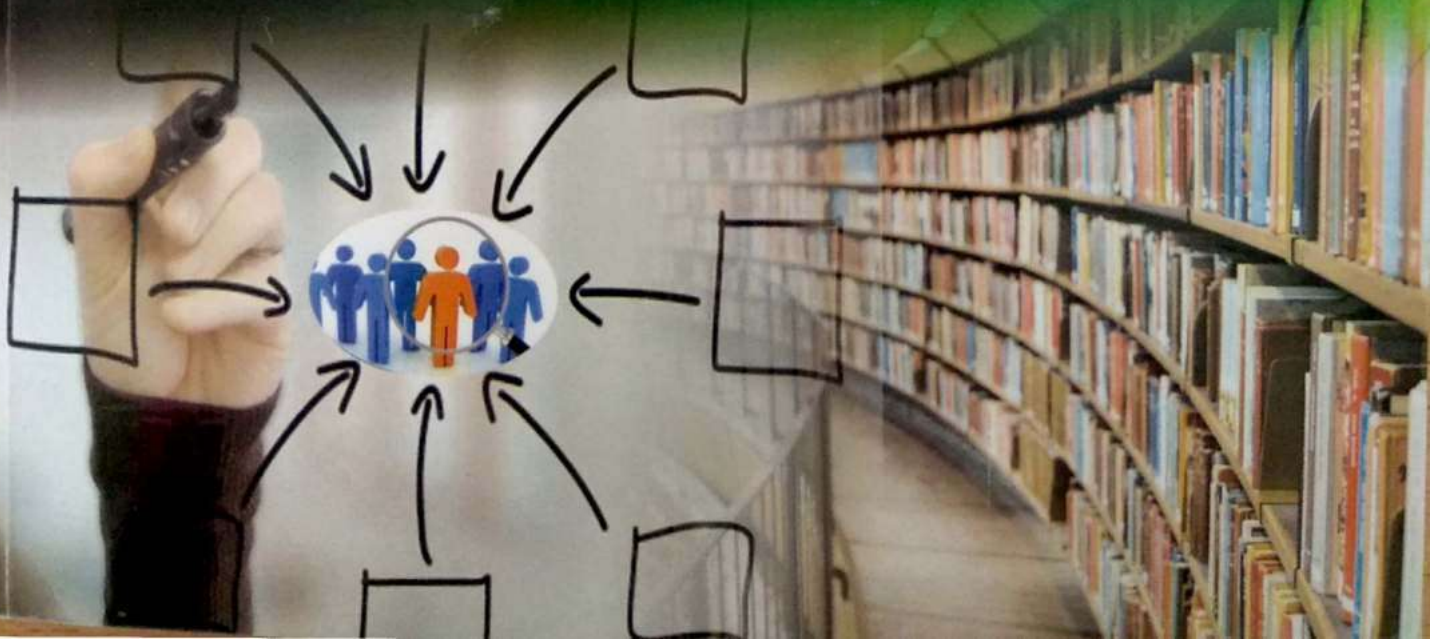
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ONE DAY NATIONAL SEMINAR ON PERSPECTIVES IN TEACHER EDUCATION (PTE - 2019)



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978-81-923575-7-7

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 ISBN 978-81-923575-7-7

TEACHER'S PERSPECTIVE ON ADHD CLASSROOM

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Abstract:

In current years, our awareness of these difficulties in young children has increased, and the need for teacher training appears to be more urgent now than ever before. School is challenging for the ADHD Student, the parents and the teachers. The accent of equally body and voice is the most noticeable and can be the most problematic for teachers. A child's require moving feet, hands, and body while seated or standing can be disturbing to others. The continuous "calling out" or interrupting can be provoking. Shrill noises produced by a child make it difficult for the other children to concentrate, and the need for constant teacher attention can be exhausting. This constant movement and the need for immediate feedback can be exacerbated by other general behaviour issues, such as the inability to handle change or manage frustration without an eruption. Once an explosion occurs, it can be extremely difficult to calm the child and help him or her move on with the day.

Key words: ***ADHD, Behavioural issues, Neurodevelopment disorders and attention issues.***

Introduction

Children expend of their time in classrooms and other school settings. Now they are expected to follow rules, behave in socially suitable ways, participate in academic activities and refrain from disrupting the learning process or activities of others. Teachers perform not single have to teach learners the skills and knowledge that form part of the curriculum but they also have to teach them to behave in a manner that meets organizational, cultural and social expectations. However, the work of the teacher becomes much more demanding when there are learners in the classroom that have Attention Deficit Hyperactivity Disorder (ADHD). Their struggle with attention span, impulse control and activity level frequently interfere with both classroom and social activities (Barkley, Murphy & Fischer, 2008; DuPaul & Stoner, 2003).

Strength for work is also a massive concern for students with attentional difficulties. These children regularly don't terminate assignments on time, but they drain easily while implementation unique household tasks. Homework can be not on time and is a lot careless and unorganized. Assignments that require independent motivation pose particular challenges, and ones that are not "favourites" may be very difficult for the child to tackle. Writing is often the most challenging task of all. The

Scanned by CamScanner

Digital Education

Editor

Mr. Ajithkumar C.

A.P.H. Publishing Corporation
4435–36/7, Ansari Road, Darya Ganj,
New Delhi-110002

Published by
S.B. Nangia
A.P.H. Publishing Corporation
4435–36/7, Ansari Road, Darya Ganj,
New Delhi-110002
Phone: 011–23274050
E-mail: aphbooks@gmail.com

2019

© Editors

Typeset by
Ideal Publishing Solutions
C-90, J.D. Cambridge School,
West Vinod Nagar, Delhi-110092

Printed at
BALAJI OFFSET
Navin Shahdara, Delhi-110032

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An Overview of Multimedia Technology in Mathematics Education

Mr. R. Rajkumar* and Dr. G. Hema**

Abstract

An effective method for teaching and delivering the content in classrooms is with the help of technology like multimedia. Multimedia is the integration of various medias such as text, sound, graphics, animation and video and are powerful tools for knowledge construction and self-assessment. Effective multimedia recognizes that working memory has a limited capacity to process information. Using multiple channels like audio and visuals increases the overall amount of information the brain can process. Generally, texts may be challenging to process, but with the involvement of both the visual and auditory channels makes it easier. It is recognized that long-term memory organizes information into meaningful chunks called schema. Presenting information in a way that makes use of existing organizing structures (schema) or that helps students organize the information can greatly assist the learner in incorporating information into long term memory. Multimedia also encourage students to feel part of a group, to reflect on their feelings and beliefs about mathematics, to expose students to authentic problem solving and generally build confidence through practice and self-assessment. Evaluation of the resources indicates that it encourages students to value their own mathematical ability and helps to build confidence, while developing mathematical problem-solving skills. The evaluation demonstrated that it is possible to address the affective domain through multimedia instructional strategies and this can complement the primary method of delivering mathematical concepts and promoting problem solving in mathematics.

Keywords: Multimedia Technology, Animation, Video, Instructional Design, Problem solving Competence.

INTRODUCTION

The application of multimedia and network technology in higher education is a reform in the field of education in the twenty-first Century. As a kind of new and advanced teaching mode, multimedia teaching is challenging to the traditional teaching mode (Zhao, 2016). Mathematics has been considered as a difficult subject to master by the students at all levels from primary to University. Students who have low aptitude for mathematics typically as result of their own perception on the difficulty of mathematics or students who have been discouraged by the lecturers who are unable to deliver the subject matter due to lack of teaching skills in an eloquent manner will eventually lose interest in mastering mathematics (Shafie, Shahdan, & Liew, 2010). In recent times many scholars have recommended that all courses be redesigned on a national or international scale based on the characteristics of the multimedia environment (Yuliang Liu, 2004; Bork, 1992; Confrey, 1996; Cuoco & Goldenberg, 1996). However, efficient multimedia integration into the current mathematics instruction has yet to be incorporated in the schools and colleges (Neuwirth, 2002; Robertson, 1998).

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The creation and development of a multimedia version of present elementary mathematics curricula will follow Mayer's (2001) multimedia design principles described beforehand. All content areas in the elementary mathematics curriculum will be examined for adding suitable multimedia components (Liu, 2004). The design and development of such multimedia curriculum will be based on the principles and standards for school mathematics from the National Council for Teachers of Mathematics (NCTM, 2000; Yuliang Liu, 2004). (Cardenas Cantos, Lopez Izquierdo, & Cardenas Cantos, 2016) article presents an Interactive Multimedia Application developed as an alternative support for education professionals and students of engineering grade in which it requires to make use of different branches of mathematics, with specific focus on analytic geometry, allowing greater agility and quickness on the understanding abstract concepts. This interactive multimedia application was developed through the study of various didactic methods and teaching and learning resources used in the classroom and that lead to loss of motivation by part the students to assimilate meaningful learning topics; Therefore, the main learning objective for students is "to learn how to solve real application problems" in Mathematics. Constructivists also claimed that students should discover and build upon their own knowledge. Hence, the mathematics learning process should be active and meta-cognitive. Teachers should bridge the gaps between learning mathematical knowledge and solving real world problems (Hwang & Chen, 2007).

Solving a math problem is more than just filling the blank in a test. Students need to form good expressions in elaborating their solutions. Researches pointed out that good student representation skills are the key to acquiring a successful solution in problem solving in Mathematics. Multimedia lessons should be developed on sound multimedia learning principles (Mayer, 1992, 2001). These principles are of course subject dependent, and in the case of Mathematics may require the below topics (Kadijevich et al., 2006): (1) develop multimedia lessons by at least combining words and pictures; (2) achieve a solid technical realization; (3) show the underlying mathematical structure of the chosen topic; (4) present its applications; (5) enable various learning paths within it; and (6) deal with relevant procedural and conceptual mathematical knowledge and the links between the two. While principles (1) and (2) are self-explanatory and probably required by any multimedia design manager, principles (3) – (6) are derived from Kadijevich (1988), Haapasalo & Kadijevich (2000) and Kadijevich (2003). Multimedia has been one of the most well-known and effective training tools and was referred to as the technological wave of the future. Thus, the present paper seeks to evaluate the effects of multimedia in Mathematics education.

THEORETICAL ESTABLISHMENT OF LEARNING THROUGH MULTIMEDIA TECHNOLOGY

Multimedia technology learning setting is a new pattern for learning. This is especially true for Mathematics learning. The computer exaggerated Mathematics education is misrepresented the Mathematics curriculum, the teaching of Mathematics, and even the way Mathematics was learned (Yuliang Liu, 2004). Mayer (2001) based the majority of his recent multimedia work on an integration of Sweller's cognitive load theory (1988, 1999), Paivio's dual coding theory (Clark & Paivio, 1991; Paivio, 1986).

APPROACHES OF MULTIMEDIA BLUEPRINT

The two approaches of multimedia plan are: technology-centered approach and learner-centered approach. The technology-centered approach typically starts with the functional

capabilities of multimedia and focuses on the incorporation of multimedia into rising communication technologies (Yuliang Liu, 2004). According to research (Cuban, 1986; Cognition and Technology Group at Vanderbilt, 1996a), the technology-centered approach not lead to tough improvements in education. Thus, the multimedia research focused on another important theoretical substitute the learner-centered approach. The learner-centered approach typically starts with how the student mind processes information and focuses on how to use multimedia technology as an assist to enhance their cognition and learning. The learner-centered approach supports the idea that students process information more successfully if the multimedia aim is consistent with the way the student mind works.

IDEOLOGY OF MULTIMEDIA DESIGN

Mayer (2001) proposed seven multimedia design principles: (i) Multimedia: Students learn better from two or more types of media such as words and pictures rather than from words alone (Yuliang Liu). (ii) Spatial Contiguity: Students learn better when corresponding words and pictures are presented close to each other rather than far apart on the page or screen. (iii) Temporal Contiguity: Students learn better when corresponding words and pictures are presented simultaneously rather than successively. (iv) Coherence: Students learn better when extraneous words, pictures, and sounds are excluded rather than included. (v) Modality: Students teach better from animation and narration than from animation and on-screen text. Thus, multimedia presentations involving both words and pictures should be created using auditory or spoken words, rather than written text to accompany the pictures. (vi) Redundancy: Students learn better from animation and narration rather than animation, narration, and on-screen text. Thus, multimedia presentations involving both words and pictures for the same content should present text either in written form or in auditory form, but not in both. (vii) Individual Differences: Design effects are stronger for low-knowledge learners than for high-knowledge learners, as well as for high spatial learners rather than for low spatial learners (Yuliang Liu). In all, this model provides instructional designers with a synopsis of the main factors that have to be considered when developing multimedia-based learning environments. Many other cognitive researchers like, Kumpulainen, Salovaara, & Mutanen, (2001); Leahy, Chandler, & Sweller, (2003) also suggest focusing on the design of instructional situations and pedagogical wires for multimedia technology-based learning.

PLAN AND DEVELOPMENT OF MULTIMEDIA TECHNOLOGY

The blueprint and development of such multimedia curriculum will be based on the principles and standards for school mathematics from the National Council for Teachers of Mathematics (NCTM, 2000). The project will also be based on the Analysis, Design, Development, Implementation and Evaluation (ADDIE) model (Yuliang Liu). The ADDIE model includes five components: (1) Analysis: Including analyzing the students' characteristics, learning tasks, and environments. (2) Design: Including writing course objectives, developing course outlines and determining effective multimedia liberation methods for each content chapter. (3) Development: Including course content by integrating multimedia (e. g., video clips, animation) and sound into mathematics instruction, such as content presentations, readings, tricks and assessments. (4) Implementation: delivering the multimedia instruction to the experimental student. (5) Evaluation: formative weekly or unit evaluation that is used to improve instruction during the multimedia instruction every week and yearly summative evaluation that measures the overall efficacy of the course at the end of each semester or academic year (Yuliang Liu).

SCIENTIFIC ASPECTS

The scientific aspects of the project are related to the following three areas:

1. Visualization applied to research activities such as differential geometry, nonlinear dynamics, and special functions.
2. Multimedia courseware for mathematics.
3. Electronic publications and databases for communicating mathematics (http://geom.mi.fu-berlin.de/projects/daad/overview.html).

Visualization in Research Activities: All participating groups are experts in differential geometry and many of them are developing and using interactive software. Therefore, geometry is a good starting field to bring new technology into the classrooms of south east Europe. Each participating group in south east Europe has proposed a set of topics to be investigated and visualized for university courses. Additionally, each group will apply the developed multimedia tools to their own field of expertise (Hwang, Chen, Dung & Yang, 2007; http://geom.mi.fu-berlin.de/projects/daad/overview.html).

Multimedia Courseware for Mathematics: Multimedia courseware is the heart of modern teaching material and remote learning projects. Early visualization tools required specialized hardware while modern web-based tools will be usable for all students from any place of the world including from home. It is development on well-known software components and adjust the modules to the specific needs of the scientific topics (http://geom.mi.fu-berlin.de/projects/daad/overview.html).

- Extension and translation to English of the electronic book “Analytic Geometry” developed within the previous project
- Development of electronic course material for teaching special functions
- Writing an e-book on modelling of chaotic dynamics using neural networks
- Interactive programs for visualization of geometric transformations and projections for teaching CAD and descriptive geometry
- Crystallographic groups in 2D and 3D, visualization of their orb folds and fundamental domains
- Courseware in elementary and differential geometry
- The developed courseware will simultaneously be used within regular university courses.

Electronic Publications and Databases for Communicating Mathematics: The developed courseware and electronic modules such as Java applets must be viewed within the scope of mathematical publishing. It will ensure that the developed material is reliable with long-term archiving and searching database and cooperation with mathematics will develop meta-tags for mathematical applets in the same way as it was done for electronic models.

Representation

The meaning of representation can be different in different contexts. There are external representations (real world) and internal representations (mind). In psychology, representation means the process of modeling concrete things in the real world into abstract concepts or symbols. Jonassen (2000) also interpreted mental models as complex mental representations composed of numerous kinds of mental components including metaphorical, visual-spatial, and structural knowledge.

In mathematical psychology, it means the description of the relationship between objects and symbols. Lesh, Post & Behr (1987) pointed out five outer representations used in mathematics education including real world object representation, concrete representation, arithmetic symbol

representation, spoken-language representation and picture or graphic representation. Among them, the last three are more abstract and a higher level of representations for mathematical problem solving:

1. Language representation skill – The skill of translating observed properties and relationships in mathematical problems into verbal or vocal representations.
2. Picture or graphic representation skill – The skill of translating mathematical problems into picture or graphic representations.
3. Arithmetic symbol representation skill – The skill of translating mathematical problems into arithmetic formula representations.

Some students favor visual or concrete representations, while others favor symbolic or abstract representations in mathematics education. Normally, students with good problem-solving abilities are those that can skillfully manipulate their representations (vocal), picture representation (picture & graphic) and formal representation (sentence, phrase, rule and formula). On the other hand, students with low problem-solving abilities are always having difficulty with translation and representation in problem solving. Furthermore, different students have different learning styles for acquiring knowledge. It is better for teachers to adopt different teaching strategies to promote students performing multiple representations in class, thereby enhancing learning performance (Hwang, Chen, Dung & Yang, 2007).

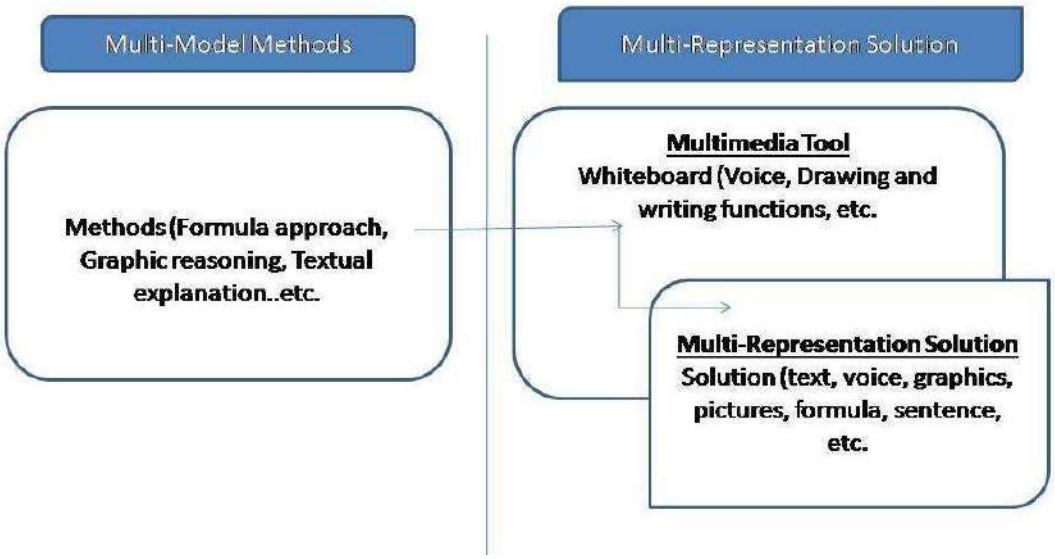


Fig. 1. Translation from multi-modal methods into multiple representation solutions

Creativity

Creativity means the cognitive skill of proposing a solution to a problem or making something useful or novel from ordinary. Guilford cited the paucity of creativity and imagination among all students, and encouraged the study of creativity. Creativity requires six distinct but interrelated resources: intellectual abilities, knowledge, styles of thinking, personality, motivation, and environment (Gerard, 1999; Lubart & Sternberg, 1996; Tennyson, 2002). The most prevalent creative problem-solving process was developed by Isaksen, Dorval, and Treffinger (2000). It consists of four components: Understanding the problem, Generating ideas, Preparing for action and Planning the approach

EMPIRICAL SUBSTANTIATION SUPPORTING THE MULTIMEDIA TECHNOLOGY IN MATHEMATICS EDUCATION

According to Hilton and Christensen (2002) study was conducted to assess the impact of multimedia lectures on student learning and attitudes; instruct the teachers in the techniques of animating equations and mathematical concepts in Flash. Also, the study assessed the acceptance of the technology by the teachers and to gauge its effectiveness in improving the quality of mathematics education (Bakhoum, 2008). The deepest impact of electronic media on mathematics education is to enable students to construct abstract concepts by their own activities. This does not necessarily imply lengthy step-by-step projects for every mathematical notion. In particular, it is possible to get acquainted with some of the central mathematical ideas in a relatively direct and easy way (Hilton & Christensen, 2002). Investigate the impact of utilizing multimedia technologies on enhancing, or not, the effectiveness of teaching students at early stages in Jordanian primary schools. To achieve this objective a program is developed to test the students' abilities to understand mathematical basic knowledge and skills (Nusir, Alsmadi, Al-kabi, & Sharadgah, 2012).

(Yamauchi, 2008) study was to examine the effects of the newly-developed multimedia instructional material presented on Digital Video Disk (DVD) on students' learning and their perceptions of the instruction. (Cumali Oksuza, Sanem Ucaa, Galip Genca, & Gen, 2009) this study describes the development and the design of multimedia video-cases for use in pre-service elementary mathematics teacher preparation in Turkey. (Ahmad, Yin, Fang, Yen, & How, 2010) the objective of this study is to investigate whether there exists barrier when the educator used traditional method in teaching mathematics compared with if they were using more interactive approach as the tools in teaching. Two different methods of teaching were tested on diploma students who take Bossiness Mathematics subject, in order to achieve the objective of this study. Kannan, Sivapragasam, and Senthilkumar (2015) study prepared a multimedia package for the teaching mathematics at secondary level; to conduct pre-test in mathematics subject before using multimedia package; to use multimedia package for teaching mathematics at secondary level; to conduct post-test in mathematics subject after using multimedia package; to analyze the effect of multimedia package through pre-test and post-test; and to make the students to utilize multimedia package for learning (Hilton & Christensen, 2002).

Thhe main objectives of the study (Gebre Yohannes, Hadi Bhatti, & Hasan, 2016) are to compare the degree of satisfaction between the control and experimental group; To compare if there is significance difference between the traditional teaching methodology and the multimedia based leaning approach; and to see the advantage of multimedia-based teaching approach over the traditional approach. Wang, Yang and Xiang (2017) author used it as an example to explore the application of multimedia technology in the elementary school's mathematics teaching. Finally, through the establishment of the experiment, the present author analyzed the result of the experiment and the feasibility and advantage on the application of mathematics course with multimedia in cultivating students' image and thinking (https://static.gupta-verlag.com/magazines/issues/CHp3wjwGoleWoG5bXLv8.pdf). (Nwaocha, 2010) the main objective of the study is to identify the variation in multimedia presentation attitudes and preference within a group of high school students learning mathematics as measured by a survey instrument; and to determine if the number of respondents preferring the multimedia presentation was significantly different from the number of respondents preferring traditional instruction.

CONCLUSION

Multimedia is an effective tool for teaching specially modules like calculus and numerical methods which have complex difficult concepts to understand using the theoretical way of teaching. It is found that multimedia-based teaching and learning process is more effective than the traditional way of

teaching. As educators, we have a responsibility to support students in understanding particular facts, concepts, and principles as those are core responsibilities for educators. However, balancing gaming or entertainment elements with educational or pedagogical goals is a challenging task where those programs or games designers need to compromise between those two elements; a process that is not always simple and straightforward. While it is not our direct intention and goal to capture the interests and passions of our students, however, "swallowing" information without those motivators may not be always possible. SEG Research (2008) study enabling students to visualize complex information, animation may make it easier for the learner to make sense of the information in a way that requires less processing. In addition, animation is more likely to be effective if it is accompanied by narration, which makes use of both the auditory and visual channels. Multimedia is most effective when the content and format actively engage the learner. Active engagement helps the student construct knowledge and organize information into meaningful schema (Mayer 2003). Zhao (2016) study supported that multimedia mathematics teaching is an effective auxiliary teaching method, which can visualize the abstract mathematical theory; it could help to eliminate the confusion of students' understanding of mathematics knowledge and improve students' learning interest.

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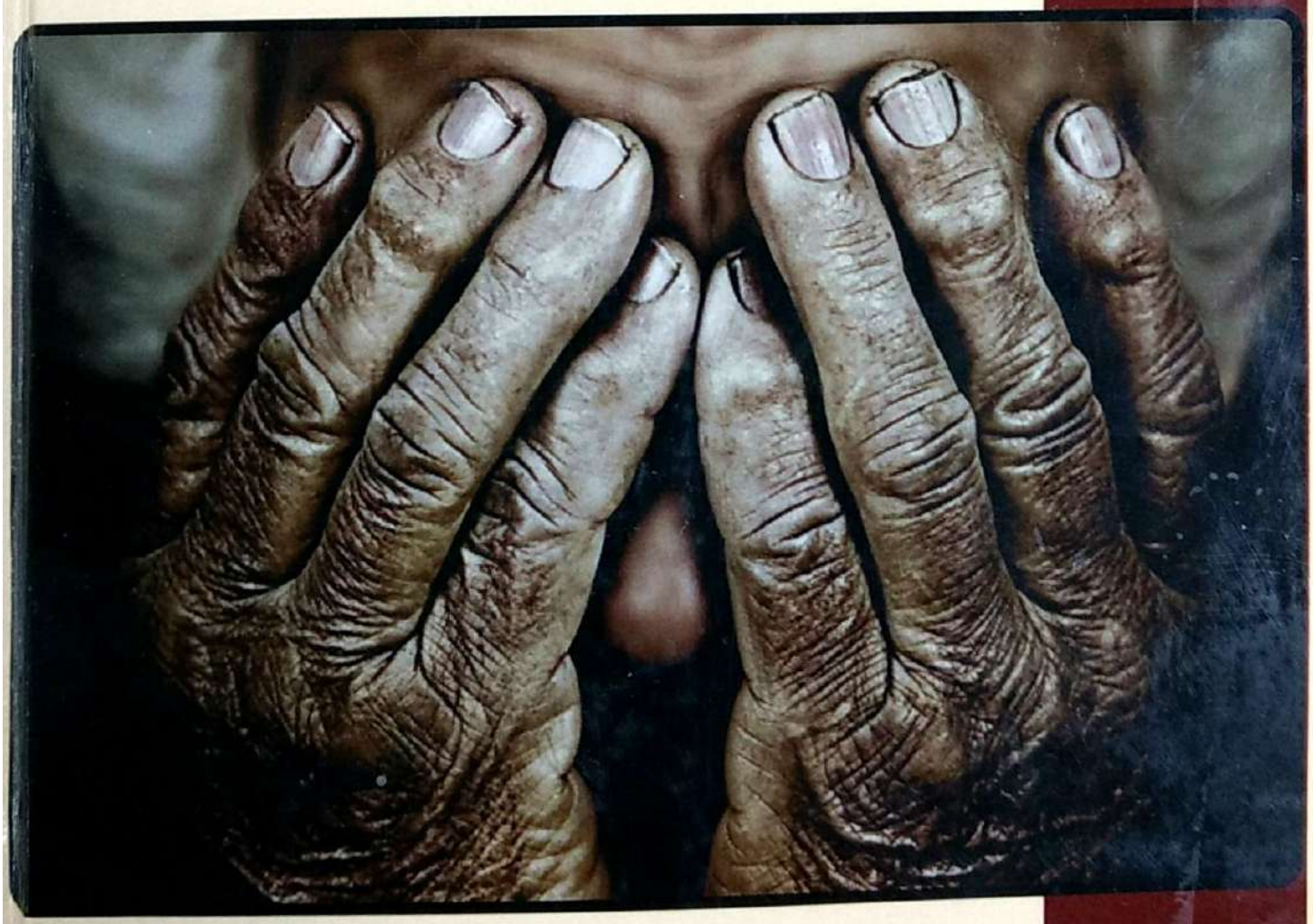
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- https://static.gupta-verlag.com/magazines/issues/CHp3wjwGoleWoG5bXLv8.pdf

Elder Abuse and Social Exclusion



Edited by
Sundara Raj. T

Published by:

B.R Publishing Corporation
425, Nimri Colony, Ashok Vihar, Phase-IV
Delhi-110 052
E-Mail : brpc@vsnl.com

First Published 2019

© Editor

ISBN 9789387587724

Printed at Aryan Digital Press, Delhi

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Cataloging in Publication Data--DK
Courtesy: D.K. Agencies (P) Ltd. <docinfo@dkagencies.com>

Elder abuse and social exclusion / editor, Sundara Raj T.
pages cm
"This book is a compendium of the papers presented by the resource persons, delegates and research scholars during the National Seminar held on 24-25 January, 2018 at the Department of Sociology, Periyar University, Salem"--Acknowledgement.
Includes bibliographical references.
ISBN 9789387587724

1. Abused elderly--India--Congresses. 2. Social isolation--India--Congresses. I. Sundara Raj, T., editor. II. Periyar University. Department of Sociology, host institution.

LCC HV6626.3.E43 2019 | DDC 362.6820954 23

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A. Stephen & Dr. M. Jeyaseelan

Introduction

Population ageing is an inevitable and irreversible demographic reality that is associated with welcome improvements in health and medical care. With longevity and declining fertility rates, the population of older persons (60 years and above) is globally growing faster than the general population. In the developed world, the process of ageing had begun much earlier with the change in fertility rate and mortality rate. In contrast, in the developing countries, especially India, though there is a demographic dividend to be expected in the next few decades, the process of ageing has begun and will soon begin to impact the fiscal policy. When populations age rapidly, governments are often caught unprepared to face and mitigate the consequences; this has implications for the socio-economic and health status of the elderly.

Ageing has important economic implications in terms of labor supply, consumption patterns, investment, cross-border capital flows, fiscal balances and private saving. There is a general consensus that ageing reduces output growth, lowers employment and limits economic welfare. The dependency ratio increases, implying that the proportion of elderly in the total population increases as a proportion to the working population. Consequently, this implies that the economy's capacity to sustain the elderly would decline over the period. In countries, where the provision of public pension increases, there a need for private savings and need to privately hoard wealth declines. An important consequence is that there

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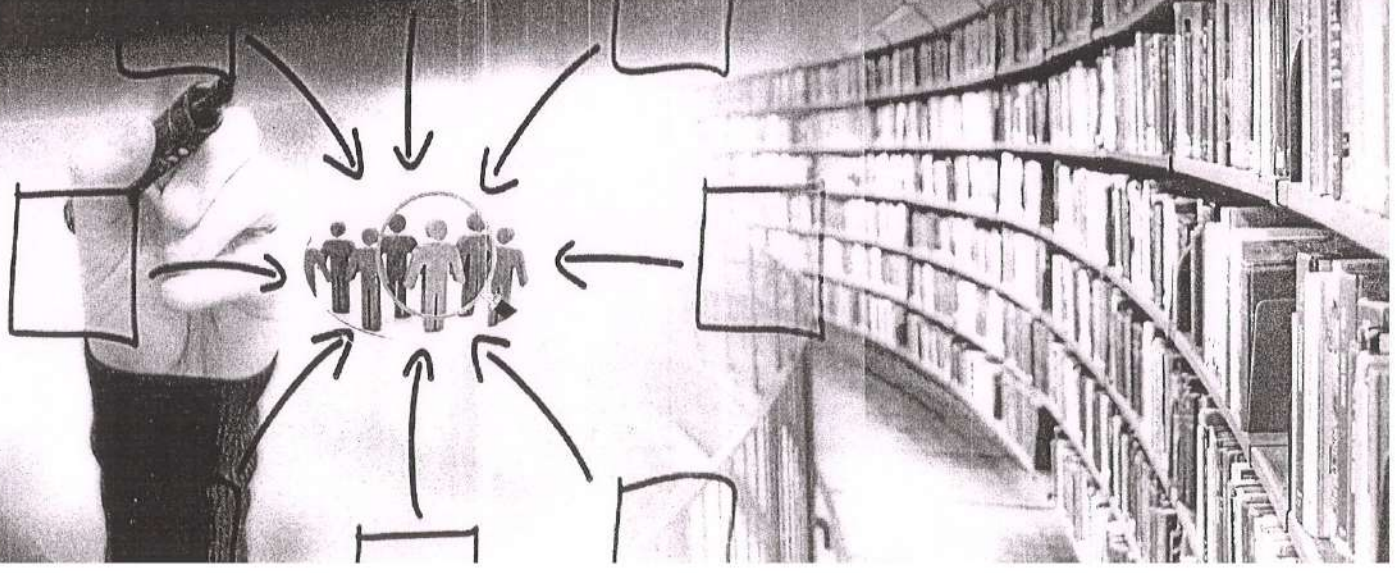
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 ISBN 978-81-923575-7-7

LMS-MOODLE AS A SUPPORTING TECHNOLOGY OF EDUCATORS IN HIGHER EDUCATION

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Abstract

Learning management system are simple web based applications that are being used today by various educational bodies. The support of LMS (learning management system) in education is essential and necessary for better education and teaching at present time. There are many benefits when we use a Learning Management Systems (LMS) such as Moodle, to support the lectures in higher education In the LMS process, faculties can upload course contents like lecture notes, e-books, assignment, quizzes and mid-semester while the student on the other hand can access the same using their login details. In general components of learning management systems contain synchronous and asynchronous communication tools, management features, and assessment utilities. These assessment utilities allow lecturers to systematize basic assessment tasks. It can be straightaway delivered to the student, and upon conclusion, immediately returned with grades and detailed feedback. Finally, this advanced teaching pedagogy technology of Moodle facilitates online collaborations, which can be teacher-to-student, teacher-to-teacher and student-to-student for effective learning outcomes in different accessing level of education.

Key words: *Learning Management system(LMS), MOODLE.*

Introduction

Improving teaching and learning process is the educators' aim and technology is seen as a prominent factor that can help them to make it reality. Especially, emergence and advancement of the Information and Communication Technologies (ICT) made teaching activities more dependent on technology. (Sancar,2008). However, the history of instructional technology shows that technology does not provide improvement in learning by itself but pedagogy is an important issue that can affect teaching-learning activities. Technology is also important in terms of that flexible environments can enable instructor to design their courses. In other words, technology should support pedagogy in order to make instruction effective.

LEARNING DISABILITY: ASSESSMENT, DIAGNOSIS AND COGNITIVE SCAFFOLDING

Editor
Dr. G. Hema

Published by
L ORDINE NUOVO PUBLICATION
crrpspublication@gmail.com
www.nuovopublication.com

Book Title	: **LEARNING DISABILITY: ASSESSMENT, DIAGNOSIS AND COGNITIVE SCAFFOLDING**
Editor	: **Dr. G. HEMA** Assistant Professor Department of Education Periyar University Salem, Tamil Nadu, India
Book Subject	: Education
Book Category	: Edited Volume
Copy Right	: Editor
First Edition	: October 2019
Book Size	: B5
Paper	: 21 kg, Maplitho NS
Price	: Rs.500/-
Published by	: **L ORDINE NUOVO PUBLICATION** E-mail: crrpspublication@gmail.com www.nuovopublication.com Mobile: 9944212131.

ISBN Supported by
Raja Ram Mohan Roy National Agency for ISBN, New Delhi – 110066 (India)

ISBN: 978-93-86782-97-7

ISBN 938678297-9

9 789386 782977

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WEB BASED TECHNOLOGY: A SUPPLEMENT FOR LEARNING DISABILITIES

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Abstract

The advent of ICT is making dynamic changes in education in the present scenario. It provides both students and teachers with more opportunities in adapting learning and teaching according to the individual needs. Over the last three decades, various assistive technological usability is considerably expanding in the field of learning disabilities effectively by the past reviews of literature. With the utilization of educational technology, web-based education has to play a big role in an advanced technological instruction becauseit fulfils the varied desired needs of the individual learners. It also gives plenty of opportunities like self-paced instruction, flexibility, self-correction etc. to the disabled learners. In recent times, LMS-Moodle has emerged as a brand new web based option for making the learning process user friendly at anytime from anywhere. This paper focuses some views and recommendations on utilisation of web based technology for students withlearning disabilities based on review of literatures.

Keywords: *Learning Disabilities, Educational Technology, Web based education.*

Introduction

The world of the 21st century also referred as digital age, is one during which modern technology permeates our day to day life. The technological resources have created communication and organization virtually seamless in a fast-paced world. In particular, computers and the internet have forever changed how to access and store information and retrieved virtually on any subject matter. In fact, the amount of digital information that is available and transacted on-line is quite astounding (Leko & Griffin, 2009).

In present days, the differences between normal and children with learning disabilities become more obviously due to the rapid growth of digital information technologies. Contrary to what some people think, this difference isn't regarding their body deformity or disability to listen to or speak. This difference is just in their accessibility level of digital information through the computers and networks. It is the time to provide user-friendly content based instructional software system especially for children with learning disabilities. Various researches on the utilization of technology for children with learning disabilities has distended significantly over the last three decades, resulting in an agenda that encompasses a diverse range of innovative instructional and assessment.

Advantages of Using Technology in Classroom

Technology has transformed the learning environment, so that learning is more proactive. It helps make teaching and learning more meaningful, overcome the problems facing by

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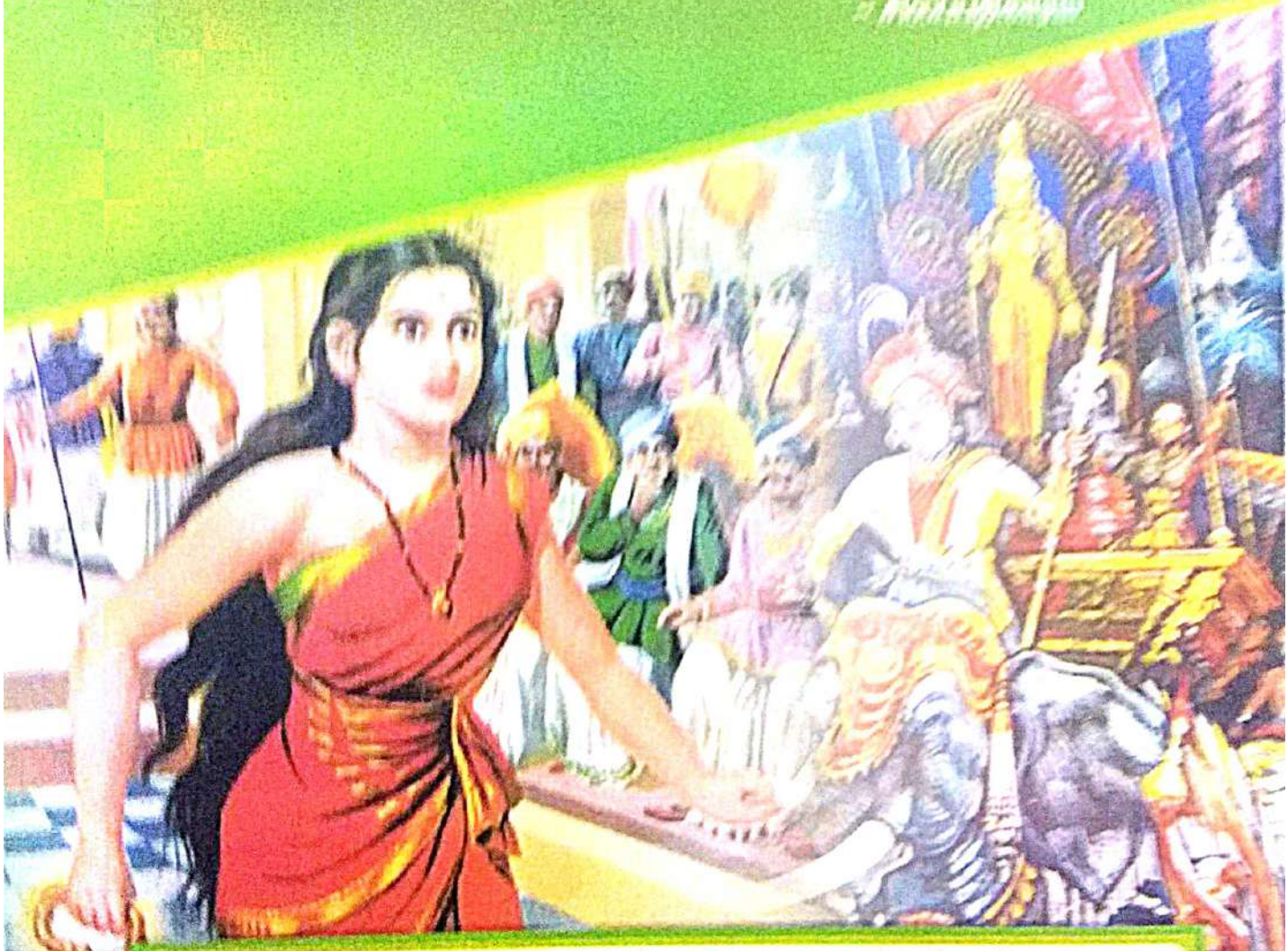
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"தெய்வம் தெளிமின் தெளிந்திருந்ப் பேணுமின்
பொய்யுரை அஞ்சுமின் புலன்வெகுத் தேநிறுமின்
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தானக் செல்லுமின் தவம்மே தலைநிற்பீர்"

— திருமந்திரம்



துவாரகதாஸ் கோவர்தன்தாஸ் வைணவக் கல்லூரி (தன்னாட்சி)

ஆதம்பாக்கம், சென்னை – 600 106.

ஆற்றல்வளத் தன்னாட்சித் தகுதி பெற்றது

சென்னைப் பல்கலைக்கழகத்துடன் இணைப்புப் பெற்றது

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பெரியார் பல்கலைநகர்,
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ஓர் இனத்தைப் பற்றி அறிய வேண்டும் எனில் அவ்வினத்தின் வரலாற்றைத் தெளிவாக அறிய வேண்டும். அவ்வகையில் தமிழ் இனத்தைப் பற்றி அறிய விரும்புவர்கள் அவ்வினத்தின் வரலாற்றை அறிய வேண்டும். தமிழினத்தின் வரலாறு தனியாக ஆவணப்படுத்தப் படவில்லை. அவை பழங்காலத்தில் இயற்றிய இலக்கியங்கள், கல்வெட்டுகள், செப்பேடுகள், தொல்லியல் ஆய்வுகள் போன்றவற்றின் வழி அறியமுடிகிறது. அவையே பிற்காலத்தில் வரலாறாக நமக்குக் கிடைக்கின்றன. அவ்வகையில் சிலப்பதிகாரம் என்ற காப்பியத்தின் வழி மக்களின் நாகரிகம், பண்பாடு, பழக்கவழக்கங்கள், அரசியல் போன்றவற்றை நம்மால் உணரமுடிகிறது. அதிலும், குறிப்பாக மூவேந்தர்களின் காலங்களில் குற்றங்களுக்குப் பாகுபாடின்றி வழங்கிய தீர்ப்புகள் சிறப்பிடம் பெறுகின்றன. இத்தகையத் தீர்ப்புகளைப் பற்றி ஆய்வது இக்கட்டுரையின் நோக்கமாகும்.

நடுநிலை தீர்ப்புகள்

ஒரு குடும்பம் நலம்பெற வேண்டுமாயின் அதன் தலைமை சிறந்ததாக இருத்தல் வேண்டும். அதுபோல நாடு நலம் பெற வேண்டுமாயின் ஆட்சியாளர்கள் நல்லவர்களாக இருத்தல் வேண்டும். அதுவும் நீதிதவறாத நடுநிலையாளராக இருத்தல் வேண்டும் என எண்ணிய தொல்காப்பியர் அரசர்க்குரிய கடமைகளாக 1. கற்றல் 2. வேள்வி செய்தல் 3. ஈதல் 4. குடிகளைக் காத்தல் 5. நியோரையும் குற்றவாளிகளையும் ஒறுத்தல் எனக் குறிப்பிடுவதை.

The Generalized cole-hopftransformation for 4D& n-dimensional burger's equation with algebraic viscosity and variable coefficient

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Abstract--In this research work,the invention of multi-dimensional Burger's equation with algebraic viscosity and variable coefficient and all its subsequent developments are documented by the Cole-Hopf transformation(CHT).This CHT is an interesting method in solving the higher order Partial Differential Equations (PDEs) through similar methodologies.

Keywords--Cole-Hopf transformation, invariance analysis, Burger's Equation, Partial Differential equation, heat equation.

I.INTRODUCTION

The one dimensional Burger's Equation had attained the enormous amount of attention with several studies by a scientist J.M.Burger's[3].The main principle of this model was an interaction between the dissipative and a non linear phenomenon of the non-linear partial differential equations(NLPDES).The Burger's equation is a NLPDE and one can easily find the phenomena similar to the turbulence.The homogeneous Burger's equation lacks the property attributed to the turbulence and these were shown by Cole[7] and Hopf[9].But their solutions doesn't chaotic features like sensitiveness subject to its initial conditions.Yet this can be explicitly done by using the Cole-Hopf Transformation (CHT).Besides,this transformation which transforms the Burger's equation into a linear parabolic equation.The simplest second-order NLPDE which balances which the effect of non-linear correction and linear diffusion term is the Burger's equation[3],

$$(i.e).,u_x + u\,u_x = \frac{\delta}{2}u\,u_{xx}, \text{ where}\delta>0. \quad (1)$$

Moreover, the equation (1) can linearized to the heat equation ,

$$\phi_t = \frac{\delta}{2}\phi_{xx}, \text{ where } \delta>0. \quad (2)$$

Through the CHT [2,3], we obtain that

$$(ie)., u(x,t) = -\frac{\delta\phi_x}{\phi} \quad (3)$$

Hence the eqn (3) is very helpful with the initial and /or Boundary Value Problems (BVP's) of the Burger's equation.

II. GENERALIZATIONS OF THE COLE-HOPF TRANSFORMATION

Subsequently Hopf and Cole introduced the transformations, there are many endeavour have been made to generalize the CHTs.In 1965, Chu [6] yielded the CHT to the system of quasi-linear equations. The inverse approach was adopted by Sachdev [21] to found the CHTs for both the hyperbolic and parabolic equations. Additionally, Sachdev provoked the non -linear parabolic equations from a linear parabolic equations through the generalization of CHT by

$$F(u(x,t)) = K(x,t)\,log\big(\phi(x,t)\big)_x. \quad (4)$$

In fact, the parabolic equation which is linear

$$\phi_t + b(x,t)\phi_x + c(x,t)\phi = \epsilon a(x,t)\phi_{xx}, \quad (5)$$

under the eqn (4) This generated the NLPDE,

$$(ie)., u_t + \left(b - \epsilon a_x + 2\epsilon a\frac{K_x}{K} - 2\epsilon a\frac{F}{K}\right)u_x - \epsilon a\frac{F''}{F'}u_x^2 + \frac{F}{F'}\left(\frac{\epsilon a}{K^2}(KK_{xx} - 2K_x^2) - \frac{K_t}{K} - b\frac{K_x}{K} + \epsilon a_x\frac{K_x}{K} + b_x + K\frac{c_x}{F}\right) + \frac{F^2}{F'}\left(\frac{2\epsilon a k_x}{K^2} - \frac{\epsilon a_x}{K}\right) = \epsilon a\,u_{xx}, \quad (6)$$

from the eqn(4) and (5) , CHT (1) is recovered, if we choose that

$$F = u;\ K = -2a = -\delta \quad \& \quad b = c = 0. \quad (7)$$

Likewise the linear hyperbolic equation

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The Exact solutions of the one-and two-dimensional linear diffusion equation with variable coefficient by RDTM

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Abstract: In this research paper, we investigate the reduced differential transform method RDTM. The comparative study these methods. These are archived by handling the linear diffusion equations in one-and two-dimensional. Also, two numerical examples are carried out to validate and demonstrate the efficiency of the RDTM . Moreover, it shows that the RDTM takes less time for solving the problems without using Adomian polynomials.

Keywords:Reduced Differential Transform method , Differential transform method, diffusion equation, differential inverse transform, exact solution.

I.INTRODUCTION

Several varieties of physical and biological phenomena are governed by partial differential equations (PDEs).The importance of obtaining the exact solutions, if available, of those PDEs facilitates the verificationof numerical solvers and for the analysis of its solutions. Analytical solutions to PDEs play an important role in the field science, especially in physical science. Since they can providemuch physical information and more insight into the physical aspects of the problem which lead s to the further applications.

The particle diffusion equation was originally derived by Adolf Fick in[8]. This is also known as heat equation,

$$\text{(ie) } u_t = Ku_{xx} , \tag{1}$$

which describes the density fluctuation in a material undergoing diffusion.

Recently,there has been a lot of attention in finding the letter and more accurate solution methods for finding the exact or an approximate solution to the linear diffusion equation in various dimensions n.

Let us consider the heat equation

$$u_t = u_{xx} + q(x,t) , 0< x<1 ,0 < t \leq T , \tag{2}$$

subject to the initial condition

$$u(x,0) = f(x) ,0 \leq x \leq 1 \tag{3}$$

and a non-local boundary conditions

$$u(0,t) = \int_0^1 \phi(x,t)u(x,t)dx + g_1(t) , 0 < t \leq T, \tag{4}$$

$$u(1,t) = \int_0^1 \chi(x,t)u(x,t)dx + g_2(t) , 0 < t \leq T , \tag{5}$$

where $f_1, g_1, f_2, g_2, \phi$and ψ are the smooth functions and T is a constant.There are many researchers who have suggested traditional techniques for solving this type of problems.

M.A.Rahman and M.S.A.Toy[13] proposed the finite difference scheme for the fourth order diffusion equation.RDTMis one of the most numerical method for solving the ODE's and PDE's.This technique was first introduced by Zhou[1]and applied to solve an IVP's for electric circuit Analysis and it is based on Taylor's series expansion and can be applied to solve to the easierway for finding on exact solutions for non linear PDEs both the linear and non-linear ODE's and PDE's.

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Reduced Differential Transform for Higher-Dimensional Wave Equation with Variable Coefficient

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Abstract : In this present work, we established the Reduced Differential Transform Method (RDTM) for solving the Partial Differential Equations (PDEs) . These are archived by handling the wave equations with variable co-efficient in higher-dimensional. Also, numerical examples are shown for implementing the method. The results shows that the RDTM is very effective and easier to solve PDEs.

Keywords:Partial differential equation, Reduced Differential Transform method, Differential transform method, wave equation, differential inverse transform.

I. INTRODUCTION

The real world problems, there are several wave equations, which are often applicable and very helpful in physics such as the well-known linear and non-linear wave equations. This includes the vibrating string, beam, membrane, shock waves, shallow water waves, sediment, transport in rivers and so on [1]. For solving such problems, we require certain assumptions, some approximate methods have recently studied to solve NLPDEs [2-9].

In this present work, we carried out the RDTM for overcome the demerits of complex calculations. This method was first invented by Zhou in the year of 1986 [10-12]. The main motivation of this method, is it provides the researcher with an analytical approximation, rapidly converge and in many cases an exact solutions are carried out.

Recently, Keskin and Oturanc, introduced a reduced formof DTMas reduced DTM(RDTM) and applied it to approximate some PDE [13] and factional PDEs [14]. More recently, Abazari and Ganji [15] extended RDTM to study the partial differential equation with proportional delay in $t$andshrinking in $x$and showed that, as a special advantage of RDTM rather than DTM, the reduced differential transform recursive equations produce exactly all the Poisson seriescoefficients of solutions based on the initial condition as weighted function, whereas the differential transform recursive equations produce exactly all the Taylor series coefficients of solutions.

In this research article, wedetermined an accurate solution for both the four-and n-dimensional wave equation with variable coefficient by RDTM. This work explains about an analytical solutions to provide an approximate analytical results of the PDEs. The main goal is to obtain the solution of wave equation directly without using any transformations such as discretization, linearization and any other restrictive conditions. In Section II, the basic definitions, review of literature and the operator forms of RDTM are discussed in various dimensions are shown in the table form. In Section III, We studied the 4D and ND wave equations with variable coefficients and their results are obtained.Finally we concluded the outlook of the results evaluated by RDT.

II. METHODOLOGY OF RDTM

Definition 2.1

If $u(x,t)$ is an analytic function and differentiated continuously in the domain of interest, then

$$U_K(x) = \frac{1}{k!}\left(\frac{\partial^k u(x,t)}{\partial t^k}\right)_{t=0}, \qquad (2.1)$$

where $U_K(x)$ is the spectrum transformed function, which is also known as T-function.

Fractional reduced differential transformmethod for an exact solutions of gas dynamics

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Abstract---

In this paper, we establish ananalytical solutions ofnon-linear partial differential equations using Fractional Reduced Differential Transform Method (FRDTM). The solutions are considered as infinite series expansions which converge rapidly to their exact solutions. Solutions obtained by FRDTM are in close conformity with theexact solutions.

Keywords--

Analytical solutions, Non-linear partial differential equations,fractional reduced differential transform, gas dynamics, differential inverse transform.

IINTRODUCTION

Recently, there are many researchers, who have paid an attention on finding the analytical and numerical methods to obtain the solutions for Partial Differential Equations (PDEs) through Differential Transform Method (DTM). This method, has developed over a period of time. It is used to solve the PDEs in a simple and effective manner. The main intent of this study is to elaborate on the gas dynamics equation and the application of Fractional Reduced Differential Transform Method (FRDTM).

In physical laws of conservation of mass, momentum and energy etc...the gas dynamics equations are applied. Some types of gas dynamics equations have been solved in physics by applying the different analytical and approximation methods ([1] - [2], [3], [12]). Nowadays, several analytical and numerical methods have been developed for the obtaining the solutions of gas dynamic equations through Laplace-homotopy perturbation method (LHPM),homotopy perturbation method (HPM)[8], differential transform method (DTM) [4-7, 9], fractional reduced differential transform method (FRDTM) [11],

In this work, we choose the non-linear gas dynamics equation [10] is of the form:

$$u(x,t)_t + \frac{1}{2}(u(x,t)^2)_x - u(x,t)\big(1-u(x,t)\big) = \mathrm{h(x,t)}, \qquad (1.1)$$

with an initial condition that$u(x,0) = \mathrm{p}(x)$, where h(x,t) is a known function.

This present paper is prearranged in section as follows: In Section 2, we introduce the FRDTM with its basic definitions and its operators. In Section 3, we apply this method to find an exact solutions of some non-linear gas dynamics. In Section 4 , we concluded the results obtained via FRDTM for gas dynamics equations.

II PRELIMINARIES OF FRACTIONAL REDUCED DIFFERENTIAL TRANSFORM METHOD

Several researchers who gave several definitions of a fractional derivative of order $\alpha > 0$.Here, we discuss about the main definitions of the FRDTM of a PDE.

Definition2.1

Let $u(x,t)$be an analytic function. If $u(x,t)$ is differentiated continuously with respect to 't', then

$$U_k(x) = \frac{1}{\Gamma(k\alpha+1)}\Big(\frac{\partial^{k\alpha}}{\partial t^{k\alpha}}\,u(x,t)\Big)_{t=0} , \qquad (2.1)$$

Where the point 'α' is the parameter describing an order of the time fractional derivative and a t-dimensional spectrum function. $U_k(x)$represents the original function form.

International Journal of Applied Engineering Research ISSN 0973-4562 Volume 14, Number 7 (2019) pp. 1741-1743
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n-dimensional Time - Fractional Heat equation by Reduced Differential Transform Method

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Abstract
In this paper, we apply Reduced Differential Transform Method (RDTM) to solve multi-dimensional time fractional heat equations. It is observed that the proposal technique (RDTM)is highly suitable for such problems. Numerical results re-confirm the efficiency of the suggested algorithm.

Keywords: Time fractional heat equations, reduced differential transform method

1. INTRODUCTION

We can see the applications of fractional differential equations in all areas of physics, applied and engineering sciences [1]-[8]. Further, the understanding of those physical phenomena in this scientific research is very important to find their exact solutions. Thus the determinations of the exact solutions of these equations are interesting and hence it is important too. Many scientific researchers, mainly had paid an attention for studying the solution of such equations by using various developed method.

Recently, for handling the various kinds of non-linear problems, for example, a fractional differential equations [4], the Variational Iteration Method (VIM) [1]-[3], non-linear differential equations [5], non-linear thermo - elasticity [6], Adomian's Decompositions Method (ADM), non-linear wave equations [7], Homotopy perturbation Method (HPM), Variation of Parameter Method (VPM)and Homotopy Analysis Method(HAM) [8]-[13] successfully applied to find an exact solutions of differential equations.

In this paper we use the Reduced Differential Transform Method (RTDM) [14]-[18], for constructing an appropriate solution to the n-dimensional heat equations of fractional order.This technique is an iterative procedure for finding the Taylor series solution of differential equations. By this method we reduce the size of computational work and which is easily applicable to many physical problems.

2. REDUCED DIFFERENTIAL TRANSFORM METHODOLOGY

We discuss the basic definitions of Reduced Differential Transform Method

Definition 2.1. *If $u(x,t)$ is an analytic function and differentiated continuously with respect with respect to 't'. Then,*
Let

$$U_k(x) = \frac{1}{\Gamma(k\alpha+1)}\left[\frac{\partial^{k\alpha}}{\partial t^{k\alpha}}u(x,t)\right]_{t=0} \quad (1)$$

where 'α' is a parameter describing the order of the time fractional derivative and the t-dimensional spectrum function $U_k(x)$ is the transformed function.

In this work, the lowercase $u(x,t)$ represents an original function and the $U_k(x)$ upper case represents the transformed function.

Theorem 2.2. *If the original function is $w(x,t) = u(x,t) \pm v(x,t)$, then the transformed function is $W_k(x) = U_k(x) \pm V_k(x)$*

Theorem 2.3. *If the original function is $w(x,t) = \alpha u(x,t)$, then the transformed function which is of the form $W_k(x) = \alpha U_k(x)$.*

Theorem 2.4. *If the original function is $w(x,t) = u(x,t)v(x,t)$, then their transformed function is of the form,*
$W_k(x) = \sum_{n=0}^{k} U_n V_{k-n}(x) = \sum_{n=0}^{k} V_n U_{k-n}(x)$.

Theorem 2.5. *If the original function is $w(x,t) = \frac{\partial^n}{\partial y^n}u(x,t)$ then*
$W_k(x) = (k+1)(k+2)...(k+n)U_{k+n}(x)$ is the transformed function.

Theorem 2.6. *If the original function $w(x,t) = x^m y^n u(x,t)$, then*
$W_k(x) = x^m U_{k-n}(x)$ is the transformed function of the original function.

Theorem 2.7. *If the original function $w(x,t) = \frac{\partial^{N\alpha}}{\partial t^{N\alpha}}u(x,t)$, then*
$W_k(x) = \frac{\Gamma(k\alpha+N\alpha+1)}{\Gamma(k\alpha+1)}U_{k+N}(x)$ is the transformed function.

Definition 2.8. *The differential inverse transform of $U_k(x)$ is*

$$u(x,t) = \sum_{k=0}^{\infty} U_k(x)t^{k\alpha} \quad (2)$$

combining the equations (1) and (2), we can obtain the following

$$u(x,t) = \sum_{k=0}^{\infty}\frac{1}{\Gamma(k\alpha+1)}\left[\frac{\partial^{k\alpha}}{\partial t^{k\alpha}}u(x,t)\right]_{t=0} t^{k\alpha}, \quad (3)$$

By the above definitions, we can understand that the concept of RDTM is derived from the power series expansion of a function.

International Journal of Engineering and Advanced Technology (IJEAT)
pg-4239-4240 ISSN: 2249 – 8958, Volume-8 Issue-6, August 2019

7.

Mathematical Analysis of Queueing-Inventory Model with Compliment and Multiple Working Vacations

K. Lakshmanan, S. Padmasekaran, K. Jeganathan

Abstract: ***In this paper, we provide independent continuous review of stock for two commodities, namely commodity 1(C1) and 2 (C2). The type 1(T1) customer demands C1 and Type 2(T2) customer demands C2 but C2 is also given to T1 customer as a compliment (i.e. C2 is also given as a compliment to C1). The arrival pattern of customers is from a finite source of population. The ordering policies of both commodities are independent and also, each customer demands service with positive time. A single finite retrial orbit is allowed for any customer, when the demanding item is stocked out or the server is busy. The pre-emptive priority service policy is assigned to T1 customer over T2 customer. The server may go for the working vacation as C1 becomes zero, in which T2 customer who is taking his service is allowed to orbit whenever T1 customer demands the service with both commodities and when the orbit is not full. The joint limiting distributions of four random variables are studied under steady state. Long run expected total cost rate and measures of system performance are derived.***

Keywords: Complement items, Finite population, Retrial orbit, Working vacations.

I. INTRODUCTION

A company / organization can show a positive turnover by changing their marketing philosophy. In order to attract new customers and to enhance the sales of new products, new marketing techniques are practiced. One of the new techniques is providing basic service with additional free service to customers. In order to sell other related substitutable products, at the time of customer purchasing the product, some auxiliary services are provided. An organization can gain the trust of its customers by providing the demanded features to the customer's expectations and by persuading them to by the product by showcasing its additional features. Some organization in place of providing additional service to the customers, they provide them with offers [compliments] to deflect the attraction of the buyer, thereby saving time and creating a demand for the product. So far only few papers published in the literature of complement inventory model. For detail see [1,2].

II. MODEL DESCRIPTION

The system consists of two types of customers, two types of commodities and a single server. The customers are classified as Type 1(T1) customer and Type 2(T2) customer. The commodities are termed as commodity 1(C1) and commodity 2(C2). The T1 customer demands C1 and the T2 customer demands C2. On demand of an unit of item, the T1 customer is given C2 as a compliment whereas T2 customers not given any compliment. The service time of each customer is positive, where both the demands come from a single finite population of size N, which follows independent quasi-random distribution. The ordering policy of each commodity is considered independently. Let S_1 and S_2 be maximum inventory level of C1 and C2 respectively. At that point of time, the inventory level of C1 drops to s_1 and to place the order of quantity Q_1, $Q_1=S_1-s_1$. The replenishment time of an order for C1 is exponential at rate, but the replenishment of C2 is instantaneous ((0, S_2) ordering policy). Let λ_1 and λ_2 be the arrival rates of T1 customer and T2 customer respectively. If the inventory level of C1 is zero, the server changes to working vacation idle state(WVIS) from regular period(RP) with probability q, otherwise he stays in idle state in regular period with probability p, $p + q = 1$. In a regular period, the service time of T1 customer and T2 customer are independent exponential with rates μ_1 and μ_2 respectively. Similarly, in a working vacation, the service times of T1 customer and T2 customer are independent exponential with rates μ_3 and μ_4 respectively. The completion time of working vacation is exponential at rate η. Whenever the server is busy, the arriving of any type of customer goes to finite retrial orbit of size N. The demand retrial rates of T1 customer and T2 customer in the orbit are given by $p_1\theta$ and $p_2\theta$ respectively, where $p_1+ p_2=1$. The pre-emptive priority service policy is considered in this system at which T2 customer taking his service is sent to orbit whenever T1 customer demands the service with both commodities available. After completion of working vacation, the server may take another vacation if there is no positive inventory level of C1.

III. ANALYSIS OF THE MODEL

Let $u_t \in \{0,1,2,\ldots,S_1\}$, $v_t \in \{0,1,2,\ldots,S_2\}$ respectively, be the level of first and second commodity, $w_t \in \{0,1,2,3,4,5\}$ be the current situation of the server, $w_t=0$ denotes server is idle (SI) in the regular period (RP), $w_t=1$ denotes server is busy(SB) with T1 customer in the RP, $w_t=2$ denotes SB with T2 customer in the RP, $w_t=3$ denotes SI in working vacation period(WVP), $w_t=4$ denotes SB with T1 customer in the WVP, $w_t=5$ denotes SB with T1 customer in the WVP and $x_t \in \{0,1,2,\ldots,N\}$ is the level of orbit at time t. Then L(t) is a continuous time Markov chain (CTMC) with state space(SS)

Revised Manuscript Received on August 25, 2019

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IMPACT: INTERNATIONAL JOURNAL OF RESEARCH IN HUMANITIES, ARTS AND LITERATURE

[IMPACT: IJRHAL]

ISSN (P): 2347- 4564; ISSN (O): 2321-8878

Impact Factor: 3.7985; ICV Factor: 42.56; NAAS Rating: 3.10;
UGC Approved Journal - 40893

Volume-07 Regular Issue-2 January-2019





INTERNATIONAL
STANDARD
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Editors
Dr. V. R. Palanivel
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IMPACT: INTERNATIONAL JOURNAL OF RESEARCH IN HUMANITIES, ARTS AND LITERATURE

[IMPACT: IJRHAL]

ISSN (PRINT): 2347- 4564; ISSN (ONLINE): 2321-8878

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IMPACT: International Journal of Research in Humanities, Arts and Literature (IMPACT: IJRHAL)
ISSN (P): 2347-4564; ISSN (E): 2321-8878
Vol. 7, Issue 2, Jan 2019, 292-297
© Impact Journals

ECONOMIC DEVELOPMENT AMONG YOUNG WOMEN ENTREPRENEURSHIP IN HILL STATION IN SALEM DISTRICT

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ABSTRACT

Women marketers may be defined as a female or organization of girls who commence and operate an enterprise assignment. Women has been a hit in breaking their confinement in the limits of their houses through getting into various varieties of experts and offerings girls marketers have proved to be on par with their men counterparts in enterprise acumen and are emerging as smart and dynamic entrepreneurs. Entrepreneurship among girls is a critical avenue through which girls can triumph over their subordination within the own family and the society as a whole.

Keywords: *Economic development young women entrepreneurship*

INTRODUCTION

Government of India has defined ladies marketers as an enterprise/task owned and managed via women having as a minimum monetary interest of 57 percent of capital and giving as a minimum 51% of employment generated within the corporation to girls. The financial system of India is witnessing a drastic change on the grounds that mid-1991 with a new policy of liberalization, globalization and privatization initiated via Indian government. The census statistics reveals that the lady paintings participation price is 22.25% as towards 51.48% for males. At present, women involvement in financial sports is marked by means of low work participation price. Women entrepreneurship has received momentum in closing three decades with the boom in ladies agency and their contribution to economic boom. In India though ladies played an vital role in the society however their entrepreneurial ability has not been tapped because of decrease fame of women within the society.

THEORIES OF ENTREPRENEURSHIP

The discipline of entrepreneurship research has improved substantially over the last two a long time. Notwithstanding this enlargement, dynamics of entrepreneurship is on the rudimentary stage and is pretty fragmented. The theoretical foundations of entrepreneurship are still on the pre-paradigm level. There is a scarcity of properly dependent and complete framework notwithstanding the life of various conceptual models. The inter connection of serial entrepreneur antecedents in the theories of entrepreneurship does no longer appear to be very strong, consequently the explanatory and predictive strength of the existing entrepreneurial theories are restricted. According to Perry Man, M.R (1982), entrepreneurship research is currently characterised through the absence of both a definitive set of precepts and a universally ordinary technique technique. He in addition elaborates that entrepreneurial studies is in its formative levels and is much like 'regular science' section of the Kuhnian Scientific structure.

ECONOMIC THEORIES OF ENTREPRENEURSHIP

The monetary theories of entrepreneurship have been described in early monetary records as well as within the present classical and neo classical financial framework. Entrepreneurship as a concept entered the economic literature specifically via the work of Richard Cantillon (1680 – 1734), who gave the concept an analytical prominence and assigning the entrepreneur an economic function. According to cantillon its miles the entrepreneur's reactions to price motion that constantly bring about a tentative balance between deliver and call for in unique markets (Gopakumar, 2008). Cantillon was the primary man or woman who coined the term "entrepreneur" and also defined the entrepreneur as one 'who' buys elements offerings at sure 'charges' with a view to sell their products at uncertain expenses and turn out to be a bearer of an uninsurable risk (Desai 1989).The evaluation of economic theories on entrepreneurship can be divided into schools of mind classical monetary theories and neo classical economic theories.

OBJECTIVE OF STUDY

1. To identify the key drives of economic independence of women entrepreneurs.
2. To study the economic development of women entrepreneurs and their standard of living.
3. To make recommendations in order to have empowerment of women especially among Young group.

REVIEW OF LITERATURE

Regarding for the author told that P. JayaKumar and J. Kannan (2014)highlighted the challenges and opportunities before women for self-employment. Main challenges faced by the women are dual role of women overlapping of responsibilities of business and family, illiteracy among rural women, less risk bearing capacity, lack of information and assistance, need of training and development etc. with the increasing interest of government in women entrepreneurship created it as an opportunity for women. Singh (1992), identifies the reasons & influencing factors behind entry of women in entrepreneurship. He explained the characteristics of their businesses in Indian context and also obstacles & challenges. He mentioned the obstacles in the growth of women entrepreneurship are mainly lack of interaction with successful entrepreneurs, social un-acceptance as women entrepreneurs, family responsibility, gender discrimination, missing network, low priority given by bankers to provide loan to women entrepreneurs. He suggested the remedial measures like promoting micro enterprises, unlocking institutional frame work, projecting & pulling to grow & support the winners etc. Senthilkumar, Vansantha and Varadharajan, (2012)conducted a study on women entrepreneurship development found that the Indian women enjoy a disadvantageous status, in the society as there is low literacy rate, low work participation rate and low urban population share of women as compared respectively of their male counterparts confirm their disadvantageous position in the society our age old sociocultural traditions and taboos arresting and women within four walls of their houses also make their conditions for the disadvantageous. These factors combine to serve as non-conductive condition for the emergence and development of women entrepreneurship in the country. The development of women entrepreneurship is expectedly low in the country. This indicates that very few percentages of women are involved in total self-employed persons in the country.

J. Vinothalakshmi has expressed the other faces of Indian Women entrepreneurship in recent phenomenon and in the process have to face various problems. The emergence of women entrepreneur and their contribution to the national economy is quite visible in India. The government of India has defined women entrepreneurs based women participation in equity and employment of a business enterprise. Women constitute

the family which leads to society and family. Social and economic development of women is necessary for development of any country. Purpose of the study is to find out problem.

Santha [1] conducted a study on socio-economic status of women entrepreneurs in Kerala and Tamil Nadu and found that they were similar in respect of their decision making power, power exercised in business, degree of involvement in social activities and the reasons for such involvement.

RESEARCH METHODOLOGY

Data Source

This study is based on objective and prepare questionnaire and collect primary data. and secondary data collect journal and website.

Sampling Technique and Size

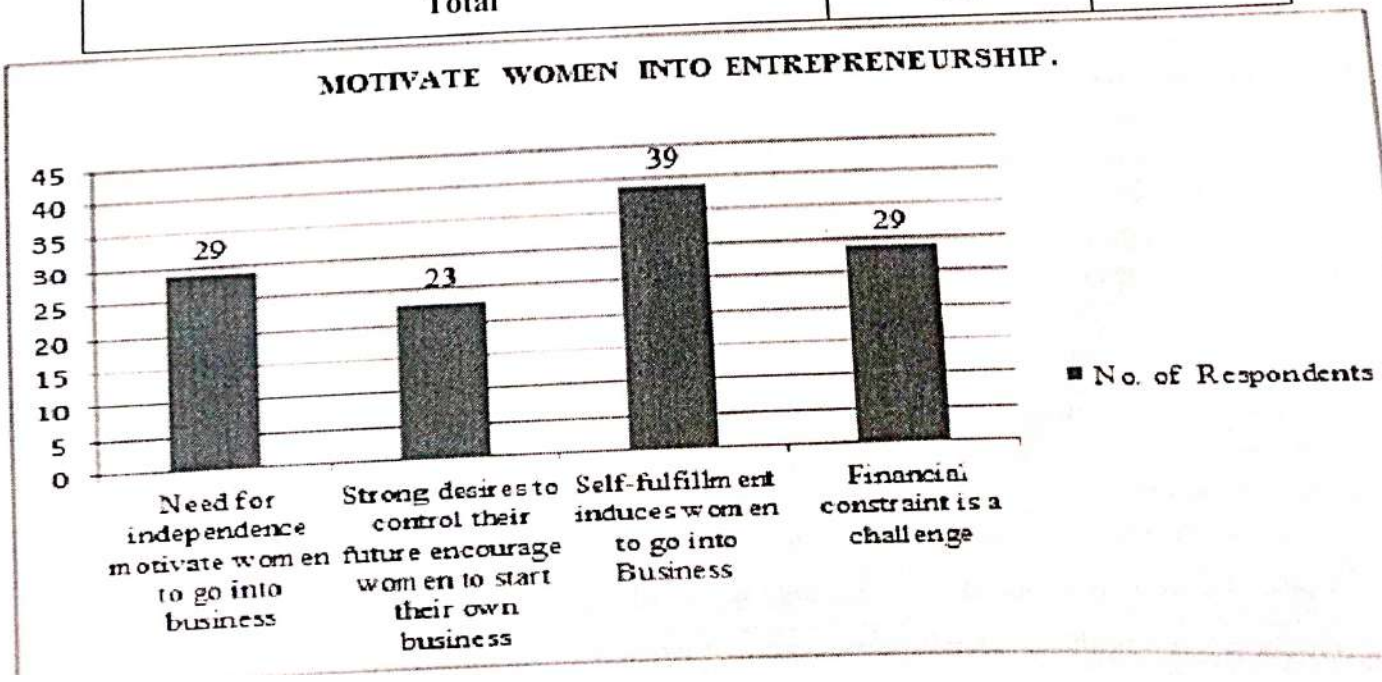
Non-probability snowball sampling method became followed. Accordingly, women entrepreneurs in Salem District. Manufacturing, buying and selling and carrier organizations. Samples had been decided on from every stratum similarly. The pattern size for the prevailing take a look at become a 120 comprising forty respondents every from manufacturing companies, trading enterprises and service corporations.

Tools of Analysis

Appropriate statistical tools like percentage analysis and Henry Garrett Ranking technique.

Factors that Motivate Women into Entrepreneurship.

S.No	Factors	No. of Respondents	Percentage
1	Need for independence motivate women to go into business	29	24
2	Strong desires to control their future encourage women to start their own business	23	19
3	Self-fulfillment induces women to go into Business.	39	33
4	Financial constraint is a challenge	29	24
Total		**120**	**100**



INTERPRETATION

From the above analysis clear that most of the respondent 39% self fulfillment induces women to go into business. And 29% respondents are independence motives women to business and 29% respondents are financial constraint is a challenge to young women entrepreneur and 23% respondents are belong to the strong desires to control their future encourage women start the own business.

Contributions of Women towards Entrepreneurship Development

Factors	1	2	3	4	5	Total
Women entrepreneur contribute to job creation	20	27	26	21	26	120
Poverty alleviation can be achieved through women entrepreneurship.	17	23	29	31	20	120
Women entrepreneur improve Economic Growth.	30	18	32	20	20	120
Lack of access to information technology is a challenge	26	30	14	29	21	120
Government regulations hinder the success of women entrepreneur	40	20	26	15	19	120

GARRET VALUE

100(Rij-0.5)/Nj	CV	GV
100(1-0.5)/5	10	75
100(2-0.5)/5	30	60
100(3-0.5)/5	50	50
100(4-0.5)/5	70	40
100(5-0.5)/5	90	25

Factors	1	2	3	4	5	Total
Women entrepreneur contribute to job creation	1500	1620	1300	840	650	5910
Poverty alleviation can be achieved through women entrepreneurship.	1275	1380	1450	1240	500	5845
Women entrepreneur improve Economic Growth.	2250	1080	1600	800	500	6230
Lack of access to information technology is a challenge	1950	1800	700	1160	525	6135
Government regulations hinder the success of women entrepreneur	3000	1200	1300	600	475	6575

Garret Score

Factors	G.S	A.S	Rank
Women entrepreneur contribute to job creation	5910	49	4
Poverty alleviation can be achieved through women entrepreneurship.	5845	48	5
Women entrepreneur improve Economic Growth.	6230	52	2
Lack of access to information technology is a challenge	6135	51	3
Government regulations hinder the success of women entrepreneur	6575	55	1

Sources: Primary data

INFERENCE

From the above analysis shows the Garrett ranking test, it is found that majority of respondents are belong to the main reason Government regulations hinder the success of women entrepreneur and second one Women entrepreneur improve Economic Growth it clearly shows respondentsto Lack of access to information technology is a challenge, and Poverty alleviation can be achieved through women entrepreneurship for that Women entrepreneur contribute to job creation.

FUTURE PROSPECTS OF WOMEN ENTREPRENEURS

Traditionally Indian society is treated as a male ruled society and women have a tendency to be considered as weaker sex and socially and economically depending on male during of his life. But now state of affairs has been changing because of authorities initiatives and awareness among public. Now belief of human beings goes to change concerning lady and they're playing identical contribution in own family and society. Government has taken numerous projects to empower women like National Mission for Empowerment of Women was launched with the aid of the Government of India in 2010 so that it will make stronger universal tactics that sell all-spherical development of women. Various regulatory, promotional, credit and representational establishments are hooked up for selling women marketers.

CONCLUSION

Importance of ladies entrepreneurship increases because of their contribution in employment era and sales creation. Women entrepreneurs no longer only constrained to cottage and small businesses but they are launching big and medium scale organizations. The authorities have to play a facilitator position and enhance accessibility of finance by encouraging greater banks and other economic institutions. Also government have to also growth their schemes for empowering girls and efficient and efficiently enforcing them. Development of girls entrepreneurs does no longer mean development of ladies in rural areas however it imply improvement of entire society with monetary boom.

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SOCIO-ECONOMIC POSITION OF DISABLED ENTREPRENEURS IN SALEM CITY

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1. Introduction

The economic development of a nation depends on its industrial development. The industrial development is based on the entrepreneurial competencies of the people. So, the national economic growth involves active involvement of each and every people. At the same the disability/disabled entrepreneurs are also involved in the part of the economic development activities. An entrepreneur is one of the most important segments of economic growth. India has witnessed high economic growth rates in the past two decades and there has been a remarkable increase in the per capita income. Many initiatives are undertaken to improve the economic growth. Unfortunately many sections of the Indian population still remain economically deprived. Though disabled persons constitute a small part of the Indian population, only few disabled are grown in relative numbers. So, many problems to face by disabled entrepreneurs in the society. Particularly disabled people face psychological, educational, employment and social problems. However, disabled entrepreneurs who are considering establishing their own business face many problems that a non-disabled person will not endure and therefore require training programs that are tailored to their particular needs. This paper examines the background to people with disabled entrepreneurs becoming self-employed and identifies what can be done to help them via entrepreneurship education and training. The spirit of self-confidence among disabled entrepreneurs through self-employment and utilize their wisdom and experience gained through professional training and education for their development.

2. Concept of disability

When most people think of the word "disability" they immediately imagine someone in a wheelchair. But there are many types of disability. People with a disability may include: people who are blind or partially sighted; people with learning or intellectual disabilities; people who are deaf or hearing impaired; people with a physical disability; people with long-term illnesses; people with mental health or psychological difficulties; and people with an acquired brain injury. Disabilities are an umbrella term, covering impairments, activity limitations, and participation restrictions.

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Impairment is a problem in body function or structure; an activity limitation is a difficulty encountered by an individual in executing a task or action; while a participation restriction is a problem experienced by an individual in involvement in life situations. Thus, disability is a complex phenomenon, reflecting an interaction between features of a person's body and features of the society in which he or she lives.

3. Disabled population

TABLE 1

Disabled Population by Type of Disability India

Type of Disability	Persons	Males	Females
Total	2,68,10,557	1,49,86,202	1,18,24,355
In seeing	50,32,463	26,38,516	23,93,947
In hearing	50,71,007	26,77,544	23,93,463
In speech	19,98,535	11,22,896	8,75,639
In movement	54,36,604	33,70,374	20,66,230
Mental retardation	15,05,624	8,70,708	6,34,916
Mental illness	7,22,826	4,15,732	3,07,094
Any other	49,27,011	27,27,828	21,99,183
Multiple disability	21,16,487	11,62,604	9,53,883

Source: Census Report 2011

The above table shows the disabled population in India as per census 2011 (2016 updated). In India out of the 121 crore population, 2.68 crore persons are disabled which is 2.21% of the total population. Among the disabled population 56% are male and 44% are female. In the total population, the male and female populations are 51% and 49% respectively. Majority (69%) of the disabled population resided in rural areas. In the case of total population, 69% are from rural areas while the remaining 31% are resided in urban areas.

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4. District-wise population in Tamil Nadu

District-wise differently disabled population in Tamil Nadu as per the Census 2011 is given in Table 2.

TABLE 2

District wise Differently Disabled Population in Tamil Nadu

DISTRICT	VI	HI	LD	MR	MI	MD	OTHERS	TOTAL
Chennai	10506	27273	14146	5495	2716	4780	25148	90064
Coimbatore	5985	15605	10452	4141	1385	3531	11353	52452
Cuddalore	5604	12202	9225	3625	825	3109	8042	42632
Dharmapuri	2903	5978	7381	1953	547	2366	4155	25283
Dindigul	3038	9973	7287	2769	837	2467	6582	32953
Erode	3930	8417	9793	2874	1185	3155	6007	35361
Kancheepuram	7242	17046	15082	5619	1739	4707	17626	69061
Kanyakumari	2820	7597	8720	3249	1660	2863	8443	35352
Karur	1601	3099	4475	1342	469	1365	1691	14042
Krishnagiri	3081	7324	7473	2232	528	2208	5845	28691
Madurai	5462	11339	11530	4384	1275	3271	9587	46848
Nagapattinam	3244	6024	7577	2974	1103	2726	4575	28223
Namakkal	3177	6322	8033	2231	596	1992	3994	26345
Nilgiris	1115	2161	2566	1016	317	860	1985	10020
Perambalore	1079	3203	2199	833	202	778	2092	10386
Pudukkottai	2614	5485	6128	2453	831	2524	4443	24478
Ramnad	2462	6359	5222	2230	692	1822	4645	23432
Salem	4822	9702	13639	4019	1140	3751	6595	43668
Sivakangai	2411	6227	5993	2235	692	2190	4374	24122
Thanjavur	3592	8048	9970	3981	1403	3350	5968	36312
Trichy	4460	8376	11139	4381	1283	3480	7157	40276
Theni	1857	5913	5140	1811	498	1607	4150	20976
Thiruvarur	3030	7562	6173	2041	778	2022	4670	26276
Thiruvannamalai	4524	9453	9790	3374	860	3333	6838	38172
Thiruvallur	7296	21857	13144	4961	1344	4969	20978	74549
Thirunelveli	5302	11840	14600	5195	1822	4183	8605	51547
Thoothukudi	3751	7366	8903	2988	1302	2472	4588	31370
Virudhunagar	2864	6604	8276	2927	839	2745	4559	28814
Villupuram	6324	14694	15994	4256	1175	4583	11507	58533
Vellore	6408	14645	15586	5535	1603	5362	12019	61158
Ariyalur	1790	4162	3733	1116	317	1294	2664	15076
Thiruppur	3111	8462	7872	2607	1001	2931	7507	33491
TOTAL	127405	300318	287241	100847	32964	92796	238392	1179963

Source: Census 2011

5. Statement of the problem

Disabilities are the part of every human condition. Almost everyone will be temporarily or permanently impaired at some point in life. Most extended families have a disabled member, and many non-disabled people take responsibility for supporting and caring for their relatives and friends

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with disabilities. Now a day, most of the disabilities to be create an accidental activity so that the accidently person also comes under in the disability category. Every disability has faced the moral and political issue of how best to include and support people with disabilities. This issue will become more acute as the demographics of societies change and more people live to the world. That the type of disabilities most of them doing anywhere working in employee only not an employer because they faced so many problem and also not an aware the welfare schemes. Basically they are living mainstream of the society see the disability first and see the person afterwards which makes confidence issue for disabled entrepreneurs. There are also problems to external facilities and support that limit the ability of disabled persons to participate on equal basis for instance in access to information on business development, communication and infrastructure. Should these problems not to be removed and the disabled entrepreneur according the right business environment, then the situation will continue getting as a country may not realize some of its vision 2030 goals.

6. Objectives of the study

1. To analyze the factors influencing disabled person become an entrepreneurs.
2. To analyze the social position of disabled entrepreneurs.

7. Research methodology

This research is conducted in Salem district. The research is descriptive and realistic in nature, uses both primary and secondary data. The primary data were collected from the respondents through well-structured questionnaire. The researchers used snowball sampling technique. The ssecondary data were collected from books, journals and internet. A sample of 50 respondents was selected. The collected data were classified and tabulated accordingly for descriptive and inferential analysis to meet the objectives of the study.

8. Analysis and interpretations

TABLE 3

Factors Influencing the to become an Entrepreneur

S.No	Factors Influencing	No. of Respondents	Percentage
1.	Parents	12	24.0
2.	Friends and relatives	09	18.0
3.	Self motivation	28	56.0
4.	Training institutions	01	02.0
Total		50	100.0

Source: Primary Data

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From the above table it is inferred that the 56 per cent of the respondents are influenced by self-motivation, 24 per cent of the respondents are influenced by parents, 18 per cent of the respondents influenced by friends and relatives and 2 per cent of the respondents influenced by training institutions to start the business.

TABLE 4

Impact on Social Position

S.No	Asset Generation	No. of Respondents	Percentage
1.	House or land	02	04
2.	Vehicle	25	50
3.	Luxury product	04	08
4.	Nothing to Purchase	19	38
	Total	50	100

Source: Primary Data

From the above table it is inferred that the 50 per cent of the respondents acquired vehicles, 38 per cent of the respondents are not purchased anything, 8 per cent of the respondents acquired luxury products and 4 per cent of the respondents purchased house or land.

9. Conclusion

The study concludes that most of the disabled persons are doing small types of business. Disabled entrepreneurs say that most common their problems are: transport (ramp) problems, economic, social and psychological, etc. The findings reveal that disabled entrepreneurs living with physical disabilities experience some affliction in to run a business activities for insufficient of startup capital. The researcher interviewed 50 disabled entrepreneurs living with disabilities. Only three respondents said that no problem for to start and run the business activities because their family is so wealth. The government can provide more incentives to empower their development activities.

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A STUDY ON COST AND BENEFIT ANALYSIS OF COTTON PRODUCTION IN SALEM DISTRICT

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Abstract

This study is about cost-benefit analysis of cotton production in selected blocks of Salem district. In order to analyze the cost-benefit analysis, regions were selected as study area since majority of the cotton producers are living herein. Cotton is one of the major crops of Salem district and have important role in agricultural production. It has been identified that cotton producers have an incentive in the shape of profit to raise their production. Based on the study, it is recommended that the Government of Tamil Nadu should support the cotton producers by giving subsidies for inputs and support price system.

Key words: Cost-benefit analysis, cotton production, agricultural marketing, etc.

1. Introduction

Agriculture is primary occupation in villages. It is important to make this occupation profitability so that India is better in every respect. Agriculture continues to be the mainstay of socio-economic structure of the country. Cotton is one among the most important fibre crops playing a key role in the economic and social affairs of the world. Among the commercial crops, cotton is having global significance. Cotton is the oldest among the commercial crops of the world. The important cotton growing countries in the world are India, U.S.A., Russia, China, Brazil, Egypt, Pakistan, Turkey, Mexico and Sudan. These 10 countries together have 85 per cent of the total cotton production. With the increase in domestic production of superior quality cotton, our imports have come down considerably, resulting in saving of the foreign exchange. India has achieved near self-sufficiency in the production of superior quality cotton. India exported 179.6 thousand tonnes of raw cotton worth Rs. 992 crore while the imports were 8.09 lakh tonnes worth Rs. 1570 crore in 2016-17. Considering the major provisions of World Trade Organization, India's position, the points that emerge to be of immediate concern in enhancing the productivity and quality of cotton and making it competitive globally are: bringing down the cost of cultivation and enhancing its productivity and quality; rendering cotton globally attractive; and keeping Indian cotton free of trash content. The profitability of farming could be estimated by finding the relationship between the cost incurred and the returns earned from a particular crop enterprise. In the case of individual farmers, the data on cost and returns would reveal an input-output relationship and bring out the different unit cost between the less efficient and more efficient farmers.

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2. Cotton production in India

India is second largest cotton producing countries after China and our economy depends on agriculture. Cotton is an important crop that finds application in clothing and other sectors. India ranks at second position among all cotton producing countries in the world. The area in which cotton is grown is more than 145 lakh hectares and the total production of the cotton in 2016-2017 crossed the mark of 480 lakh bales. The Government of India for the year 2016-2017 has increased the minimum support price for cotton by Rs 50 per quintal. Cotton is produced in more than 12 states in India and among all states Gujarat and Tamil Nadu are the largest cotton producing states in India and with a production of 160 lakh bales.

3. Cotton production in Tamil Nadu

Tamil Nadu is a pioneering state in the development and cultivation of long and extra long stable cotton in the country. Tamil Nadu contributes about 1.55 per cent of the total production with about 1.11 per cent of the total area of the country. Coimbatore, Salem, Madurai, Tiruchirapalli, Ramnathapuram, Vellore, Thiruvallur, Chengalpattu and Tirunelveli are the main producing districts.

4. Cotton producers in Salem district

There are the farmers who primarily grow cotton in their fields. They perform various practices right from sowing of cotton to picking, storing and finally selling the cotton. With a large number of small and uneducated growers, it is difficult to manage quality since many marketing agents are involved from farm to the ginning factories. The growers who are mostly uneducated are engaged in the cotton production which they have learned from their forefathers. They have acquired the latest knowledge from various sources like extension work, pesticide selling agents and co-farmers. They grow cotton and pick the cotton through the local women as manual picker. After finishing the picking process, cotton is sold to village agents who visit the farmers at door steps.

5. Cost of production for producers

Cotton production incurs different costs. These are fixed and variable. Investment in land and machineries are fixed cost. Cost of cultivation, seed, fertilizer, irrigation and plant production measure are the inputs which need variable cost.

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6. Cotton production of investment items

- Land preparation
- Cotton seed
- Cultivation
- Sowing cost
- Irrigational cost
- Fertilizer cost
- Intercultural cost
- Plant protection cost
- Labour cost

7. Conclusion

In this study while focusing on the interaction with cotton producers in Salem district, it was identified that cotton producers have incentive in the shape of profit to raise their production. This article is mainly based on cotton producers those who have little incentive in increasing their production. This study proposes many recommendations. The key recommendation includes that the Government of Tamil Nadu should support the cotton producers by giving subsidies for inputs and with the help of support price system.

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ISBN 978-81-937002-8-0

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Google Web Crawler and its Function to Library Expert

Dr. Sivasubramanian G

Assistant Librarian, Department of Library, Sri Ramakrishna College of Arts and Science
Nava India, Avinashi Road, Coimbatore

Dr. Gomathi P

Assistant Professor, DLIS, Periyar University, Salem

Abstract

Internet search engines are tools that recover the information from web. Google search engine is the most popular among all types of users, especially academic users. The librarians play an important role in managing the web resources and helping the users to receive right information. The article covers the development of Google search engine from 1999 till date. It also includes features of Google scholar and books search on Google. An attempt has been taken to evaluate search engines

Keywords : *Search engine, Web search, Internet search engines, library professional*

Introduction

Internet is a vast digital library. The role of a librarian in the internet era is to provide or assist the user in getting right information at the right time in right amount from plenty of information available on the net. A web search engine is an interactive tool to help users locate information available via the internet. Web search engines are actually databases that contain references to thousands of resources. Users interact with these databases putting a query that ask the database if it contains resources that match specific criterion. Search engines are suits of computer programs that automatically find and download WebPages and store them in a database. Search engines use program that links to the database to a user interfaces so that it can be interrogated through the internet.

Search Engines

A search engine is a program that searches documents for specified keywords and returns a list of the documents where the keywords were found. Although search engine is really a general class of

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Today and Tomorrow Printers and Publisher, New Delhi, India

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Perception and Use of Open Access Resources Among Faculty Members in Periyar University, Salem: A Study

Dr.P.Gomathi

Assistant Professor, Department of Library and Information Science, Periyar University, Salem-11., gomathi148@gmail.com

INTRODUCTION

Open Access Resources are the tools and practices which are free of legal, financial and technical barriers and can be fully used, shared and adapted in the digital environment. The Open Access resources comprise of open access archives, open access books, open access journals, open access courseware, open access search engines, and open source software. The researcher visited many library science department websites, various library web portals, for locating resources.

Literature Review

Prince and Saravanan(2015) studied the awareness and perception of users towards open access resources in the higher educational institutions in Kanyakumari districts. It was revealed that the majority of the respondents were fully aware about the open access resources. It was also found that the majorities of the respondents were using open access resources for their course- related work and satisfied its uses in their academic activity.

Veena (2016) studied the awareness and utilization of open access electronic information resources and related issues among postgraduate students of Mangalore University and found that 58(38.15%) of the respondents got their open access resource usage skill through teachers/

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ABOUT THE BOOK

Open Access and the resources are being used by the libraries for information processing, storage, communication, dissemination of information, innovative services etc. Recognizing the advantages application of Open Access, the librarians are essential to provide the facilities and services to their user community. To provide fast, integrated, Interactive and comprehensive services to their users the libraries must engaged to modernize their operations and their services with using of open access resources. Today, the open access resources play a vital role to provide a valuable information with free of cost round the clock. This edited volume consists of 16 papers from Library and Information Science Professionals in the National level under five themes such as, i) Open Access Resources for Learning Environment, ii) Open Access and Open Science, iii) Research on Open Access Repositories, and iv) Studies in Open Access Resources and Tools. The Editors are sure that this volume would be valuable addition to the library and Information Science literature.

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TOTAL QUALITY MANAGEMENT SYSTEM: AN OVERVIEW

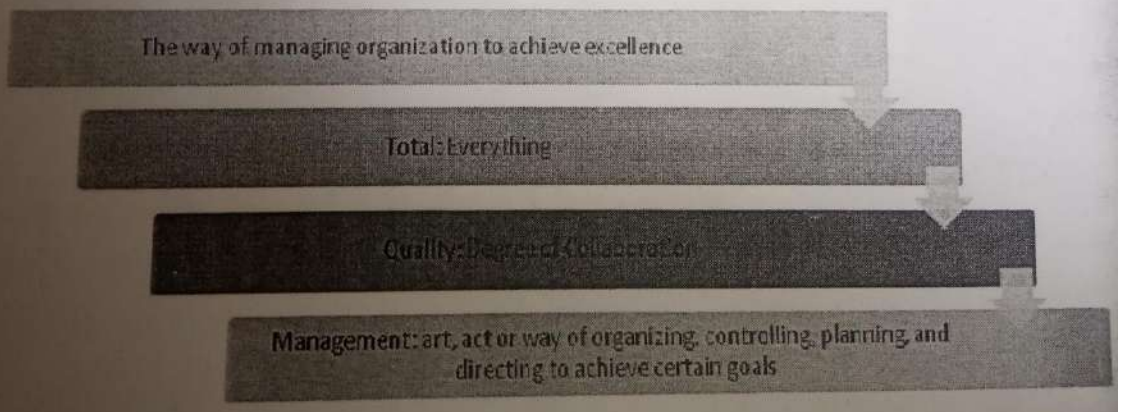
Dr.P.GOMATHI
Assistant Professor
Department of Library and Information Science
Periyar University, Salem-11.

ABSTRACT

This present study discussed on the Total Quality Management (TQM) in the construction industry promises several benefits such as more repeat customers, reduced rework, improved employee job satisfaction, higher productivity, improved budget performance, improved schedule performance, better chances in the bidding process with pre-qualification, increased market share, etc. The construction industry is different from other industries in many aspects such as one one-of-a-kind products, lack of top management's leadership and support, unqualified workforce, lack of effective teams, etc. Total Quality Management (TQM) is a general philosophy of gradually improving the operations of a business. This is done through the application of rigorous process analysis by every involved employee and business partner. TQM is usually applied at the tactical, front-line level, where product, clerical, and low-level managers are deeply involved.

INTRODUCTION

TQM is a management approach for an organization, centered on quality, based on the participation of all its members and aiming at long-term success through customer satisfaction, and benefits to all members of the organization and society.



- Requires cultural change – prevention not detection, pro-active versus fire-fighting, life-cycle costs not etc.
- Many companies will not start this transformation unless faced with disaster/problems or forced by cu

Effects of TQM (Quality Improvement) Improve Quality (Product/Service) Increase Productivity (les

Type 2 Diabetes Literature Analyses in Southern Asian Countries during the Year 2014 – 2018 - A Scientometric Study

Boopathi, P. and Gomathi, P. (Dr.)

Technical Assistant, NIT Central Library,

Assistant Professor, DLIS, Periyar University,

Abstract

This article analyzed the publications on Type II diabetes in South Asian Countri during the year 2014 – 2018, indexed by Web of Science database. This study is a special mi view on South Asian publications, based on the scientometric method; including 1860 jour and 37718authors 12,989 records found during the study period. In this study identified important results; the highest articles published in the year of 2018 with 3095 records. journal PLOS ONE is in the place of the top with 418 articles. China is an influential coun the field of type II diabetes research output and the Majority of the authors belong to China's dominance continues to be institution-wise also. In this regard, we have explaine in various parameters such as descriptive, statistical, and graphical view. We hope th paper to helpful further metric study and researchers who relate to diabetes.

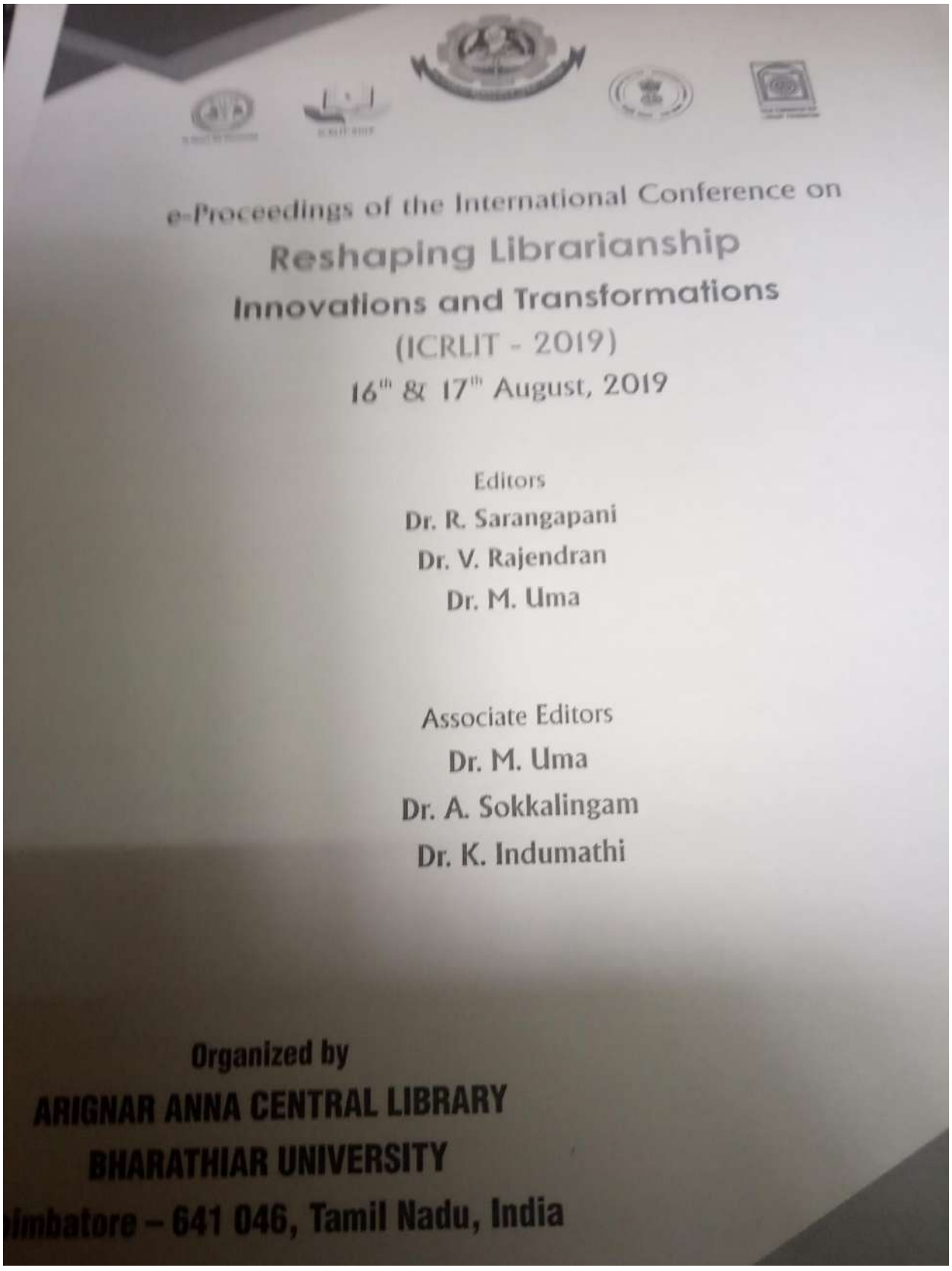
***Keywords**: Type 2 Diabetes, Mortality, Insulin Resistance, Metabolic Syndrome, Metformin, Polymorphism.*

Introduction

Scientometrics study is a kind of scientific method to analyze the quality and publications in terms of certain metric policies for a particular period. The scientomet is a very affordable method for measuring literature output in a specific subject as identify the quality and impact of publications. Besides, we can discover the rela collaboration between the journals, authors, and countries through this method of Uniqueness of this method is to rate the Journals And Other Pieces Of Information.

Overview of Diabetes

As per the WHO report, most of the populations are affected by diab including the developed countries. Normally we know Diabetes is related to imbal of insulin and glucose level in our blood. The disease can be classified as type 1 a are concerned with insulin hormone production and their utility. Now, we have study Tye 2 diabetes. If anyone is affected by Type II diabetes means, his/her produce the insulin as much as needed. The pancreas secretes the insulin, and balanced the glucose level in our blood; Failure to do this can cause many par fail due to an increase in glucose. It often comes from heredity, sedentary li eating habits. Despite research all over the world regarding this disease, the pu is to investigate the role of Asian countries.



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Dr. S. Dhanavandan, is working as Deputy Librarian, Central Library at Central University of Tamil Nadu, Thiruvarur, Before joining in CUTN, he served as University Assistant Librarian at 'The Gandhigram Rural Institute - Deemed University', Gandhigram. He has completed M.A. B.Ed., (Economics) DLL & AL., (Law), M.L.I.S, M.Phil, and Ph.D (LIS) in Annamalai University, Annamalai Nagar. He is having more than twenty one years in the Library and Information Science profession. ...es were awarded under his guidance. He has published more than 135 articles in National and ...ournals and more than 155 papers presented and published in National and International ...e authored more than 33 books in Library and Information Science and 60 Chapters in edited ...attended more than 60 Seminars/Workshops and training programmes. Three times he has ...Award (more than One Lakh) for the best articles from Konkuk University, South Korea. He served ...and Resource Person in many workshops, conferences and also organized fourteen workshops ...s. He has adjudicated Ten Ph.D theses. He is life of member of SALIS, ALA and MALA.

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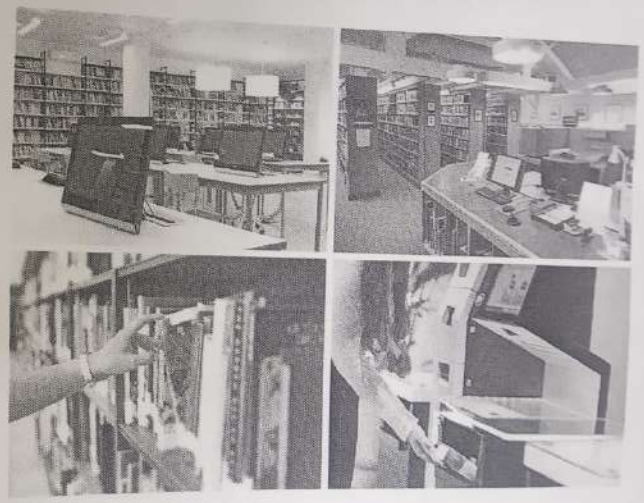
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Chapter 09

A Study on Use of Facebook by PG Students of Selected Departments in Periyar University, Salem

Dr. P. Gomathi[1] & C. Sathiyapriya[2]
[1]Assistant Professor & [2]Research Scholar, DLIS, Periyar University, Salem-11.

INTRODUCTION

Facebook was started in the dorm room of Harvard student Mark Zuckerberg in 2003. Mark Zuckerberg started the site as an online edition of the popular 'Facebook' profiles that colleges distribute to freshmen students before the start of the fall semester. "The answer to Facebook was enormous and direct at Harvard" and three weeks following the create of the website primarily named that face book.com it had 10,000 registered users at Harvard. The Facebook website was shaped originally only for Harvard college students, but quickly other Ivy association schools such as Yale, Columbia, and Dartmouth requested that Zuckerberg has a Facebook at their school as well. Later it includes any University student, then high school students and finally to anyone aged 13 and over. The website currently has more than 120 million active users worldwide.

OBJECTIVES OF THE STUDY

- To trace out the frequency of use of Facebook
- To find out the user perception about the Facebook
- To know the access purpose and most used Facebook
- To examine the preferred format of using Facebook

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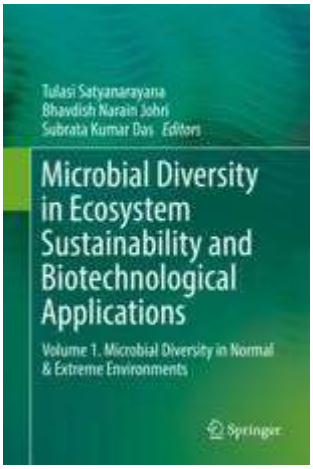
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About this book

This book discusses microbial diversity in various habitats and environments, its role in ecosystem maintenance, and its potential applications (e.g. biofertilizers, biocatalysts, antibiotics, other bioactive compounds, exopolysaccharides etc.). The respective chapters, all contributed by renowned experts, offer cutting-edge information in the fields of microbial ecology and biogeography. The book explains the reasons behind the occurrence of various biogeographies and highlights recent tools (e.g. metagenomics) that can aid in biogeography studies by providing information on nucleic acid sequence data, thereby directly identifying microorganisms in various habitats and environments.

In turn, the book describes how human intervention results in depletion of biodiversity, and how numerous hotspots are now losing their endemic biodiversity, resulting in the loss of many ecologically important microorganisms. In closing, the book underscores the importance of microbial diversity for sustainable ecosystems.

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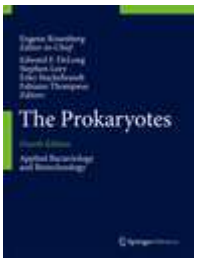
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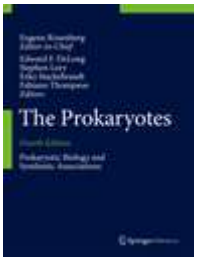
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Volume 1. Microbial Diversity in Normal & Extreme Environments
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Tulasi Satyanarayana
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XVI, 635
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Distribution and Bioprospecting Potential of Actinobacteria from Indian Mangrove Ecosystems

11

Radhakrishnan Manikkam, Premalata Pati, Shanmugasundaram Thangavel, Gopikrishnan Venugopal, Jerrine Joseph, Balagurunathan Ramasamy, and Syed G. Dastager

Abstract

Actinobacteria are the ecologically and economically important prokaryotes with the unprecedented ability to produce novel metabolites. They are widely distributed in nature due to their physiological and metabolic versatility. Actinobacteria from marine ecosystem are recognized as a promising source for novel bioactive metabolites. Notably, mangroves are the most fertile and productive marine ecosystem due to their ecophysiological conditions and vast microbial diversity. At the global level, there are many novel actinobacteria which have been reported from mangrove ecosystems and also explored for their bioprospecting potential. However, in India, microbiologists have explored actinobacteria from selected mangrove ecosystems for the past five decades with special reference to culturable diversity and antimicrobial, antimycobacterial, anticancer, and enzymatic activities. So far, around 22 rare actinobacterial genera have been reported from the Indian mangrove ecosystems. However, several other novel actinobacteria with promising bioprospecting potential are yet to be explored. Hence, research on actinobacteria in the Indian mangrove ecosystem is still in its infancy. This chapter will describe the exploratory research work carried out on the importance, diversity, antimicrobial and

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T. Satyanarayana et al. (eds.), *Microbial Diversity in Ecosystem Sustainability and Biotechnological Applications*, https://doi.org/10.1007/978-981-13-8315-1_11

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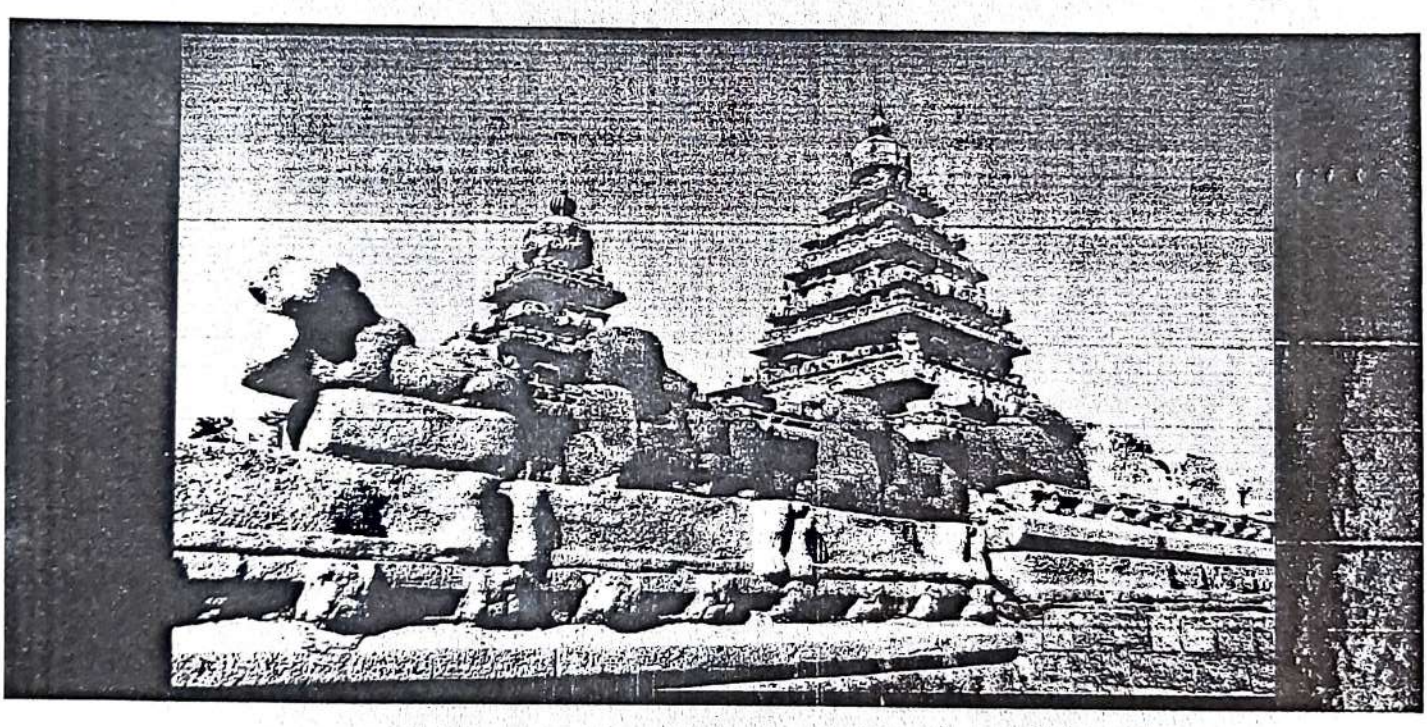
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சிவம் போற்றிய மாணிக்கவாசகரின் திருவாசகப்பாடல்கள் இசையோடு இணைத்துக் காண்பதற்குரியன. குறிப்பாக, நாட்டுப்புற இசைவடிவங்களோடு பொருந்தி வருவன. தேவாரப் பாடல்களைப் போல் 'பண்' முறையில் அமைந்தவை அல்லவெனினும் நாட்டுப்புறத் தமிழ்மக்களின் எளிய இசையோடு ஒன்றுபட்டவை. திருப்பள்ளி எழுச்சியைத் தவிர ஏனைய வகைப்பாடல்கள் நாட்டுப்புற மகளிரின் விளையாட்டுப் பாடல்களே. மாணிக்கவாசகரின் திருவெம்பாவை, திருவம்மானை, திருப்பொற்சுண்ணம், திருத்தெள்ளேணம், திருச்சாழல், திருப்பூவல்லி, திருவுந்தியார், திருத்தோணாக்கம், திருப்பொன்னூசல், திருப்பள்ளிஎழுச்சி போன்ற பாடல்களில் காணலாகும் இசைத்தன்மைகள் தமிழர் வாழ்வியலில் பயின்றுவந்த பாங்கினை மொழிவதே இக்கட்டுரையின் நோக்கமாகும்.

திருவெம்பாவை- நீர்விளையாட்டு

'திருவாசகத்தை இசைக்கண்கொண்டு பார்த்து இதனை இசைவளர்த்த நூலாகக் கொள்ளலாம்' (III தொகுதி, ப.87) என்கிறது தமிழிசைக்கலைக்களஞ்சியம். திருவெம்பாவையை நீர்விளையாட்டுப் பாடலுடன் இணைத்துக் காண்பதுவும் இக்கலைக்களஞ்சியமே. திருவெம்பாவை எனும் விளையாட்டுப் பாடலுக்குச் சங்க இலக்கியங்களே வழிவகுக்கின்றன.

''வண்டற்பாவை யுண்டுறைத் தரீஇத்
திருநுதல் மகளிர் குரவை யயரும்
பெருநீர்க் கானல் தழீஇய இருக்கை'' (அகம்.269: 19-21)

என்ற பாடலின்வழி மகளிர் பாவையுடன் சென்று நீர்த்துறையில் குரவையாடிய செய்தி தெரியவருகின்றது. பாவைப்பாட்டு என்பது விளையாட்டுப் பாடலே என்பதை நிறுவ அருணைவடிவேல் முதலியார் ''அம்மானைப்பாட்டு, ஊசற்பாட்டு முதலியவை மகளிர் விளையாட்டுப் பாடலாதல் போலப் பாவைப் பாட்டும் அவரது விளையாட்டுப் பாடலேயாம். 'எம்பாவாய்' என விளித்துப் பாடும் பாட்டே 'பாவைப்பாட்டு' எனக் கொள்ளுமாகலின் 'பாவை' என்பது விளையாட்டாகாமை பற்றி இழுக்கில்லை. எனவே, விளையாட்டுவகையால் நோக்கின் இது 'நீராடற்பாட்டு' எனப் பெயர் பெறற்பாற்று'' (அருணை வடிவேல் முதலியார், கி. (கு.ஆ.), திருவாசகம், ப.262) என்பர். திருவெம்பாவை என்பது நீர்விளையாட்டு, அது மகளிர் பொய்கையில் நீராடிமகிழும் அதிகாலைக்குரியது என்பதால் இதற்கான இராகமாகப் 'பூபாளத்தை' வகுத்துள்ளனர். மார்கழி மாதந்தொறும் பூபாள இராகத்தில் பண்ணாங்கமாகப்பாடும் முறை நீண்டகாலமாக வழக்கத்தில் உள்ளமையால் பழம்பெரும் பண்ணமைப்பு முறையின்படி 'புறநீர்மை' எனலாம்.

திருவம்மானை- கழங்காட்டம்

மாணிக்கவாசகரின் அம்மானைப் பாடல்களை அம்மானை வரி என்றும் ஆனந்தக்களிப்பிற்கு உரியன என்றும் குறிப்பிடுவர். அம்மானை என்பதற்கு, ''ஒருமித மகளிர் விளையாட்டு, அம்மானை ஒரு வகைப்பாடல், அம்மானைப் பருவம், கலம்பகவுறுப்புள் ஒன்று'' (சண்முகம்பிள்ளை, மு (தொ.ஆ.),தமிழ் - தமிழ் அகரமுதலி, ப.456) என்றும் கூறப்படும் அகராதியின் பொருள்விளக்கத்தின்வழி அம்மானை இசைப்பாட்டு வகையுள் ஒன்று என்பதறியலாம். சங்ககாலத்தில் 'அம்மானை என்ற விளையாட்டு 'கழங்காட்டம்' அல்லது 'கழங்காடல்' என்று அழைக்கப்பட்டது. கழங்காடல் மகளிரின் விளையாட்டைச் (ஐங்குறு.2461) சுட்டியுள்ளது. பிற்காலத்திலேயே கழங்காடலுக்குரிய பாடல்கள் ஆட்டத்துடன் இணைக்கப்பட்டுள்ளன. இது குறித்து சிலப்பதிகாரக் காலத்தில் கழங்காடல் அம்மானை என்று அழைக்கப்பட்ட கழற்சிப்பாடல் பின்னாளில் அம்மானை என்ற பெயரிலேயே விளையாடலையும் பாடலையும் சுட்டி வந்துள்ளது. தமிழிசைக் கலைக்களஞ்சியமும் மகளிர் விளையாட்டுப் பாடல்களுள் ஒன்றாகவே அம்மானையைக் குறிக்கின்றது. அதாவது ''மகளிர் கழற்சிக் காய்களைத் தூக்கிப் போட்டுப் பிடித்து விளையாடும்போது பாடும் ஒருவகை வரிப்பாட்டு. அம்மானை பாடுவதற்குக் 'கழங்கு ஆடுதல்' என்று மற்றோர் பெயருண்டு'' (சுந்தரம், வீ.ப.கா.இ தமிழிசைக்கலைக்களஞ்சியம், I, ப.49) என்கிறது. 1949 ஆம் ஆண்டு வெளியான ச.தண்டபாணி தேசிகர் எழுதிய குறிப்புரையுடன் கூடிய திருவாசகப் பதிப்பு ஒன்று திருவம்மானைக்குரிய இசையமைப்பாக ஆனந்தக் களிப்பைக் குறிப்பிட்டுள்ளது. அம்மானைப் பாடல்களை இன்றைய நிலையில் 'நாதநாமக்கிரியை' என்னும் இராகத்துடனும் தொடர்புபடுத்தியுள்ளனர் இன்றைய இசைஆய்வாளர்கள்.

Printed ISBN : 978-81-909372-5-2

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THE UNDISPUTED JUDGEMENT - THE BOOM OF EATERIES AND CAFÉS AND THE ABRUPT NIGHTFALL OF RESTAURANTS IN INDIA

[1]Tinu S Thomas

[1]PGDM-Management Student, ABBS School of Management, Bengaluru, Karnataka, India.

Back in the days, our society was more confined to "eat at home" principal. But over time backed with booming economic standards of the Indian consumer world, Food has become an integral part of our life but at the same time very particular in our day to day lives.

India since historic times has been fashionable in terms of cuisine and is home to some of the world- renowned spices and condiments and we have always experimented with food and mastered the art of cooking. With the economic boom post 1990's and globalisation this industry has carved out its chunk in the economic share. A wide range of restaurants have opened up all over India starting from a Fine dine to QSR. All these Restaurants and eateries work on the universal principle of delighting customers and moving forward with the trends of tastes and choices. It has been accounted that 31% contributes to the food and groceries industry, but at the same time it is accounted that 80-85% restaurants in the first year barely breaking even and another chunk of the pie fail to see the five-year anniversary. The restaurant business is not for the faint hearted. It takes time and passion to understand the pulse of the market and its consumers. Going by the book many restaurant owners feel that it's a gamble that consumers fall for, on the contrary they do not. More than defining the culture code of restaurants and old school methods, restaurants and its owners fail due to the rising gap of customer expectations and strategic deliverables.

Keywords: Globalisation Impacts, Understanding Food, Technological Gap, Strategic Deliverables.

WOMEN LIVELIHOOD TRANSFORMATION THROUGH GARMENT INDUSTRY

[1] Dr.S.Balamurugan, [2]P.Kalai Rani

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The present study was conducted to document the socio demographic profile of women workers in RMG sectors and to assess the impact of employment in RMG for livelihood change. For this study, two garment factories from Salem district were selected purposively. Data were Collected from 51 sample women workers. In this study, the simple random sampling technique was adapted to data collection. This study shows that with the involvement in garments industry all women had brought positive changes in different types of livelihood assets such as financial capital, physical capital, human capital, social capital and natural capital.

Keywords: Livelihood status, women garment workers, employment opportunities.

ISBN No: 978-81-909372-5-2

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HAND BOOK ON

DIETARY MANAGEMENT OF CARDIOVASCULAR DISEASES

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Harman Publications

92, Baskarapuram, Trichy Main Road,
Near New Bus stand, Thanjavur,
Tamil Nadu, South India. 613005

Title	:	DIETARY MANAGEMENT OF CARDIOVASCULAR DISEASES
First Edition	:	**August 2019**
Copy right	:	Authors
Pages	:	69
ISBN No.	:	**978-93--84008-75-8**
Size	:	Crown A4
Price	:	**500 (Five hundred Rupees only)**
Publication	:	Harman publications, Thanjavur

Note: No part of this book should be reproduced in any form without a written permission of the publisher.

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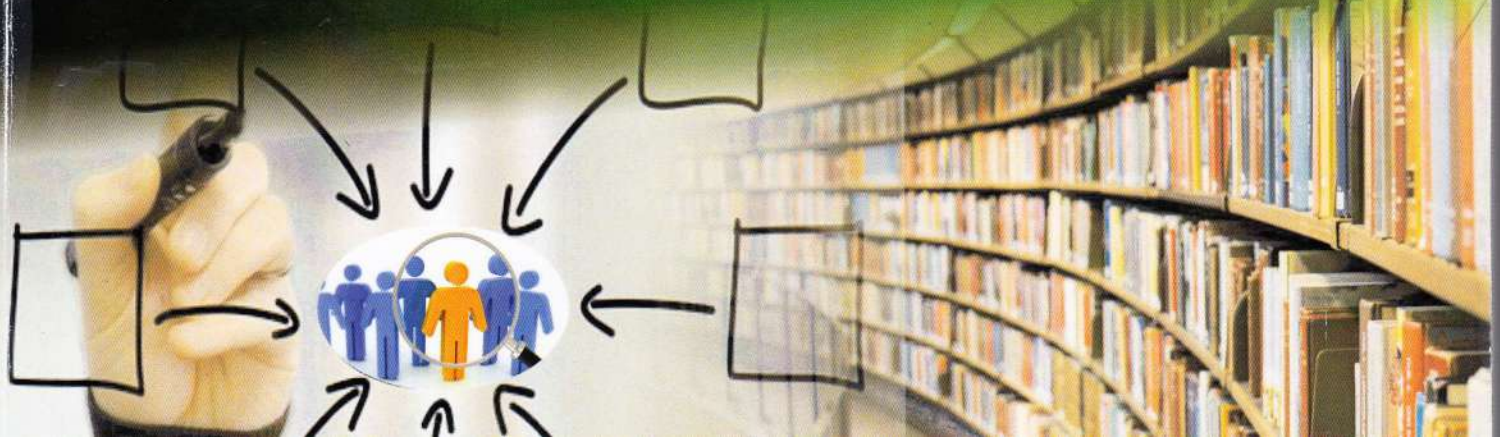
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Editor : Prof. K. Nachimuthu
Reviewer : Prof. Mumtaz Begum, Prof. P. Ganesan &
Prof. T. V Thulasidharan
Year of Publish: 2019 (1)
ISBN : 978- 81-923575-7-7

978-81-923575-7-7

BHARATHI PATHIPHAGAM, COIMBATORE.

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 ISBN 978-81-923575-7-7

THE ROLE OF UGC, NCERT AND NCTE IN TEACHER EDUCATION

Mr. C. KATHIRESAN,
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Abstract

The World has become a global village and in this age of globalization no country can live isolation without seeking impact of global trends in national development. This age of globalization also has great impact on education. Teacher Education is the brain of all educational disciplines as it delivers education to train the prospective teachers. The main purpose of this paper was to explore the role played by the teacher education agencies UGC, NCERT and NCTE in bringing paradigm shift in teacher education. Due to explosion of knowledge, there is a spread of education not only in India but all over the world. So the social needs are changed accordingly. A teacher is expected to face the new changes by undergoing through training for new trends in education. Such training needs are satisfied by different agencies at different level.

Keywords: *Agencies, Paradigm shift, teacher education, UGC, NCERT, NCTE*

Introduction:

The spread of knowledge and information has been on a comprehensive scale. The agencies of teacher education provide the means of not only training but also facilitating collaboration between high levels internationally recognized researchers and teaching staff of international Universities (Agencies of Teacher Education). To improve the quality of education and the quality of the educational institutions, it is necessary to update the educational methodology and to provide publicity to educational Innovations by conducting various types of educational research.

The agencies in teacher education are established with main purpose of imparting knowledge and information among teachers. This is particularly in terms of modern and innovative techniques and approaches, so that they able to meet with the current demands and needs of educational system. The main objective of the agencies focus upon, conducting educational research, improve the quality of teacher education, enhance the quality of educational Institution and bring about advancements in the overall system of education. It is vital to take into consideration the progression opportunities that are necessary to enrich the educational system.

The main agencies of Teacher Education in India:

The main agencies of Teacher Education in India are

1. University Grants Commission **(UGC)**
2. National council of Educational Research and Training **(NCERT)**
3. National Council of Teacher Education **(NCTE)**

1. University Grants Commission (UGC):

It is established on 28th December, 1953, at New Delhi. UGC was given autonomy by Government of India in 1956.

1.1 Functions:

- It provides financial assistance to universities and colleges to meet their requirements.
- It extends the financial aid for the development of universities and maintenance.
- It provides the guide line to central and state government for giving grant to University.
- It provides the grants for 5 Years to establish as new university in the state.
- It provides the grants for 5 years to start new department or any academic programme in the university but now state concurrence is essential.
- It provides the fellowship for teachers and project work for university and college teachers.
- It encourages higher level research work and teaching activities by providing financial assistance.
- It provides the grants to the universities and colleges for higher education and new programmes.

1.2 Teacher Education Committees:

- To upgrade the standard of education Teacher Education Committees were formed which consists of 7 members for 2 years duration.
- It provides awareness of new innovations and research in teacher education.
- The national fellowship and teacher fellowship are granted for encouraging research and teaching work.
- UGC provides travel grants to the university professors for attending international conference and seminars.
- Visiting professors are appointed from among the university professors for inter change programmes and delivering lectures.
- Residential facilities for university and college teachers are also provided.
- Research Association are appointed for post doctor work .

1.3 Research:

- **UGC** is giving substantial grants to university teachers for conducting their own researches. In 1953-5, Ministry of Education initiated a scheme providing grants to teachers, colleges and department of education in the universities in order to enable them to carry out research on educational problems selected by them and approved by the central ministry.

- The main purpose of the scheme is to provide facilities for research which in many instances, has been held up owing to dearth of funds. It is to be carried on by the staff of the training colleges assisted by some research fellows assigned to them and some financial facilities. Equipment's is provided to facilitate the completion of the projects.

1.4 Centre for Advanced Studies (CASE)

- For the improvements of standards of teaching and research in India, UGC has set up CASE in different branches of knowledge. It selected the Faculty of Education and Psychology, Barda as the CASE in Education which functions on an all India basis and aims at raising standards of teaching and research in education. It has built up its programme in collaboration with research workers from outside.

2 National Council of Educational Research and Training (NCERT)

Ministry of Education, Government of India established NCERT in 1961. NCERT is an autonomous organization, working as an academic wing of the ministry of education. NCERT assists the ministry in the implementation and formulation of its policies and programmes in the field of education. It is expected to encourage students and teacher to conduct educational research.

In order to fulfil these main objectives it has established National Institute of Education (NIE) at Delhi and regional educational colleges at Ajmer, Bhopal, Bhubaneswar and Mysore. It also works in collaboration with the departments in the states, the institutes and Universities. It also maintains close contact with similar national and international institutions throughout the world and communicates results of its researches to a common man by publishing books and journals.

2.1 Main functions of NCERT:

- Monitoring the administration of Regional Colleges of Education.
- Undertaking aid, Co-ordinate and promote and research in all branches of education for improving school education.
- Organizing Pre-service and in-service education programmes for teachers.
- Preparing and Publishing study material for students and related teacher.
- Searching talented students for the award of scholarship in science , social science and technology.
- Undertaking functions assigned by the ministry of education for improving school education.
- Organizing various programmes with respect to research, training, research development, extension services, evaluation and publishing study material.
- Qualitative improvement of school education rather than quantitative expansion.

- Making our education relevant to national objectives and social needs.
- Offering financial aid to research projects o the teachers.
- Also organizes summer institutes to school teachers for attaining their professional growth through these measures NCERT wants to achieve qualitative improvement in education.

2.2 Central Institute of Educational Technology:

Functions:

- ❖ Encouraging the use of educational technology in the spread of education.
- ❖ Organizing training programmes in connection with educational television and school-broadcasting.
- ❖ Developing learning aids based on educational technology.

2.3 Regional Institute of Education(RIE):

- NCERT established model institute of education in different regions of the country.
- Beside teacher education programme(years integrated B.Ed. course, these college conduct programme with respect to extension service, in-service training and research.
- Education is professional subject like engineering, medicine and B.Ed. student should be trained in the content and methodology simultaneously, due to this reason they run years B.Ed. course.
- This course offers B.Sc. B.Ed.(Science) and BA.BEd (Language) degree.
- These colleges also conduct one year B.Ed course especially in science, commerce, agriculture and languages.
- They also run M.Ed. course.
- These colleges are situated at Ajmer, Bhopal, Mysore and Bhubaneswar as centres of excellence for the 4 regions of India.

3. NATIONAL COUNCIL OF TEACHER EDUCATION:

Kothari Commission report (1964-66) criticized teacher education programme being conventional, rigid and away from reality. The commission expressed the need of establishing National Council of Teacher Education. In September 1972, Central advisory Board of education accepted the said proposal which was supported by fifth National Plan. Thereafter by law, Indian Education Ministry established NCTE on 21st May 1973, NCTE has got independent constitutional status since 1993.

3.1 Objectives:

(i) To achieve planned and Co-ordinate development of teacher education throughout the country.

(ii) To improve the standard and working of teacher education.

3.2 Functions of NCTE (According to the act 1993):

- ❖ To make recommendations to the centre and state government universities, the UGC and other institutions in the preparations of plans and Programmes in the field of teacher education.
- ❖ To supervise the teacher education programmes and to provide financial assistance.
- ❖ To coordinate and monitor teacher education and its development in the country.
- ❖ To prepare a guideline with regard to minimum qualifications for the candidates to be employed as teacher at different levels.
- ❖ To develop norms for any specified category of courses of training in teacher education, including minimum eligibility criterion for admission.
- ❖ To advice central government on matters like teacher education, evaluation of the curriculum for teacher education and periodical review with respect to revision of curriculum.
- ❖ To advice the government to ensure adequate standards in teacher education.
- ❖ To give approval to teacher education institutions.
- ❖ To enforce accountability of teacher development programmes in the country.
- ❖ To promote innovation and research studies and organize them annually or periodically.
- ❖ To prepare a programme for in-service teacher education for orientation of teacher for latest development.

3.3 NCTE regulations 2014: Highlights

NCTE completed and notified the revised regulations 2014, along with the norms and standards on November 2014 by the following recommendation of the Justice Verma Commission (JVC). The new regulations are an outcome of wider consultation with stakeholders undertaken by NCTE. The important regulations are

- Introduce 3 new programmes- 4 years BA/BSc B.Ed., 3 year B.Ed. (Part time) and 3 year B.Ed., M.Ed. Programme.
- The duration of 3 programmes- B.Ed., B.P.Ed., M.Ed. has been increased to 2 years, providing more professional rigor and at par with best international standards.
- Each programme curriculum comprises 3 components theory, practicum and internship with at least 25% of the programme is developed to school based activities and internship.
- ICT, yoga education, Gender and Disability/inclusive education are integral part of each programme curriculum.
- More integrated teacher education programme are encouraged.
- The teacher educator M.Ed. degree comes with specialization in either elementary education or in secondary/senior secondary education.

- In-service teachers have more option to acquire higher Teacher Education Qualifications. D.El.Ed.(ODL), B.Ed.(ODL), B.Ed.(Part time).
- No Objection Certificate from affiliating university/body is mandatory while making an application.
- Each teacher education institution to have a compulsory accreditation in every 5 years from an accrediting agency recognized by NCTE (An MoU has already been signed with NAAC in this regard).

Conclusion:

The main purpose of this chapter is to focus upon the agencies of teacher education, such as UGC, NCERT and NCTE. The goal and objectives of these agencies are different, but they have one important goal, which is focused upon leading to improvement in quality education. The teachers are considered to render an indispensable contribution in leading to improvement in the overall system of education as well as in encouraging growth and development of the students.

To promote teacher education in an appropriate manner, it is necessary to promote an integrated system of research, training, information and the documentation in the field of teacher education. One of the important aspect that when teacher educators are engaged in the of making provision of training to the teachers, it is necessary for them to be qualified and possess the required skills and abilities. In addition, the staff members are required to be adequately qualified and possess the educational qualifications, skills and proficiency traits. The main objective is to promote advancements in the system of education with their country. Working in collaboration is regarded to be of utmost significance to meet the desired objectives.

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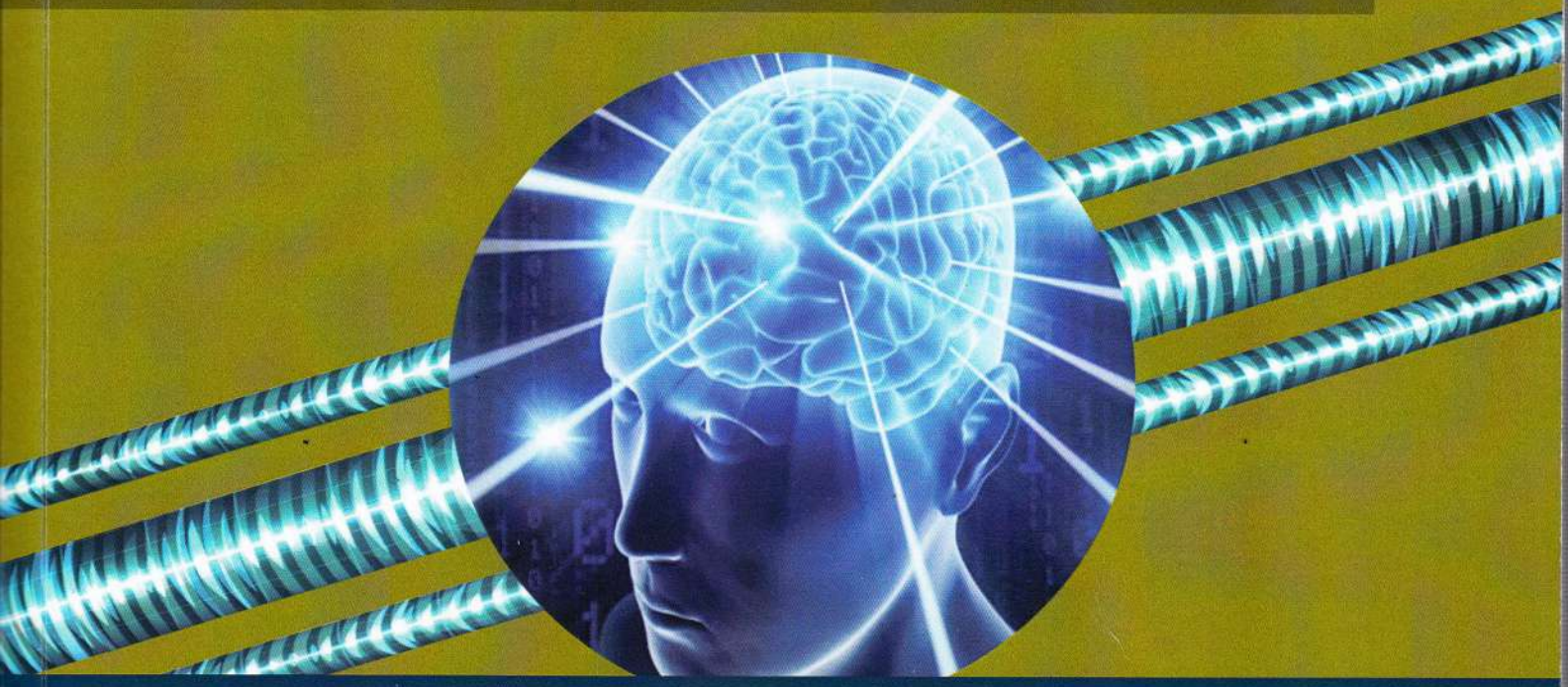
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COGNITIVE AND TECHNO PEDAGOGICAL SKILLS FOR 21st CENTURY LEARNERS

Sponsored under RUSA Phase 2.0 Scheme

CTPSCL-2019



CONFERENCE MONOGRAPH

EDITORS

Dr. N. Sasikumar

Dr. G. Kalaiyarasan

DEPARTMENT OF EDUCATION

ALAGAPPA UNIVERSITY

(Accredited with 'A+' Grade by NAAC (CGPA: 3.64) in the Third Cycle &

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COGNITIVE AND TECHNO PEDAGOGICAL SKILLS FOR 21st CENTURY LEARNERS (CTPSCL-2019)

EDITORS
Dr. N. SASIKUMAR
Dr. G. KALAIYARASAN

ISBN : 978-93-5346-994-8

No. of Pages: xvi + 420 = 436

Price: ₹1000 /-

Published by: Department of Education, Alagappa Unviversity, Karaikudi.

Printed in India at Poocharam Printers, Karaikudi

to produce the Holy Grail: new ways of understanding development that have practical implications for the design of learning environments.

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ICT BASED TEACHER EDUCATION IN 21ST CENTURY LEARNERS

Mr. C. Kathiresan*

Abstract:

Information and Communication Technology has immensely Influenced our world and its ubiquitous presence has changed the process of teaching and learning in our formal and open education system. At Present various means of information technology like Computes and the Internet are being used in teaching learning process. Internet can provide information on any topic readily. The teacher and the learners should have a through knowledge of all these means. The teacher is the best "medium" to acquaint student with the benefits of this technology. A competent teacher has several skills and techniques for providing successful Teaching. In modern science and technological society'seducation demand more knowledge of teacher regarding ICT and Skill to use ICT in teaching – learning process. The knowledge of ICT also required for pre-service teacher doing their training Programme, because this integrated technological knowledge helps a prospective teacher to know the world of technology in a better way by which it can be applied in future for the betterment of the students. Now a days ICT's are transforming schools and class rooms a new look by bringing in new curriculum based on real world problems, projects, providing tools for enhancing learning, providing teachers and students more facilities and opportunities for feedback. Continuous and Comprehensive Evaluation (CCE) helps students as well as teachers to use more technology for making teaching learning more attractive for the betterment of our future generation. So the knowledge of ICT is very much essential for the both prospective teachers as well as in service teacher also.

Key words: ICT, Technology, Pre-service, In-service, Teacher training, Student teacher.

Introduction:-

Education plays a very vital role in the society, it has been identified as a conscious, deliberate and planned process designed to modify the behavior in a desirable and socially acceptable way to impart specific knowledge and skills. A nation's development potential depends upon its ability to continuously educate its population and its ability to create armies of skilled manpower. Information Technology has influence all aspects of human life hence acquiring knowledge and skill about it has become an essential element in teaching and learning. In the present age of information revolution, information technology offers unprecedented opportunities to enhance learning effectiveness and expand access to high quality education. Today, technology is continuing to change teaching and learning in teacher education. For more

than a century, the most predominant form of instruction in higher education has been class room based and instructionled, today this traditional approach to learning is being challenged by new technologies such as multimedia. Telecommunications and the Interment.

Teachers are at the core of any living society. Technologies play an vital role in training Programme of teachers. Students access knowledge and information through TV, digital media, cable network, internet and social media i.e.,Facebook, Twitter, Whatsapp, Linkedinn, Igo, Line, Wechat etc. ICT is very important for pre-service teacher education Programme in the 21st Century. Without Proper knowledge of ICT teacher cannot perform in his/her class room and it could not be said to be a complete one.

Information Technology and Teacher Education:

If we look at the ground realities in India, the use of Information technology in education and specifically in Teacher Education is inadequate. Lack of financial resources, improper and inadequate technical and administrative support may be listed as reasons but the single largest factor affecting the use of information technology is the unavailability of trained persons and reluctance and resistance among teachers in using it. Therefore, efforts are very much essential to change teacher's attitude and promote the use of information technology in teaching and learning. Our first and foremost requirement is that the teachers must become knowledgeable about technology and become self confident enough to integrate if effectively in the classroom and this impetus can easily be provided to them at the time of their pre-service or in-service training. These points to the need for teacher educators themselves to acquire proficiency in the use of various means of IT. It is dynamic in nature. It has lots of Potentiality to improve and manage different aspects of Teacher Education such as IT with reference to "Technology in Education", encompasses on or more of the following.

- Media and AV Communication, e.g. Alternative instructional delivery system such as Radio, ETv etc.,
- Vocational training tools, such as CBT (Computer Based Training), CAD (Computer Aided Design), etc.,
- Computers and Computer – based systems for instructional delivery and management, e.g. CAI (Computer Assisted Instruction) etc.,
- Internet/web based education e.g. not only educational information with text, graphics, and Vedio but also Course should be offered by various Web sites.

Why do we use ICT in teacher Education?

The classroom is now changing it look from the traditional one, i.e., from one way to two way communication. Now teachers as well as students participate in classroom discussion. Now Education is based on child centric education. So the teacher should prepare to cope up with different technology for using them in the classroom for making teaching learning interested. For effective implementation of certain student centric methodologies such as project based learning which puts the students in the role of active researches and technology become the appropriate tool. ICT has enabled better and Swiffer Communication, Presentation of ideas more effective and relevant way. It is an effective tool for information acquiring-thus students are encouraged to look for information from multiple sources and they are now more informed then before. So for this reason ICT is very much necessary for Teacher Education.

Recent Trends in Teacher Education:-

Based on Various changing needs of our society now emphasis is also given to the various educational theory and education practices. According tothese theories and practices changes are also undergo in teacher education also. It is natural that teacher education must include new technology. Teachers should also know the right attitudes and values, besides being proficient in skills related to teaching. As we know the minimum requirement of any training programme is that it should help the trainee to acquire the basic skills and Competencies of a good teacher. Now – a – days new trends in teacher's education are Intern disciplinary approach,

Correspondence Courses, Orientation Courses etc. Simulated Teaching, Micro Teachi Programmed Instruction, Team Teaching. Are also used in teacher education. Now a day act research also implemented in Teacher Education. ICT acts as the gate way to the world information and helps teachers to be updated. It creates awareness of innovative trends instructional methodologies, evaluation mechanism, etc, for professional Development.

Different Strategies for applying ICT in Teacher Education:-

- Providing adequate infrastructure and technical support
- Applying ICT in all subjects
- Applying new Pre-Service teacher Education Curriculum,
- By Using application software, Using Multimedia,Internet, e-mail, Communi Understanding system software.

Role of ICT in 21st Century's Teacher Education:-

- ICT helps teachers in both Pre-service and in-service teacher training
- ICT helps teachers to interact with students
- It helps them in preparation their teaching Provide feedback
- ICT also helps teachers to access with institutions and Universities, NCERT, NA NCTE and UGC etc.,
- It also helps in effective use of ICT software and hardware for teaching – lea Process.
- It helps in improving teaching Skill, helps in innovative teaching.
- It helps in effectiveness of Class room
- It is now replacing the ancient technology and prepare teacher to apply m method of Teaching
- ICT prepares teacher for the use of their skills in the real class room situation an make students for their future occupation and social life
- ICT as a popular tool for organization and management in Institutions.
- ICT plays an important role in Student Evaluation
- ICT helps teacher to communicate properly with their students so ICT bridge t between teacher and students
- ICT helps teacher to pass information to students within a very little time
- ICT helps teacher to design educational environment.
- ICT helps teacher to identify creative child in educational institute.
- ICT helps teacher to motivate students and growing interest in learning
- ICT helps teacher for organizational preconditions(Vision, Policy and Culture)
- It is also helps teacher for their Personnel Support (Knowledge, attitude and sk
- ICT helpful for technical preconditions(infrastructure)
- ICT helpful for designed learning situations which are needed for both Vo education and the training of future teachers (in the teacher training Colleges)
- Teacher training Colleges can develop their Curriculum using ICT
- With the help of ICT Teacher training Colleges can develop communication n
- Teachers learn most from their own networks (learning from others) with th ICT.

(Goelet.al, 2002). The following are some suggestions to promote the use of ICT in education through teacher education

- Courses, which offer educational technology as essential component, should be encouraged and more and more students of B.Ed., Should be motivated to take educational technology as optional Course.
- In all the existing teacher training programmes at B.Ed.,& M.Ed., levels, Computer education should be included in the curriculum to make the teacher trainees familiar with innovative computer based techniques of information collection and teaching.
- In-service orientation Programmes and refresher courses should be organized to develop and cultivate knowledge, skills and attitude among teachers towards the use of IT in education
- During summer vacations special in-service Programme should be organized for teachers to create favorable attitude towards IT and to provide necessary training to use IT in teaching.
- NCERT, SCERT, IASEs, DIETS, BRCs should take the responsibility for organizing orientation Programmes and refresher Courses for teacher and teacher education to acquaint them with the use of IT in Education.
- The NCTE should make it mandatory that a paper on computer application in education must be included in the curriculum of B.Ed., and M.Ed., Courses in all teacher training institutions of the Country.

Conclusions:-

Teaching occupies a respectable position in the society. Technology helps the teacher to update the new knowledge, skills to use the new digital tools and resources. By using and acquire the knowledge of technology, student teacher will become effective teachers. ICT is one of the major factors for producing the rapid changes in our society. It can change the nature of education and roles of students and teacher in teaching learning Process. If we want to make our prospective teachers skilled in ICT, we must have ICT skilled teacher Educators. It is the formost need of the hour to strengthen our teacher educators in ICT, So that they may in turn produce ICT skilled Teachers.

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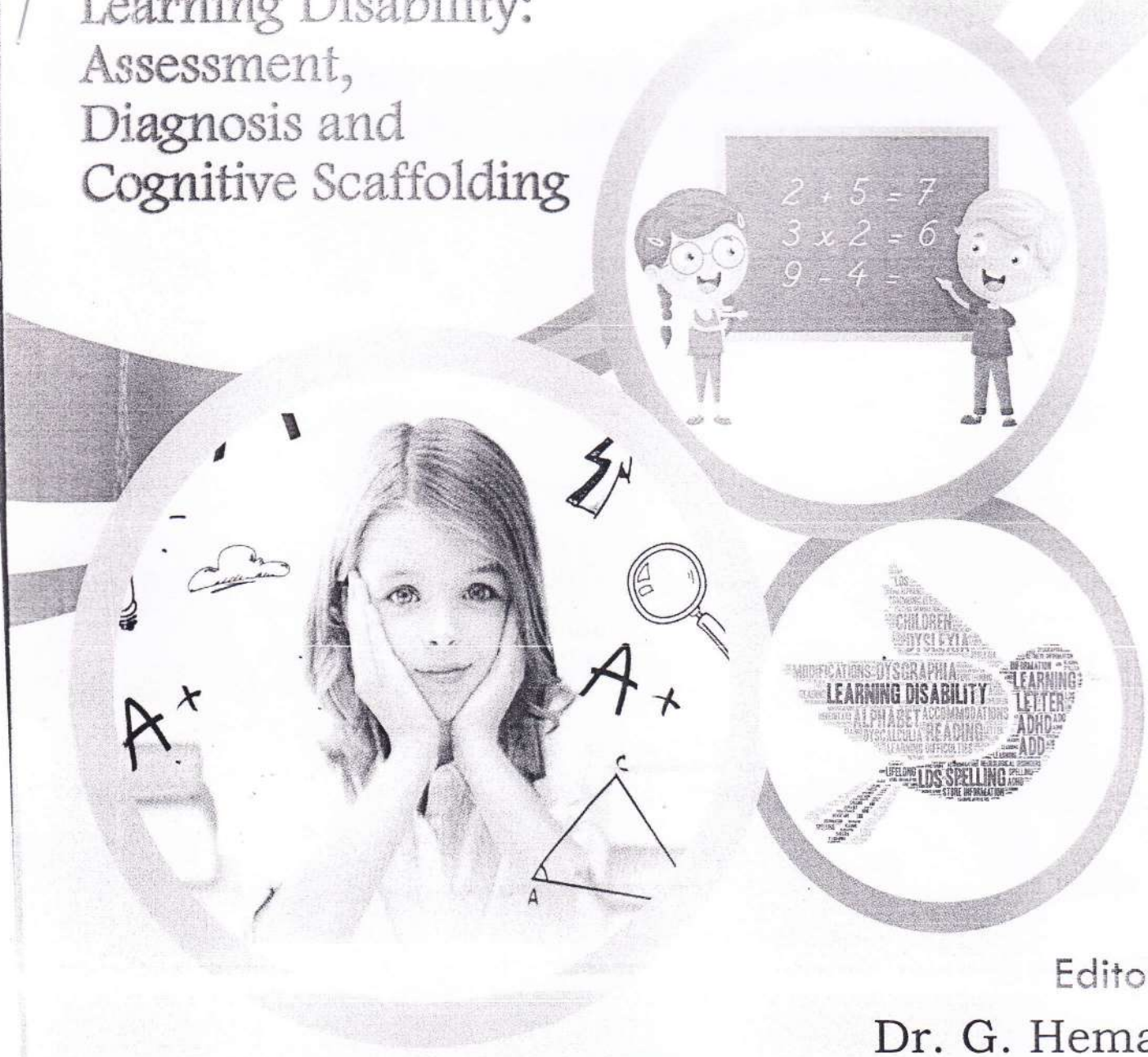
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Learning Disability: Assessment, Diagnosis and Cognitive Scaffolding



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NAAC 'A' Grade – State University – NIRF Rank 68

Salem – 636 011, Tamil Nadu, India.

Book Title : LEARNING DISABILITY: ASSESSMENT, DIAGNOSIS AND COGNITIVE SCAFFOLDING

Editor : Dr. G. HEMA
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Book Subject : Education
Book Category : Edited Volume
Copy Right : Editor
First Edition : October 2019
Book Size : B5
Paper : 21 kg, Maplitho NS
Price : Rs.500/-
Published by : L ORDINE NUOVO PUBLICATION
E-mail: crrpspublication@gmail.com
www.nuovopublication.com
Mobile: 9944212131.

ISBN Supported by
Raja Ram Mohan Roy National Agency for ISBN, New Delhi – 110066 (India)

ISBN: 978-93-86782-97-7

ISBN 938678297-9

9 789386 782977

Disclaimer: *The Publisher and editors cannot be held responsible for errors or any consequences arising from the use of information in this Book; the views and opinions expressed herein are of the authors and do not necessarily reflect those of the publisher and editors*

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INTERPRETATIONS ON LEARNING DISABILITIES

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Abstract

English Language Learning is an important factor in each and every student's life. As it makes them to communicate which involves the ability to understand or generate the spoken language. In this kind of process, students undergo many hardships in analysing the language and express as in their learning. Learning disability or learning disorders are the term to represent a vast variety of problems in learning. It is related to neuro-biological factors. It is not an issues regarding with intelligence or spur. It may be tranquil, moderate or sometimes it will be severe. It differs among each and every student. It is the duty of the classroom teachers who can help those students in the learning process. The aim of the paper is to reveal about the basic informations about the learning disabilities of the students.

Keywords: *Language, students, disability, classroom, learning.*

Introduction

Language plays a vital role in communicating with everyone and it is much important for the students. In this part, they face many hardships or difficulties in the process of learning. Even the learning process differs from a student to student which involves observation, expressing the information either in oral or in written etc. Students with learning disabilities will have problems in particular areas of academic attainment as an outcome of impairment in more than one cognitive activity which is related to learning.

The most standard types of learning disabilities include difficulties with reading, writing, reasoning, listening and speaking. There is no single sign that can be identified among students regarding these disabilities. It varies at different ages. Basically learning disability in English learning language indicates to a type of neurologically based breakdowns in which it affects a skill of a person to understand, communicate or express information. As well as it is a common form of disability among students. This kind of disability is not symptomatic of less intelligence. Even students with these disorders are bright, shine everywhere and even they are very much intelligent. As classroom teachers, they can help those students to overcome these disorders.

Lerner (2000) spotted out nine learning and behavioural mannerism of individuals with learning disabilities:

- Disorders of attention
- Reading difficulties
- Poor motor abilities
- Written language difficulties

- Oral language difficulties
- Social skills deficits
- Psychological process deficits
- Quantitative disorders
- Information processing problems

In the above mannerism one should be clear that not every students have the same characteristics in learning disabilities, it may vary from person to person and even many students with the same behaviours have succeed in their learning process.

Mostly Learning disabilities are identified in the school-area skill set. Usually the disorders revolve around reading, writing. Learning disabilities in reading is termed as *Dyslexia*. It has two forms of learning disabilities. One is reading issues take place when there is a difficulty in understanding of sounds, letters and words. Another one is a problem with reading comprehension occurs when there is an incapability to seize the meaning of words, phrases and paragraphs. The reading problems include letter and word identification, recognizing words and ideas and also speed in reading and fluency and common vocabulary skills.

Learning disabilities in writing is termed as *Dysgraphia*. This includes the objective act of writing and synthesizing information. Basically it refers to the difficulty in forming words and letters. Disability in expressive writing specifies a trouble to manage the thoughts on paper. Those problems revolve around the act of writing. It dealt with the problems of reliability of writing, accurately copying letters and words, spelling stability and writing organization and coherence. The classroom teachers have to handle these kinds of students by giving practise in writing which can make them in improvising the writing skills.

Learning disabilities in language is termed as *Aphasia/Dysphasia*. It deals with the ability to understand or bring out the spoken language. Language is regard as an output activity because it acquires organising the right words in expressing or explaining something or communicating with others. In this, the symptoms of learning disabilities in language includes the issues with verbal language skills which involves in retelling a story, the fluency of speech and the skill to understand the words meaning, parts of speech, directions, etc. students with the disorders also have a poor reading comprehension.

In the learning disabilities, it is not that much easy to know the possibilities of helping the students. The teachers as well as the parents should get to know more about the mentality about the child in overseeing the education of the child. The main important thing is to learn the child regarding his type of learning disability. And the parents as well as the teachers want to find out in what way those disabilities affect the process of learning and what cognitive abilities are involved. If these cases have been analysed, it is easy to evaluate the child regarding the learning disabilities.

In handling the child with the learning disabilities, parents and teachers should be care in treating them. It should be without making to feel them with any complexes. Even children with some these learning disabilities, they may be intelligent in another. So pay attention towards the

interests of the child as well as the passions. This kind of handling makes the children in developing their strength and passions will make them to overcome in the areas of difficulty as well.

Finally, all children can be both exhausting and exhilarating but it seems the children with learning disabilities are especially so. Learn the child in what way it affects their behaviour and it will be able support them in schools as well as in home. So the learning styles can guide to major improvement in the academic performance, social awareness and on the whole self confidence of a child with a learning disability in the classroom.

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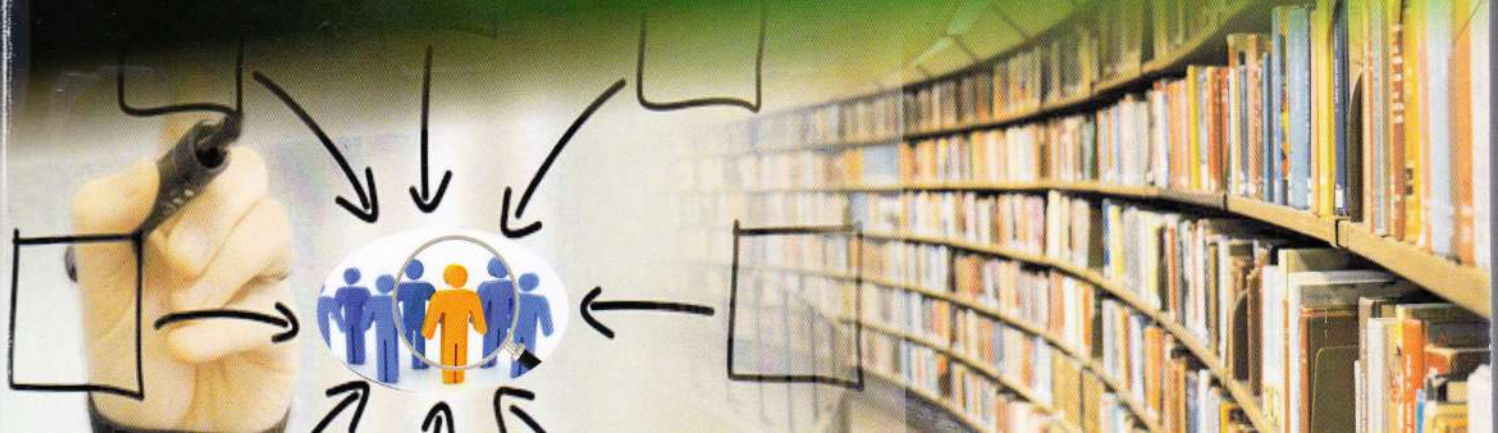
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PERSPECTIVES IN TEACHER EDUCATION

Editor : Prof. K. Nachimuthu

Reviewer : Prof. Mumtaz Begum, Prof. P. Ganesan & Prof. T. V Thulasidharan

Year of Publish: 2019 (1)

ISBN : 978- 81-923575-7-7

978-81-923575-7-7

BHARATHI PATHIPHAGAM, COIMBATORE.

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 ISBN 978-81-923575-7-7

TEACHER EDUCATION ROLE OF UGC, NCERT&NCTE.

***M.Senthilkumar** ****Mr.C. KATHIRESAN**

Abstract

The progress of a country depends upon the quality of its teachers and for this reason teaching is the noblest among all professions. Teacher Education is a programme that is related to the development of teacher proficiency and competency that would enable and empower the teachers to meet the requirements of the profession and face the challenges there in. Now a days the field of education is not only limited but has broadened in various new horizons. Development and changes in education have affected teacher education necessitating review and reforms. Indian education system is rapidly changing with the explosion of knowledge, population growth, advancement of science and technology and innovative ideas and practices. It demands preparing teachers who in turn will help to strengthen a knowledge society to meet the challenges of globalization and to mould the society. Empowering the teacher's performance is essential to increase the quality in teacher education in India. The present paper will focus on certain glaring challenges which persist in our teacher education programmes and the remedial measures which include proper planning and utilization of human resources, qualified staff, adequate facilities of space and equipment, effective teaching practice and internship, quality improvement, research efficacy, professional competency, empowerment of teacher educators, the changing role of teachers, integration of ICT in Teacher Education etc.

Keywords: *Teacher Education, Quality, Competency.*

INTRODUCTION

The University Grants Commission of India (UGC India) is a statutory body set up by the Indian Union government in accordance to the UGC Act 1956 under Ministry of Human Resource Development, and is charged with coordination, determination and maintenance of standards of higher education. It provides recognition to universities in India, and disbursements of funds to such recognised universities and colleges. Its headquarters is in New Delhi, and has six regional centers in Pune, Bhopal, Kolkata, Hyderabad, Guwahati and Bangalore.

UGC is modeled after University Grants Committee of UK which was an advisory committee of the British government and advised on the distribution of grant funding amongst the British universities. The committee was in existence from 1919 until 1989.

HISTORY

The UGC was first formed in 1945 to oversee the work of the three Central Universities of Aligarh, Banaras and Delhi. Its responsibility was extended in 1947 to cover all Indian universities.

In August 1949 a recommendation was made to reconstitute the UGC along similar lines to the University Grants Committee of the United Kingdom. This recommendation was made by the University Education Commission of 1948-1949 which was set up under the chairmanship of S. Radhakrishnan "to report on Indian university education and suggest improvements and extensions". In 1952 the government decided that all grants to universities and higher learning institutions should be handled by the UGC. Subsequently, an inauguration was held on 28 December 1953 by Maulana AbulKalam Azad, the Minister of Education, Natural Resources and Scientific Research.

TEACHER EDUCATION

The entire process of teacher education is changing very rapidly over the last decade of the years. To raise the quality of teacher education, various Commissions, Committee reports were formed from 19th Century to till today. The teacher education can be discussed broadly in two categories i.e. both pre-service teacher education and in-service teacher education.

Report of The Education Commission 1964-66 (National Council of Educational Research, NCERT, 1970,) pointed out the significance of teacher education is that a sound programme of professional education of teachers is essential for the qualitative improvement of education. Investment in teacher education can yield very rich dividends because the financial resources required are small when measured against the resulting improvements in the education of millions.

This Commission also observes the major weaknesses in the teacher education was that; unfortunately, the professional education of teachers has been comparatively neglected in the post-Independence period. Its significance was stressed by the University Education Commission (1949), the Secondary Education Commission(1953), and the Inter-national Team on Teachers and Curricula in Secondary Schools(1954). Several seminars were held and study groups were appointed to discuss improvements in elementary and secondary teacher education. But their recommendations have not yet been implemented in any large measure. By and large, training institutions for primary and secondary teachers have remained isolated fromthe mainstream of the academic life of the University, as well as from the dailyproblems of the schools.

 ISBN 978-81-923575-7-7

THE ROLE OF THE TEACHER

These debates in teacher education in Anglophone countries of the North/West have led to a broad distinction being made between 'teacher as technician' and 'teacher as reflective practitioner'. The technician is seen as having a restricted role, her job being to deliver the curriculum - which is prescribed at a higher level - as effectively as possible, while the reflective practitioner is expected to play a more extended role, that may include developing the curriculum to suit the context, evaluating and trying to improve her own practice, and mentoring new teachers.

AIMS OF EDUCATION

Education must have clear aims and objectives, in view. An aim is predetermined goal which inspires the individual to attain it through appropriate activities. Educational aims are necessary in giving direction to educational activity.

NEED FOR THE AIMS IN EDUCATION

1. Education is a purposeful and organized activity which deliberately endeavors to modify the behavior of the educated, with a specific end in view. This end is the criterion with which all educational efforts are judged.
2. 'Acting with an aim is all one with acting intelligently'. The aim makes us act with a meaning. It stimulates us to see what the outcome is going to be, even before the end of that activity.
3. The aim helps us to take stock of the results of our efforts. We can look back and review the ways and means; we h adopted for reaching the described goals and then think of possibilities of further improvement.
4. The aim of education, keeps both teacher and the taught on the right track. Hence it does not allow the educational activity to become haphazard, vague and confused.

ROLE OF UGC

The main aim & role of UGC in higher education is to provide funds to universities and coordinate, determine & maintain the ethics in institutions of higher education. The commission upholds the interpretation among the universities, government and the community.

In 1957 almost all the universities came under the control of the UGC. It is the only grant giving institute in the country. It provides funds and it also arranges for the coordination and maintenance of the universities in India. The UGC controls the following in India:

1. Maintaining the standard of research, teaching and examination in the universities.
2. Promoting university education
3. Making regulations to maintain the minimum standard of education in the country
4. It is a link between the union government and the institutes of higher education
5. It also advises the government about the steps to be taken in order to improve the education system.

FUNCTION OF NCERT

- To monitor the administration of NIE /Regional colleges of Education. To undertake aid, promote and co-ordinate research in all branches of education for improving school-education.
- To organize pre-service and in-service education programmes for teachers
- To prepare and publish study material for students and related teacher's handbooks.
- To search talented students for the award of scholarship in science, Technology and social sciences.
- To undertake functions assigned by the Ministry of education (Now MHRD) for improving school –education

NCERT - NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

OBJECTIVES

- To launch, organize and strengthen research works in various aspects of education.
- To arrange for pre-service and in-service training at the higher level. To publish necessary textbooks, journals and other literature for achieving the objectives.
- To organize extension centers in training institutes with the cooperation of state governments and extend facilities pertaining to new methods and technologies among them.
- To establish a National Institute of Education and manage for the development of research and higher training for educational administrators and teachers.
- Act as a nodal agency for achieving goals of universalization of elementary education.

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ROLES OF NCERT

WORKSHOP:

Workshop differs from a seminar. In a workshop, the approach is more practical. All the participants participate actively and make a significant contribution. Workshops can be organized on lesson planning, curriculum construction, test construction etc.

SEMINARS:

It can be arranged on various educational problems concerning any aspects of education. A working paper is prepared beforehand and circulated among the participants. Then it is read and discussed in the plenary session. Seminars can be held on re- orientation of educational objectives, curriculum improvement, new techniques of teaching, administration, supervision and financing etc.

NCTE

National Council for Teacher Education (NCTE) is a statutory body of Indian government set up under the National Council for Teacher Education Act, 1993 (73, 1993) in 1995 is to formally oversee standards, procedures and processes in the Indian education system. This council functions for the central as well as state governments on all matter with regard to the Teacher Education and its secretariat is located in the Department of Teacher Education and National Council of Educational Research and Training (NCERT). Despite the successful functioning in terms of educational field, it is facing difficulties in ensuring the maintenance of the standards of teacher education and preventing the increase in the number of substandard teacher education institutions in the country.

OBJECTIVES

- ✓ To achieve planned and coordinated development of teacher education system throughout the country.
- ✓ To regulate and properly maintain the Norms and Standards in the teacher education system and for matters connected therewith.
- ✓ It aims at training individuals for equipping them to teach pre-primary, primary, secondary and senior secondary stages in schools, non-formal and part-time education, adult education (correspondence) and distance education courses

FUNCTIONS

- ➢ Undertake surveys and studies pertaining to all aspects of the teacher education and publish the corresponding results.

- For the preparation of suitable plans and programmes regarding the field of teacher education, it makes recommendations to both the state and central governments, universities, University Grants Commission (UGC), and other recognised institutions.
- it co-ordinates and monitors the teacher education system throughout the country.
- it lays down the guideline for the minimum qualifications need for an individual to be a teacher in schools and recognised institutions.
- it lays downs guidelines for the provision of physial and infrastructural facilities, staffing pattern etc. for the compliance by recognised institutions.

CONCLUSION

Positive education, the use of positive psychology in the realm of education, may have the potential to be a new model for successful education. The field of positive schooling, although still in the early stages of development, seems to have a promising future. Rather than the traditional concept of teachers simply communicating information to students, students in positive schooling learn through individual goals and by cooperating with other students to have an environment in which students can work towards the same goal together. Overall, the goal of positive schooling is to turn all students into teachers who will pass down their wisdom and knowledge to others and teachers who will continue the ways of positive education.

TEACHER EDUCATION

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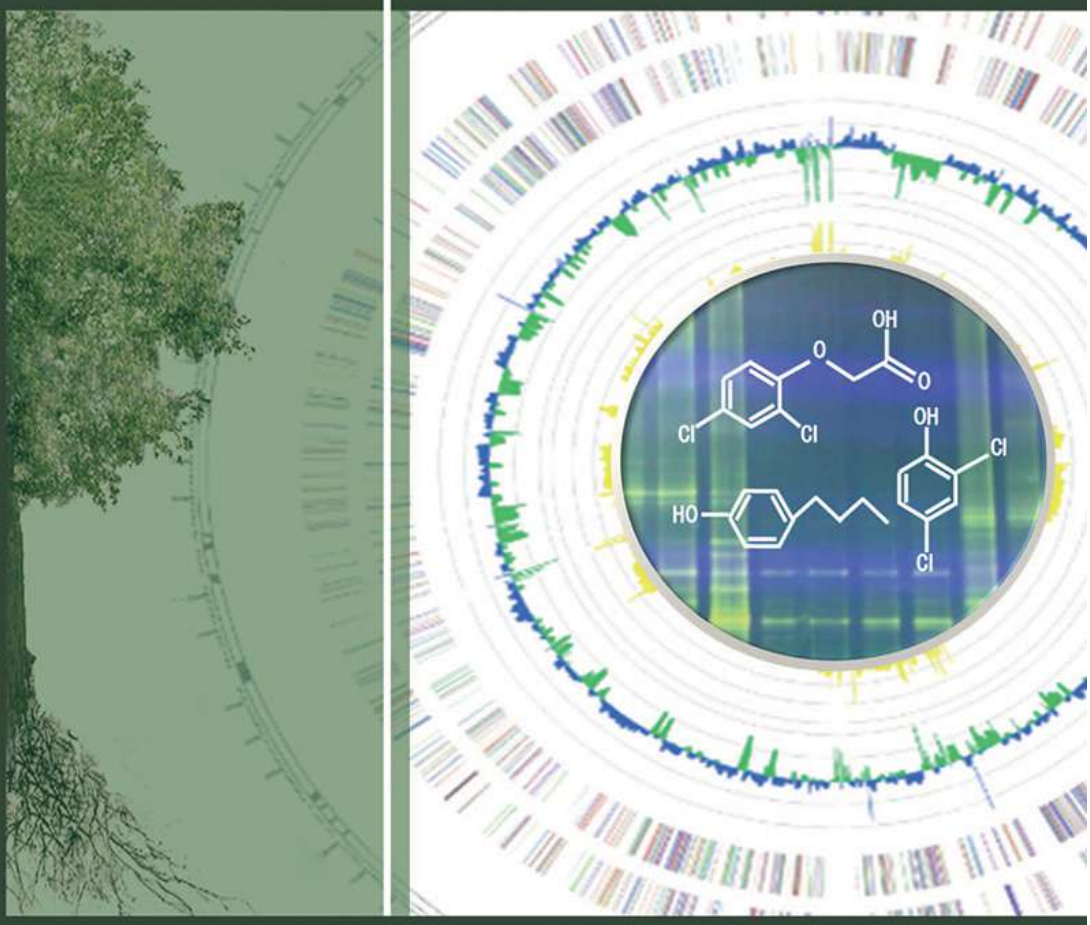
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2. *"NCTE at a Glance - NCTE : National Council For Teacher Education". ncte-india.org. Retrieved 8 April 2018.*

Microbial Biodegradation of Xenobiotic Compounds



Young-Cheol Chang (ed.)

CRC Press
Taylor & Francis Group
A SCIENCE PUBLISHERS BOOK

CRC Press
Taylor & Francis Group
6000 Broken Sound Parkway NW, Suite 300
Boca Raton, FL 33487-2742

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Printed on acid-free paper
Version Date: 20181105

International Standard Book Number-13: 978-1-1387-4392-2 (Hardback)

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Library of Congress Cataloging-in-Publication Data

Names: Chang, Young-Cheol, 1968- editor.
Title: Microbial biodegradation of xenobiotic compounds / editor Young-Cheol Chang (Department of Applied Sciences, College of Environmental Technology, Muroran Institute of Technology, Muroran, Hokkaido, Japan).
Description: Boca Raton, FL : CRC Press, [2018] | "A science publishers book." | Includes bibliographical references and index.
Identifiers: LCCN 2018044523 | ISBN 9781138743922 (hardback)
Subjects: LCSH: Xenobiotics--Biodegradation. | Chemicals. | Biodegradation.
Classification: LCC QP529 .M53 2018 | DDC 615.9--dc23
LC record available at https://lccn.loc.gov/2018044523

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Identification of a Novel Gene Through the Metagenomic Approach to Degrade the Targeted Pollutant

Suriya Jayaraman,[1,*] *Suganya Thangaiyan,*[1] *Kannan Mani,*[1] *Kayalvizhi Nagarajan*[2] and *Krishnan Muthukalingan*[1,3,*]

INTRODUCTION

Contamination of water, soils, and sediments by xenobiotics, which affects the human and environmental health, is a major concern. Bioremediation is an eco-friendly green technology used for the cleaning up of environmental pollutants to safe levels. Culture dependent studies shown that soil microorganisms are a large reservoir of innumerable essential enzymes (Kakirde et al. 2010). Recent estimates proven that one gram of soil may contain millions of different kinds of microbes (Wommack et al. 2008). However, 99% of these microbes cannot be cultured using conventional methods (Curtis and Sloan 2005). To overcome this bottleneck in cultivation

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Advances in Phytonanotechnology

From Synthesis to Application



Edited by
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and Shabir Hussain Wani

Academic Press is an imprint of Elsevier

125 London Wall, London EC2Y 5AS, United Kingdom

525 B Street, Suite 1650, San Diego, CA 92101, United States

50 Hampshire Street, 5th Floor, Cambridge, MA 02139, United States

The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, United Kingdom

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Library of Congress Cataloging-in-Publication Data
A catalog record for this book is available from the Library of Congress

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library

ISBN: 978-0-12-815322-2

For information on all Academic Press publications visit our website at https://www.elsevier.com/books-and-journals
Publisher: Charlotte Cockle
Acquisition Editor: Nancy Maragioglio
Editorial Project Manager: Tasha Frank
Production Project Manager: Kiruthika Govindaraju
Cover Designer: Victoria Pearson
Typeset by SPi Global, India

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CHAPTER

14

Green Engineered Chitosan Nanoparticles and Its Biomedical Applications—An Overview

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Advances in Phytonanotechnology
https://doi.org/10.1016/B978-0-12-815322-2.00015-8

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Edited by
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and Shabir Hussain Wani

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Library of Congress Cataloging-in-Publication Data
A catalog record for this book is available from the Library of Congress

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library

ISBN: 978-0-12-815322-2

For information on all Academic Press publications visit our website at https://www.elsevier.com/books-and-journals
Publisher: Charlotte Cockle
Acquisition Editor: Nancy Maragioglio
Editorial Project Manager: Tasha Frank
Production Project Manager: Kiruthika Govindaraju
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CHAPTER

6

Role of Engineered Zinc and Copper Oxide Nanoparticles in Promoting Plant Growth and Yield: Present Status and Future Prospects

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Advances in Phytonanotechnology
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Abstract:
The Rivest, Shamir, and Adleman (RSA) is one of the most important types of the Asymmetric cryptography. In RSA the key size is bigger when compared to the algorithms in cryptography. The keys are generated with any two prime numbers. The unauthorized person can easily get the keys with a Greatest Common Divisor (GCD) Attack. This is one of the main drawbacks of RSA cryptography. The Elliptic Curve Cryptography (ECC) is also Asymmetric cryptography with a small key size. The proposed work is to overcome the drawback of the GCD Attack in RSA. The RSA private and public key can be combined with an ECC private and public key by using an Exclusive OR (XOR) and then the new hybrid private and public keys are generated. The RSA encryption can be done with a new hybrid public key. The RSA decryption can be done with a new hybrid private key. The advantages of the proposed work is the creation of three levels of key for cryptography, which can avoid the GCD attack in RSA. The key strength is higher when compared to the simple key generation of RSA algorithm.

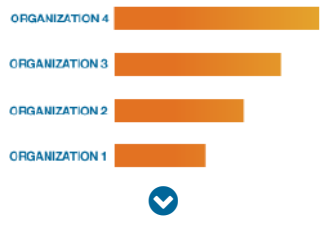
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Published in: 2019 International Conference on Communication and Electronics Systems (ICCES)

Date of Conference: 17-19 July 2019

INSPEC Accession Number: 19379684

Date Added to IEEE *Xplore*: 20 February 2020

DOI: 10.1109/ICCES45898.2019.9002197

ISBN Information:

Publisher: IEEE

Conference Location: Coimbatore, India, India

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I. Introduction

The RSA algorithm is invented by Rivest, Shamir, and Adleman in 1977 [9], [10]. RSA is Public-Key cryptography. RSA has three phases first one is the key generation, second is the Encryption and the third one is a Decryption. The key generation algorithm is to generate two keys that are private key and public key. The public key is used to encrypt the message and send to a public channel, this key is enabled anyone can access the public key. Another one is a private key, this is used to decrypt the message. This is only accessible by an authenticated person. The private key is also known as a secret key [3]. Figure (1) shows the RSA encryption and decryption process. Figure 1.

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Evolutionary Correlation Triclustering for 3D Gene Expression Data

International Conference on Innovative Data Communication Technologies and Application

ICIDCA 2019: Innovative Data Communication Technologies and Application pp 637-646 | Cite as

- N. Narmadha (1) Email author (mahanarmadha@gmail.com)
- R. Rathipriya (1)

1. Department of Computer Science, Periyar University, , Salem, India

Conference paper
First Online: 31 January 2020

- 1 Citations
- 386 Downloads

Part of the Lecture Notes on Data Engineering and Communications Technologies book series (LNDECT, volume 46)

Abstract

Triclustering method is seen as an issue of an optimization problem to discover correlated triclusters with high MCV and high volume. To optimize the tricluster, the Genetic Algorithm (GA) is used. This work dealt with the mining of optimal shifting and scaling patterns from 3D microarray data in the form tricluster. Optimal Tricluster is the tricluster that satisfies the specified objective function. To test the performance, an empirical study of the triclustering algorithm will be attempted at the yeast cell cycle.

Keywords

Genetic algorithm Yeast cell cycle data Triclustering MCV 3D gene expression data

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1 Introduction

The analysis of 3D gene expression data plays a crucial role in identifying the most valuable genes, along with the dimension of gene/sample/time or gene/condition/time dimension (Dede 2013). Analysis of 3D gene expression data represents a computational challenge due to the characteristic of these data. To analyze gene expression, a large number of clustering approaches are proposed (Kapil et al. 2016). Triclustering techniques are the valuable recent simultaneous clustering of genes, samples, and time points (G/S/T) (Gutiérrez-Avilés 2014). Tricluster is a subset of genes that have similar patterns under a subset of a condition along with a subset of time points. This paper discusses the triclustering of 3D gene expression data using a genetic algorithm to find the maximum optimal tricluster. Figure 1 shows the flow chart for the evolutionary triclustering algorithm using a genetic algorithm.

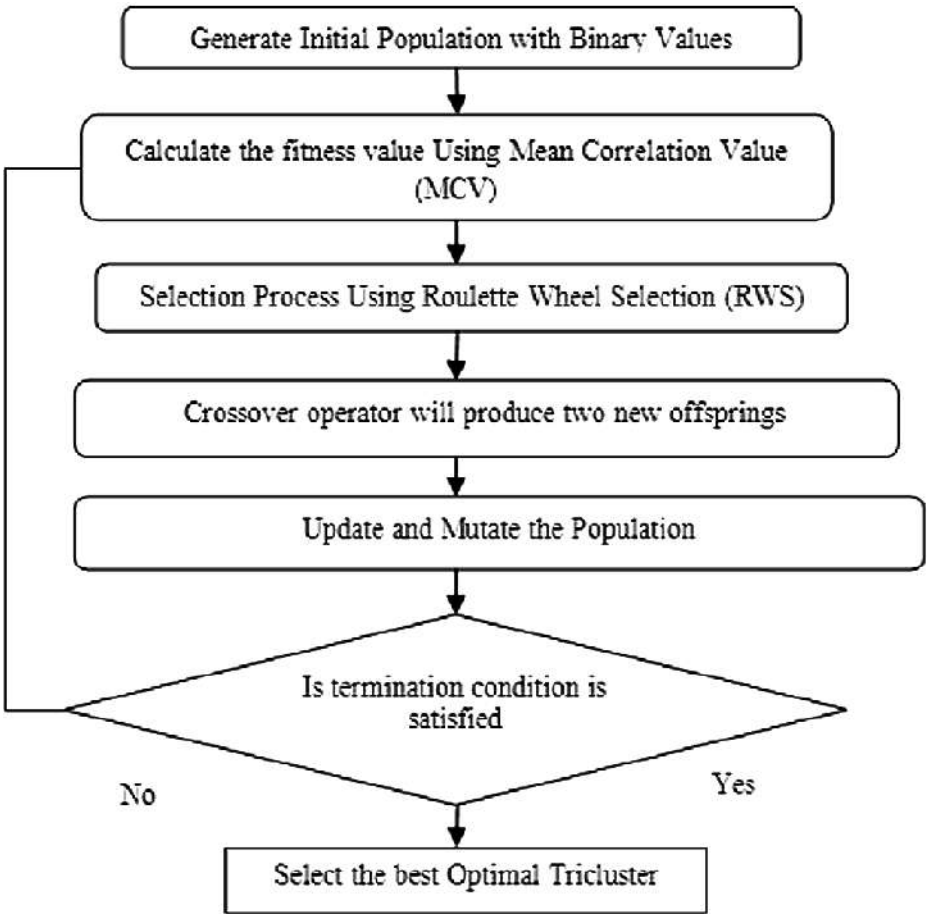


Fig. 1.

Flowchart for Evolutionary Triclustering Algorithm Using Genetic Algorithm

2 Literature Review

The overview of the background study needed for this research work is described in this section. Table 1 explains some of the existing algorithms with GA for clustering, biclustering and triclustering techniques

Table 1.

Some of the Existing Algorithms with GA for Clustering Technique, Biclustering and Triclustering Technique

Clustering techniques			Biclustering techniques			Triclustering techniques		
Algorithm/Methods	**Type of data**	**Description**	**Algorithm/Methods**	**Type of data**	**Description**	**Algorithm/Methods**	**Type of data**	**Description**
GA	4 different Dataset Ruspini Data, Randomly Generated Data, Breast Cancer Data, and Iris Plant Data	Find the right clustering from the given dataset (Hruschka and Ebecken 2003)	Two GA with Greedy Search	Yeast Dataset, Lymphoma Dataset	Identify the bicluster with low residue score and high volume (Chakraborty and Maka 2005)	Trigen	Synthetic dataset, Elutriation dataset, Mouse GDS4510 Dataset	Least square line (LSL) measure is used to extract the quality tricluster
Hybrid GA, HGACLUS	Embryonal CNS data	To identify the number of clusters in multi-class gene expression data (Pan et al. 2003)	SEBI, CBEB, CgPGA, DdPGA, PGA	Yeast Dataset	DdPGA is to identify the good quality of bicluster when compared to other algorithms (Mishra and Vipsita 2017)	TriGen	Synthetic data, Saccharomyces cerevisiae, musculus, Homo sapiens	Multi Slope Measure (MSL) Measure the angles of the slopes acquired from the tricluster genes, condition, and time point
K-Means, NClust, GA, Geneclust	3 real dataset Iris, Balance, Breast Cancer	NClust performance better clustering result when compared to other algorithms (Zhang 2018)	FLOC, DBF, CC, Single Objective GA, MOEA, NM, MNM	Yeast Cell cycle data	MNM is extracted the maximum similarity bicluster with low residual and gene variance when compared to other algorithms (Balamurugan 2016)	Genetic algorithm	Yeast cell cycle data, synthetic data	MSR is used to extract the quality of the tricluster

Clustering techniques			Biclustering techniques			Triclustering techniques		
Algorithm/Methods	**Type of data**	**Description**	**Algorithm/Methods**	**Type of data**	**Description**	**Algorithm/Methods**	**Type of data**	**Description**
GA	Colorectal Cancer tumor (GDS4382), Small Cell Lung Cancer (GDS4794), DLBCL-FL (GDS4236), Prostate Cancer (GDS4824)	Gene is responsible for the cancer cell. GA is trying to rank the cancer cell based on the gene. (Saha et al. 2018)	CS, GA	• Yeast Dataset • DLBCL • Gasch Yeast • BCLL, PBC • RatStrain	CS, GA is designed to enhance the quality index and coverage of all bicluster (Yin et al. 2018)	Genetic algorithm	Yeast cell cycle data, synthetic data, inflammation and host response to injury dataset	MSR and LSL evaluation measure is used to identify the tricluster

2.1 Issues in the Existing Clustering and Biclustering Algorithms for GA

- Most of the algorithms are focused to extract the patterns and to assess the quality of gene expression data using MSR.
- The main limitation of this measure is higher magnitude have higher MSR value. Practically it is difficult to set the MSR threshold to identify the pattern with high correlation.
- Therefore, this MSR based threshold is not able to identify the pattern-based bicluster. Similarly, MSR3D does not have any such range simply minimal is best. Therefore, MSR3D is not a perfect or suitable measure to discover patterns based triclusters

To overcome the issues in the literature, MCV based triclustering is proposed. Mean Correlation Value (MCV) evaluates all kinds of triclusters well, as transformations such as translation and scaling the range of the MCV is from 0 to 1.

3 Method and Materials

3.1 Mean Correlation Value for Tricluster

A value close to '1' determines high correlated tricluster otherwise; it is represented as low or null correlated tricluster. Equation 1 shows the formula for MCV, and Table 2 lists the notation used in this paper. Where $\bar{A} = \frac{\sum_m \sum_n (A_{mn})}{m*n}$, $\bar{B} = \frac{\sum_m \sum_n (B_{mn})}{m*n}$

Table 2.

Terminologies used in Generation of Initial Population

Notations	Descriptions
nG	No. of genes
nS	No. of samples
nT	No. of time points
kg	Gene cluster
ks	Sample cluster
kt	Time point cluster
nb	Number of bicluster

$$\sum_{m}\sum_{n}\left(A_{mn}-\bar{A}\right)\left(B_{mn}-\bar{B}\right)\Big/\sqrt{\left(\sum_{m}\sum_{n}\left(A_{mn}-\bar{A}\right)^{2}\right)\left(\sum_{m}\sum_{n}\left(B_{mn}-\bar{B}\right)^{2}\right)} \quad (1)$$

3.2 Generation of Initial Population

The steps followed for tricluster formation; a two-way K-means clustering algorithm is applied along the two dimensions to generate kg and ks cluster and combined these clusters to get kg*ks initial bicluster. These biclusters are encoded as a binary string of size nb*(nG+nS). Figure 2 represents the encoded bicluster (Rathipriya 2011a, b). Figure 3 shows example for single binary encoded tricluster to get nb*(nG+nS+nT) of nb*nG+nS binary encoded tricluster (Rathipriya 2011a, b).

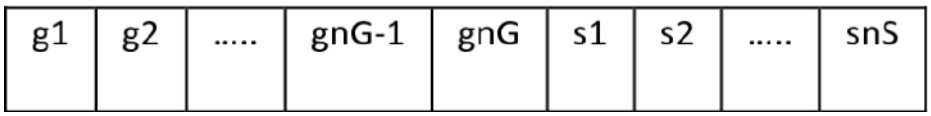


Fig. 2.

Encoded Bicluster of length nG+nS

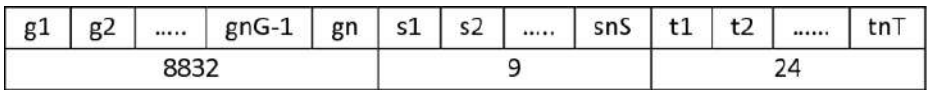


Fig. 3.

Encoded tricluster of length nG+nS+nT

Generate the random binary string of size nb*nT. And then concatenate (nb*(nG+nS) with (nb*nT) binary string of size to get nb*(nG+nS+nT) binary encoded tricluster for further process. Table 3 describes the notations for the Genetic Algorithm.

Table 3.

Notations for GA

Crossover probability (cp)	0.7
Mutation probability (mp)	0.01
Population size (pop)	10
Generation (it)	100–1000
MCV (δ)	0.94–0.98

3.3 Notations Used for Genetic Algorithm (GA)

4 Proposed Work

In this work, the initial population is extracted from the given data set using two-way K-means clustering.

Compared to random initialization, this will lead in quicker convergence. Another benefit of initializing with these triclusters is to maintain population diversity.

4.1 Objective Function

Normally, the fitness function is used to convert the objective function value into a relative fitness measure $F(x) = g(f(x))$ where $f(x)$ is the objective function, $g(f(x))$ is transforming the value of the objective function to a non- negative number, and $F(x)$ is the resulting relative fitness to find the maximal volume tricluster with a high correlation.

This implies that a few bits in the binary string can be flipped (Rathipriya 2011a, b). Figure 4 shows the outline of evolutionary triclustering using a genetic algorithm The dataset is used from yeast cell cycle analysis projects is shown in Table 4.

Outline of Evolutionary Triclustering Algorithm Using Genetic Algorithm

```
Input     : Initialization of population using two way K-Means as shown in popinit()
Output    : To discover the optimal tricluster
Step 1    : Population initialization
 Step 2   : To evaluate the fitness of individuals using equation (3)
Step 3    : For i =1 to number of max_iteration
                    Selection()
                    Crossover()
                    Mutation()
                    Evaluate the fitness
                    End(For)
Step 4: Return the obtained optimal tricluster
```

Fig. 4.

Outline for Genetic Algorithm

Table 4.

Dataset Description

Dataset	Genes (G)	Sample (S)	Time point (T)
CDC15	8832	9	24
Elutriation	7744	9	14
Pheromone	7744	9	18

5 Dataset Description

See Table 4.

6 Results and Discussion

It has been noted that the high volume of tricluster (2160) with MCV threshold μ = 0.98 shows the maximum volume with high MCV (0.9881) in Table 5. The correlation value for optimal tricluster is very high; in most cases, that is nearer to one, which indicates almost perfect homogeneity between the number of genes, number of samples, and number of times points of the tricluster.

Table 5.

Characteristics of Optimal Tricluster using GA for CDC15 Dataset

MCV threshold	nG	nS	nT	Volume	Optimal correlated tricluster for MCV
μ = 0.94	13	9	13	1404	0.9864
μ = 0.95	12	9	12	1296	0.9867
μ = 0.96	11	9	12	1188	0.9868
μ = 0.97	11	9	12	1296	0.9869
μ = 0.98	20	9	12	2160	0.9881

The Table 6 shows the characteristics of the initial population using GA for CDC15 with threshold value range from 0.94–0.98, the mean volume, and mean MCV. The graphical representation of the mean volume and mean MCV is with different threshold values is shown in Figs. 5 and 6

Table 6.

Characteristics of Initial Population using GA for CDC15 Dataset

Threshold value	Mean volume	Mean MCV
μ = 0.94	670.1250	0.9666
μ = 0.95	900	0.9844
μ = 0.96	724.5000	0.9859
μ = 0.97	945	0.9848
μ = 0.98	1710	0.9855

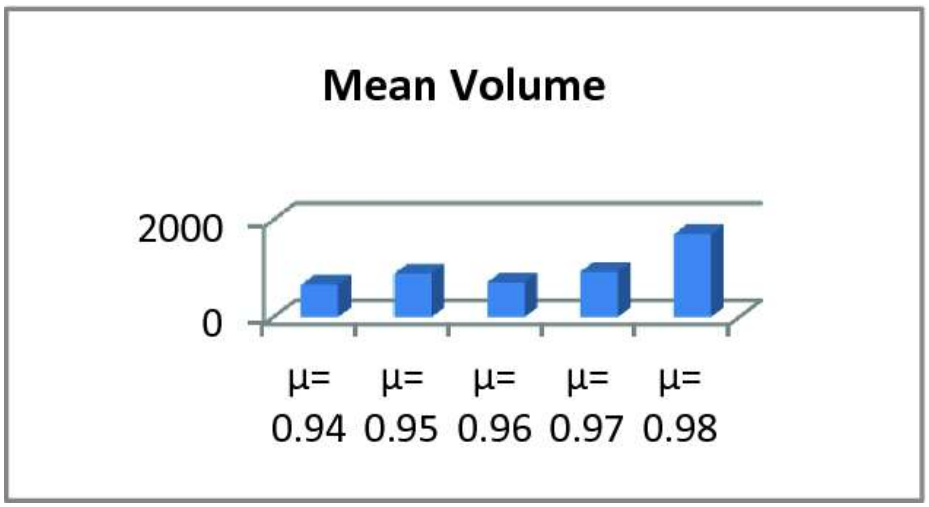


Fig. 5.

Mean Volume for CDC15 Dataset using GA

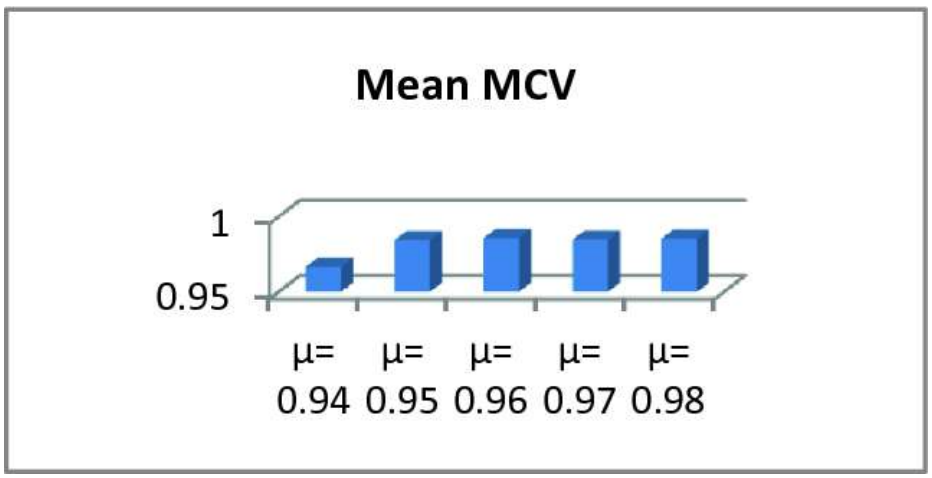


Fig. 6.

Mean MCV for CDC15 Dataset using GA

Table 7 depicts the Characteristics of Optimal Tricluster using GA for Elutriation Dataset. From the study, it has been observed that MCV threshold μ = 0.96 shows the high MCV value (0.9912). Table 8 shows the characteristics of the initial population using GA for Elutriation with a threshold value range from 0.94-0.98,

the mean volume, and mean MCV. The graphical representation of the mean volume and mean MCV is with different threshold values is shown in Figs. 7 and 8. The threshold value of 0.97 shows a high volume.

Table 7.

Characteristics of Optimal Tricluster using GA for Elutriation Dataset

MCV threshold	nG	nS	nT	Volume	Optimal correlated tricluster for MCV
μ = 0.94	14	9	10	1134	0.9643
μ = 0.95	15	9	10	936	0.9872
μ = 0.96	17	9	10	1080	0.9912
μ = 0.97	23	9	11	2079	0.9832
μ = 0.98	21	9	11	1980	0.9835

Table 8.

Characteristics of Initial Population using CorTriGA for Elutriation Dataset

Threshold value	Mean volume	Mean MCV
μ = 0.94	776.5714	0.9554
μ = 0.95	712.2857	0.9679
μ = 0.96	962.3571	0.9742
μ = 0.97	1600.71	0.9786
μ = 0.98	1611.64	0.9817

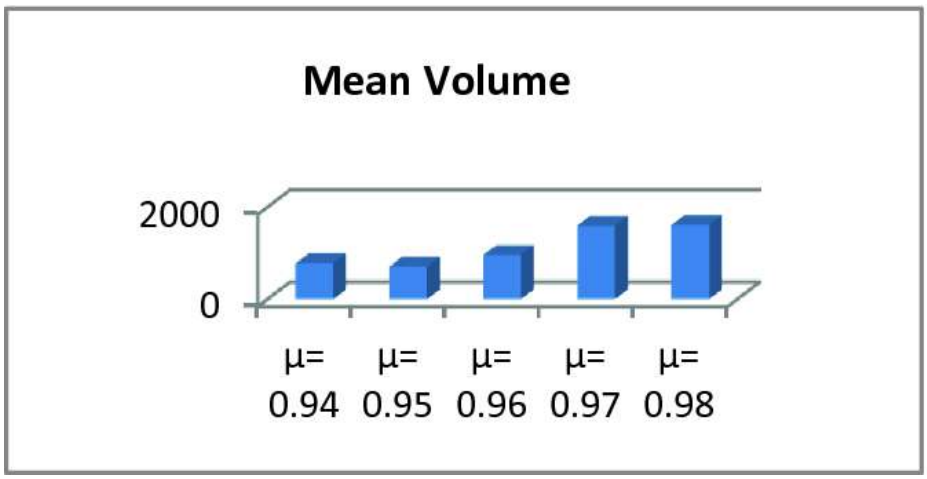


Fig. 7.

Mean Volume for Elutriation Dataset using GA

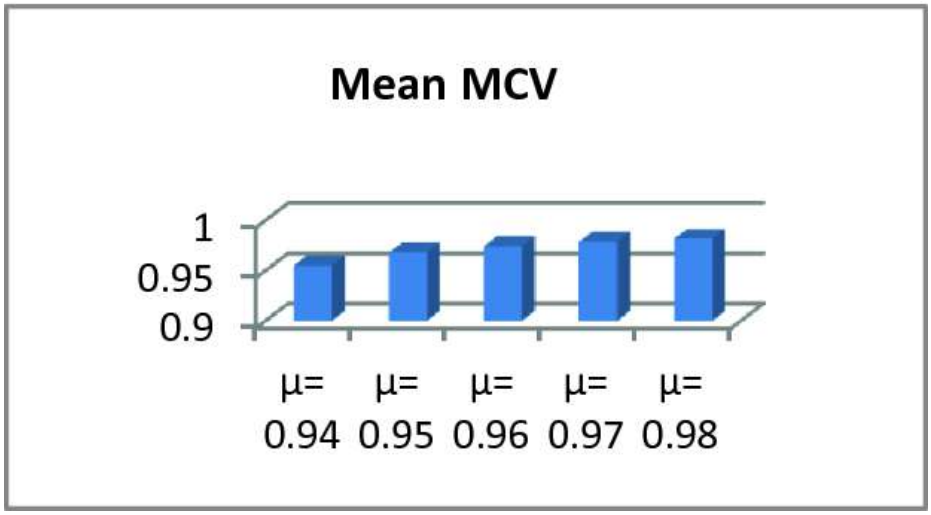


Fig. 8.

Mean MCV for Elutriation Dataset using GA

Form Table 9, it has been observed that the maximum volume tricluster (1456) with high MCV (0,9864). This correlation value is nearer to one, which shows that the perfect homogeneity between the number of genes, the number of samples, and the number of time points. Table 10 depicts the Characteristics of Initial Population using GA for pheromone Dataset, which contains the different threshold value mean volume and mean MCV. The threshold value 0.98 shows the high volume, and high MCV is graphically shown in Figs. 9 and 10.

Table 9.

Characteristics of optimal tricluster using GA for pheromone dataset

MCV threshold	nG	nS	nT	Volume	Optimal correlated tricluster for MCV
μ = 0.94	15	8	13	1456	0.9797
μ = 0.95	15	8	13	1344	0.9790
μ = 0.96	14	8	13	1456	0.9796
μ = 0.97	13	8	12	1040	0.9795
μ = 0.98	7	8	6	336	0.9864

Table 10.

Characteristics of Initial Population using GA for pheromone Dataset

Threshold value	Mean volume	Mean MCV
μ = 0.94	836.4444	0.9538
μ = 0.95	799.1111	0.9789
μ = 0.96	804	0.9732
μ = 0.97	815.5556	0.9761
μ = 0.98	1893.33	0.9845

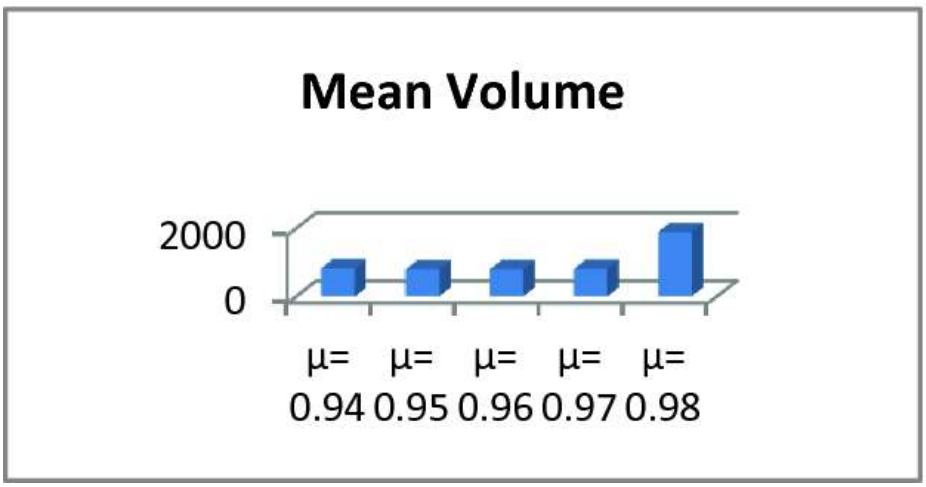


Fig. 9.

Mean Volume for Pheromone Dataset using GA

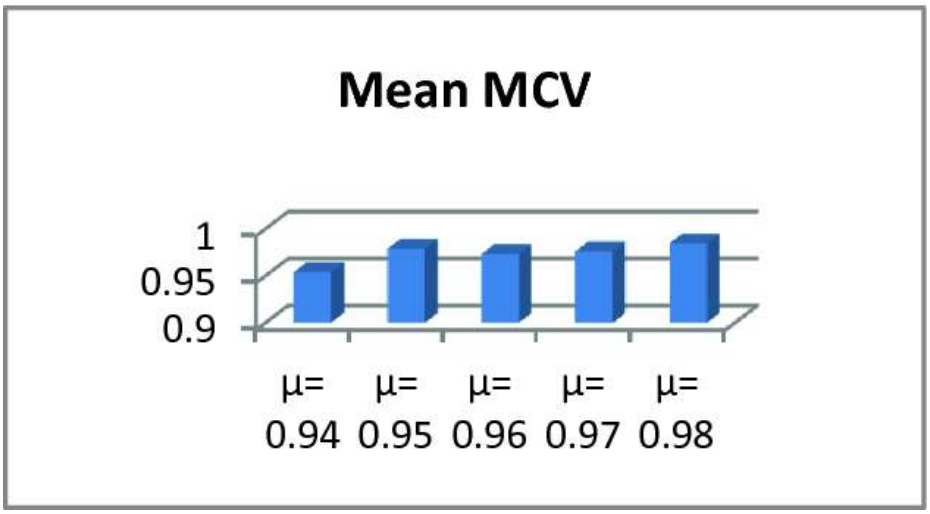


Fig. 10.

Mean MCV for Pheromone Dataset using GA

7 Conclusion and Future Enhancement

This paper dealt with the GA based triclustering method that has been developed to extract maximum volume tricluster with high MCV. This MCV value measurement is for the scaling and shifting pattern of the tricluster. The novel proposed algorithm was tested on three different datasets. The results show that GA based triclustering method identifies correlated tricluster for all three datasets. It is approximately equal to one (0.9912). This is significant for the proposed work. In future different hybrid optimization algorithms will be used to enhance the quality of tricluster.

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About this paper

Cite this paper as:

Narmadha N., Rathipriya R. (2020) Evolutionary Correlation Triclustering for 3D Gene Expression Data. In: Raj J., Bashar A., Ramson S. (eds) Innovative Data Communication Technologies and Application. ICIDCA 2019. Lecture Notes on Data Engineering and Communications Technologies, vol 46. Springer, Cham. https://doi.org/10.1007/978-3-030-38040-3_72

- First Online 31 January 2020
- DOI https://doi.org/10.1007/978-3-030-38040-3_72
- Publisher Name Springer, Cham
- Print ISBN 978-3-030-38039-7
- Online ISBN 978-3-030-38040-3
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Readmission Prediction Using Hybrid Logistic Regression

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Abstract. Predictive analytics has a prominent role in the field of healthcare. A massive amount of medical data is available such as diagnosing the disease, symptoms of illness, healthcare cost, mortality risk, and so on. Readmission prediction has great significance in improving patient care. This paper represents a Hybrid Logistic Regression (HLR) prediction model for large datasets. This model is the combination of k-means clustering and Logistic Regression in pyspark approach. The patients are clustered based on medical data, and Logistic Regression applied for the prediction approach. Further performance evaluation of the model is calculated and compared with other methods. It achieved better accuracy when compared with the existing feature selection algorithm

Keywords: Machine learning · Logistic Regression · Feature selection · Clustering

1 Introduction

In recent decades, the readmission of the patient to hospitals after discharge is increasing. There is no sufficient model to identify the early readmission prediction of patients. Today upcoming methodology several machine learning approaches are used in prediction of the data model and for other classification problems. Machine learning act as a tool solving many solutions in several healthcare issues [1]. There are several methods used to identify patient similarity [2]. This helps to identify the patients who are at high risk. Identifying high-risk [12] patients will help to reduce medical cost.

Feature selection is a crucial problem in improving the quality of the model. Many studies illustrate us [2] feature selection using machine learning techniques is better when compared with the primary filter and wrapper method. Machine learning can handle different types of attributes simultaneously to identify the relationship between variables on the target feature.

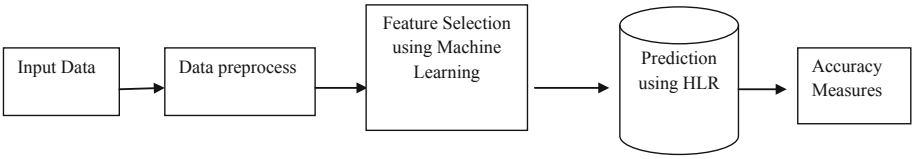


Fig. 1. Flow of the HLR

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J. S. Raj et al. (Eds.): ICIDCA 2019, LNDECT 46, pp. 702–709, 2020.
https://doi.org/10.1007/978-3-030-38040-3_80

Recently, many algorithms [13] performs better for feature selection for this readmission prediction Logistic Regression based feature selection performs better out of 55 variables 21 variables are selected as optimal features.

The Fig. 1 describes the flow of the HLR approach input patient data taken from UCI repository https://archive.ics.uci.edu/ml/datasets/diabetes+130-us+hospitals+for+years+1999-2008 is downloaded and given as input to the model. It is of multivariate dataset consist of 1,00,000 patient data and 50 features is preprocessed

The main aim of this paper is to develop a good model and know the significant of patient care. The patient data is learned from history of patients available in dataset and predict the readmission risk. This approach also selects the optimal number of features to improve the accuracy of prediction.

Section 2 explains the methods appropriate to the HLR model. Section 3 briefs the Clustering and Logistic Regression integration, and Sect. 4 discusses the results and measures and, finally Sect. 5 concludes the paper.

2 Related Work

This work compares [3, 4] the clustering and non-clustering methods with a significant importance. Here, multilabel feature selection with clustering improves the accuracy of the model. But in this model overlapping cluster will decrease the features are considered for [5, 6] linear regression with logistic regression is used. Logistic Regression Model [7] with slight indication about cluster effect when it is comparison describes it is much more times greater than the original effect this model suggest that combining cluster with logistic regression improve the performance of the algorithm. The clusters are used to group patient with hypertension [8] the dataset is heterogeneity data it performs better in healthcare data. It categorizes data equally to subgroups so that identifying hypertensive patient is easy. Machine learning can be categorizing it to model based models and the results are evaluated in 5-fold validation to learn the model performance [9].

3 Model and Algorithm

Feature Selection

The features in the data have serious challenges for prediction techniques. There are two methods supervised and unsupervised for which feature selection can be applied. These techniques are based on the labeled and unlabeled data. Labeled data filter and wrapper methods are applied for this data in the paper [15]. So these methods does not give sufficient prediction method. With high dimensional data are applied to machine learning techniques [12] it leads to the better performance with high classification accuracy.

Table 1. Feature selection using machine learning techniques

Algorithms	Features
PCA	(F_1, F_3, F_4, F_5, F_7, F_{10}, F_{11}, F_{12}, F_{22}, F_{24}, F_{26}, F_{30}, F_{31}, F_{34}, F_{35})
Random Forests	(F_1, F_2, F_3, F_4, F_5, F_{10}, F_{11}, F_{12}, F_{22}, F_{24}, F_{26}, F_{30})
SVM	(F_1, F_2, F_3, F_7, F_{10}, F_{11}, F_{12}, F_{22}, F_{31}, F_{34}, F_{40})
Extra Tree Classifier	(F_1, F_3, F_5, F_7, F_{12}, F_{13}, F_{15}, F_{22}, F_{24}, F_{25}, F_{31}, F_{45})
MLR	(F_{14}, F_{15}, F_{21}, F_{24}, F_{30}, F_{45})
LR	(F_1, F_2, F_3, F_4, F_5, F_6, F_7, F_8, F_9, F_{10}, F_{11}, F_{12}, F_{13}, F_{14}, F_{15} F_{21}, F_{22}, F_{25}, F_{30}, F_{36}, F_{37})

The Table 1 designates the feature selection with different machine learning techniques. Principle Component Analysis (PCA) [10] is one of the basic method applied for feature selection for many problems. Similarly other machine learning techniques are applied such as Random forest, Support Vector Machine (SVM), Logistic Regression (LR) and Extra Tree classifier. Multiple Logistic Regression (MLR) is applied for selecting the subset of features [11]. Among the feature selection algorithm LR [14] performs better when compared with other algorithm. Those 21 features are taken for readmission prediction.

HLR Algorithm:

The dataset consist of n patients and labeled features as beta coefficients β to predict the readmission. The function of log and modeling it to express logistic function

$$\text{Logit(y)} = \ln(\text{odd}) = \log\left(\frac{p}{1-p}\right)$$

$$= \beta_0 + \beta_1(F_1) + \beta_2(F_2) + \beta_3(F_3) + \beta_4(F_4) + \beta_5(F_5) + \beta_6(F_6) + \beta_7(F_7) + \beta_8(F_8) + \beta_9(F_9) + \beta_{10}(F_{10}) + \beta_{11}(F_{11}) + \beta_{12}(F_{12}) + \beta_{13}(F_{13}) + \beta_{14}(F_{14}) + \beta_{15}(F_{15}) + \beta_{21}(F_{21}) + \beta_{22}(F_{22}) + \beta_{25}(F_{25}) + \beta_{30}(F_{30}) + \beta_{36}(F_{36}) + \beta_{37}(F_{37})$$

These are the variables that support the prediction model.

Hybrid Logistic Regression

Input: F = {F1,F2 ….F42} total number of features

X ={X1, X2 ,….} total number of instances

Begin

Data preprocessing using pyspark
For F= 1 to 42 do
R (i) = Select the features using Logistic Regression
End
K=2
Initial selected features to the dataset

Select K from R features

Calculate the distance from cluster center and object

Calculate the cluster until new cluster center is identified repeat the steps until criteria is reached

Calculate Logistic Regression for Readmission Prediction

Stop

The simple logistic regression represents the odd function. This represent a patient is readmitted to hospital readmission. These are the variables that support the prediction model. After preprocessing initially the K-means algorithms used to cluster the positive and negative readmission of patients. K-means clustering row-wise are clustered given as input to the logistic regression model for the readmission prediction.

4 Results and Discussion

The Table 2 describes the features that are selected using LR method are taken for clustering. Cluster 1 represents patients that are readmitted to the hospital and Cluster 2 represents the patients that are not readmitted to the hospital. As the Cluster 1 and Cluster 2 values varies significantly.In cluster1 the values from one feature to other feature increases and decreases subsequently based on the features to the readmission value. Consequently the similar performance are carried out for cluster 2.

Table 2. Two clusters for features

Features	Cluster 1	Cluster 2
F1	2.82	4.88
F2	3.82	4.76
F3	0.08	1.04
F4	0.56	0.33
F5	2.59	1.90
F6	3.35	6.60
F7	5.98	1.91
F8	2.13	3.00
F9	6.33	1.70
F10	1.97	0.23
F11	2.49	3.86
F12	5.47	2.85
F13	0.02	1.34
F14	3.69	0.47
F15	2.77	3.37
F21	3.38	1.14
F22	2.90	5.96
F25	1.56	0.41
F30	3.87	3.50
F36	4.65	4.65
F37	3.54	4.26

The Table 3 describes the co-efficient and p-value of the variable age. The coefficient of positive value suggest that those variables support for readmission prediction and negative value suggest that those values has less support to the readmission of target variable. The patient age 55 and 85 have increase the positive value this suggest that those patient are readmitted when compared with other age patients.

Table 3. Co-efficient and p-value

Age	Co-efficient	p-value
15	−1.55	0.272
25	0.23	0.264
35	−3.61	0.255
45	−2.87	0.245
55	3.13	0.23
65	−3.08	0.22
75	−2.55	0.219
85	2.38	0.211
95	−2.57	0.20

The Table 4 illustrates the accuracy calculation of different machine learning techniques. Among, them Logistic Regression performance better with the high accuracy value of 96% and minimum RMSE value of 0.20.

Table 4. Accuracy calculation of machine learning

Machine learning algorithm	Accuracy	RMSE
Logistic Regression	96%	0.20
Decision Tree	94%	0.26
Random Forest	93%	0.30
SVM	91%	0.37

The Fig. 2 depicts the row clustering of data a sample of first eight rows is mentioned in the figure. R0 to R7 represents the row values after clustering. The value of these varies subsequently based on the features (Fig. 3).

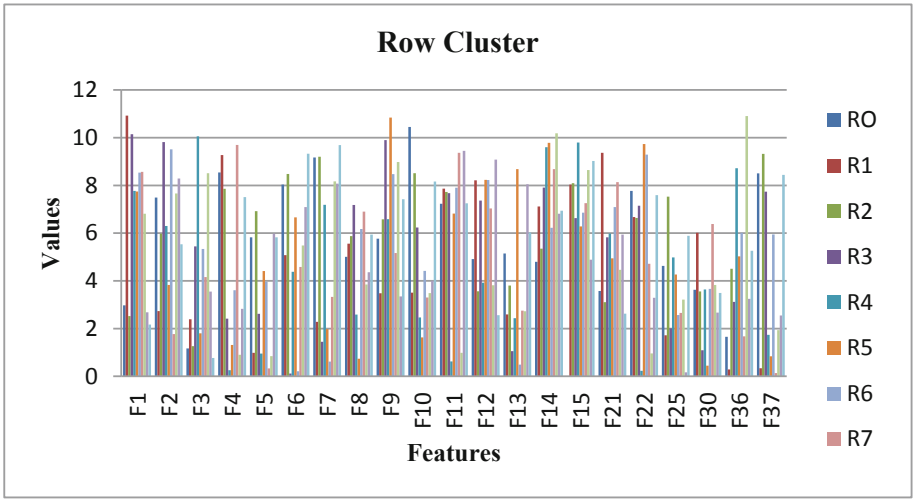


Fig. 2. Clustering row values based on patient readmission

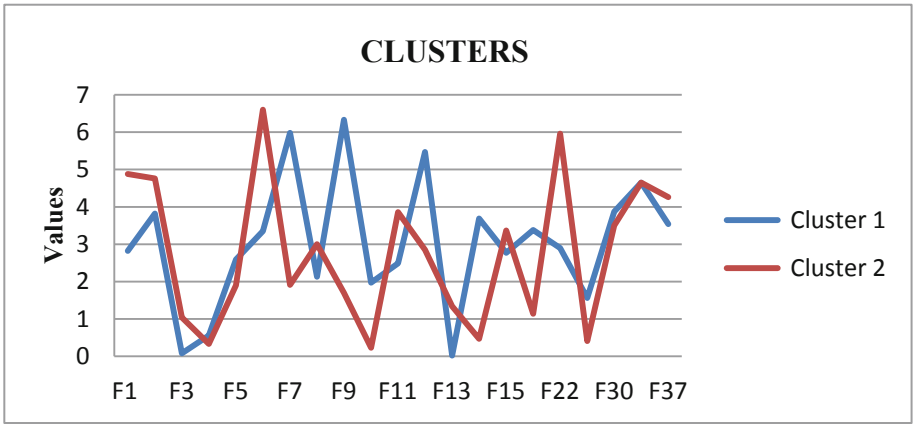


Fig. 3. Clustering based on patient readmission

The Fig. 4 represents the ROC curve for the HLR method the accuracy of the method is 96%. It suggests that the model produce better results than the current one. The model is good because all the predictors in ROC cure value are greater than 0.5.

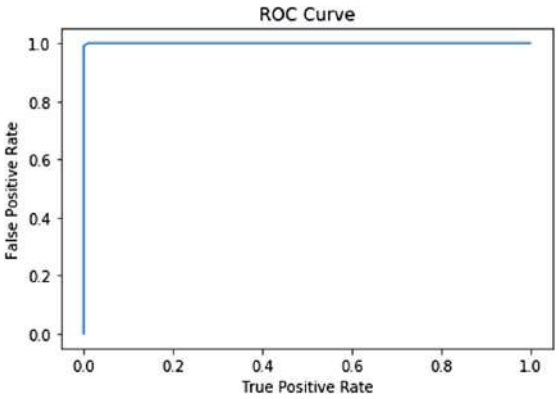


Fig. 4. ROC curve for HLR

5 Conclusion

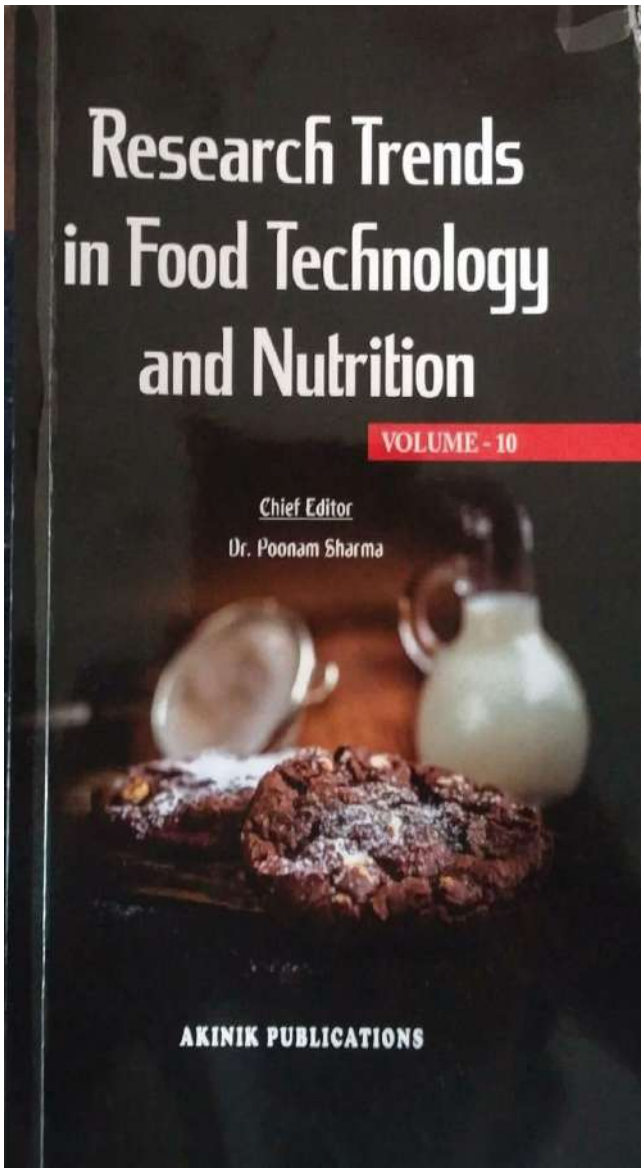
In this paper, an HLR method has a more considerable significance for readmission prediction. Feature selection, such as classification and regression, are applied to the dataset. Among these methods, the LR method performs better for feature selection. Clustering-based Logistic Regression is performed. It achieves satisfying results of TPR and FPR is high compared with other methods. By using this HLR in the massive amount of data, more accurate results are obtained. The advantage of this method in healthcare helps to analyses patient at the early stage and reduce the readmission risk.

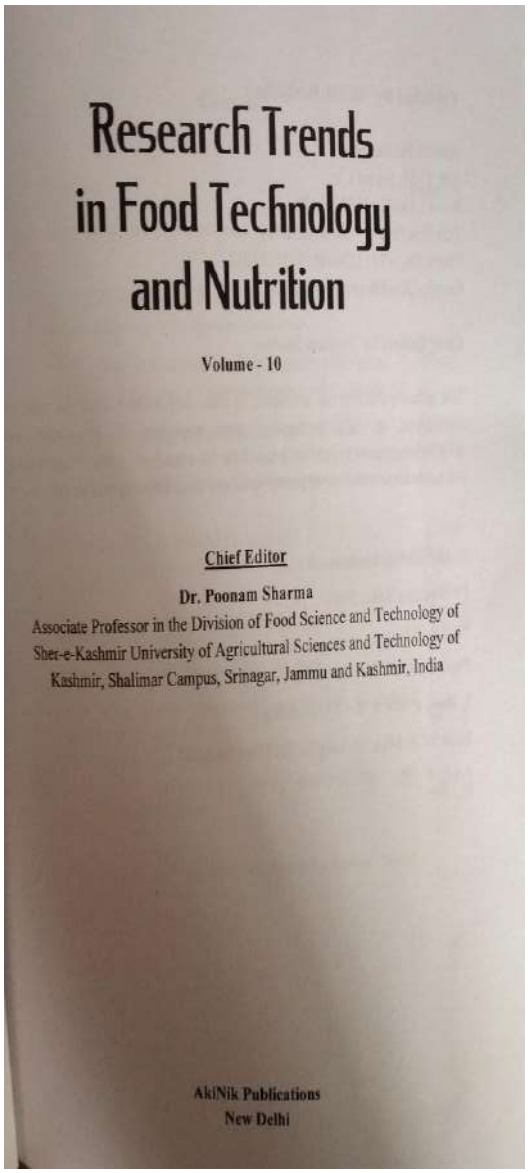
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Published By: AkiNik Publications

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Publication Year: 2019

Pages: 159

Paperback ISBN: 978-93-5335-665-1

E-Book ISBN: 978-93-5335-666-8

Book DOI: https://doi.org/10.22271/ed.book.388

Price: ₹ 562/-

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Dr. S. Parameshwari

Associate Professor, Dept. of Nutrition and Dietetics,
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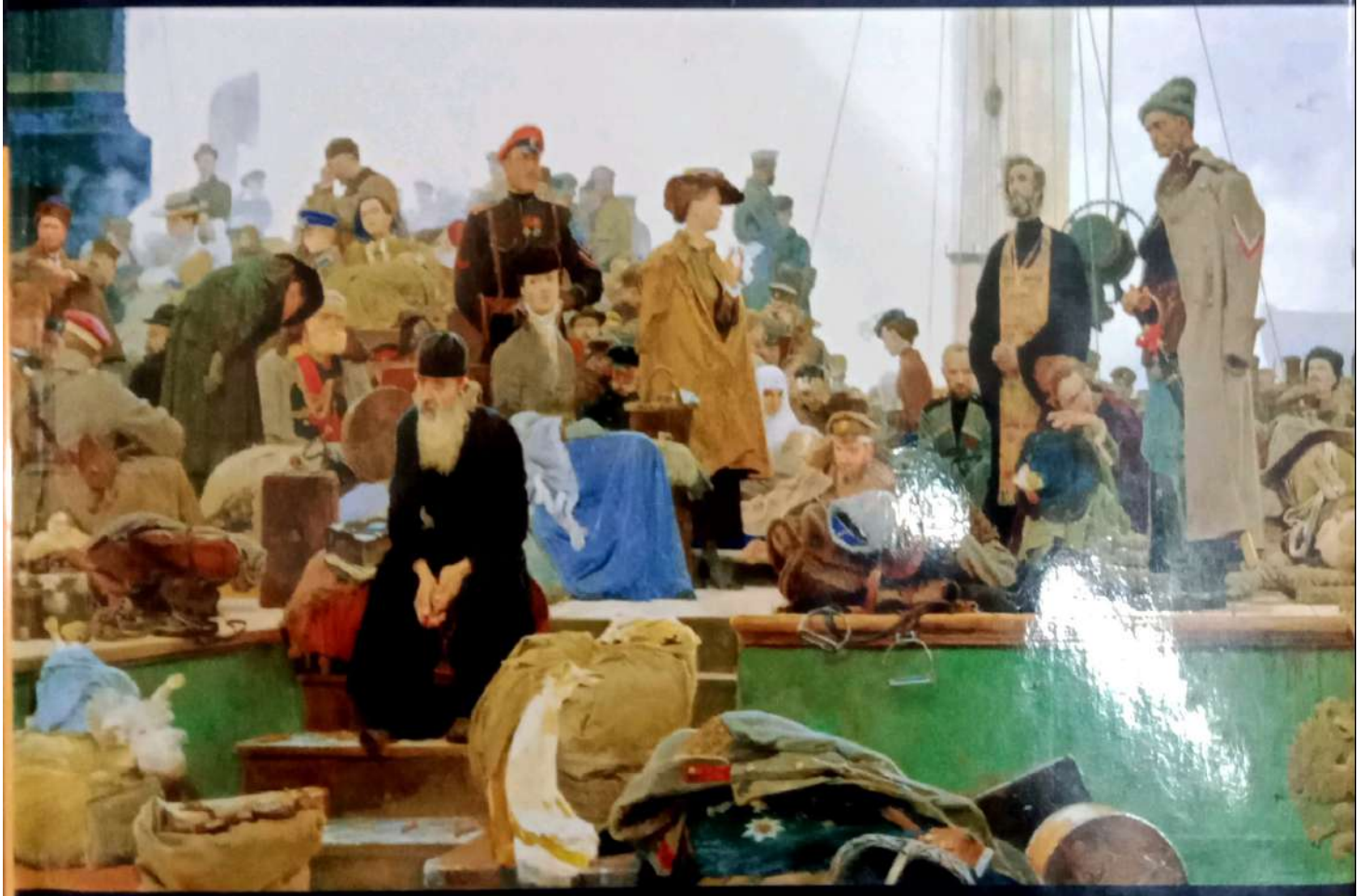
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Title	:	DIETARY MANAGEMENT OF CARDIOVASCULAR DISEASES
First Edition	:	**August 2019**
Copy right	:	Authors
Pages	:	69
ISBN No.	:	**978-93--84008-75-8**
Size	:	Crown A4
Price	:	**500 (Five hundred Rupees only)**
Publication	:	Harman publications, Thanjavur

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EXILE AND DIASPORIC LITERATURE

A Dawn in the Darkness



Dr. ADI RAMESH BABU

14

A Study on Inter and Intra Racial Discriminations in Zora Neale Hurston's *Their Eyes Were Watching God*

S. Snekha Sri *

Racism is the term refers to the concept of defining a group of people on the basis of their physical characteristics such as skin colour, hair, and facial features. There were two major categories of race such as whites and blacks. In the western, Whites are Americans who seem to be the ruler and dominant whereas blacks are slaves. Slaves look laborious, ugly and naive. There is another category of people who are called as mixed race. Naturally, race plays crucial role in the lives of blacks and sometimes, becomes victim by their own race. The present research paper studies inter and intra racial impact on blacks and its significant role in the lives of black women. It is analyzed with the perspective of Zora Neale Hurston's *Their Eyes Were Watching God.*

African American literature is a genre of literature written by the Americans of African descents during the late eighteenth-century. The origin of African American Literature began when the Africans tries to express their sufferings based on race and slavery by the American community. African American literature often called as regional writings because it focuses on the sufferings and feelings of a particular African community who settled in America as slaves. In the beginning there were only very few writers who started expressing their feelings and gave voices for their rights through few works. Later, African American literature gradually became as a standardized literature by the unique contributions made by many black writers who fought for their freedom and rights.

African American culture, racism, slavery, and inequality are the major themes and issues exclusively dealt in African

Exile and Diasporic Literature
A Dawn in the Darkness

Exile literature and literature of diaspora have always been seen as the torrent of tormenting problems of the day and an unfulfilled trial of the writers to find ways out of it, to establish peace and happiness in the society. The themes of these writings go with unprecedented tactics to visualize the charismatic powers of humanity to pervade peace friendly living on the habitable globe. The present book has its own specific characteristics. It overwhelms with multifarious themes and problems that are sucking the society like leeches. Feministic approach reflects indescribable conditions of women in the male dominated society, domestic violence, sexual harassment, molestations, and self-identity are the common motives of feminism. Blonde facade of polity in the nation is infected with leprosy bacillus organisms like caste politics, religion, cultural clash, marginalization, extra racial conflicts, intra-racial collisions etc. The other motifs that replenish this book are colonialism, cultural clash, migration, tradition, domestic problems, globalization etc that spurted out of the pens of reputable writers and thinkers like Kazuo Ishiguro, Vikram Seth, Kiran Desai, Rohinton Mistry, Amitav Ghosh, Bharati Mukherjee, Jumpha Lahiri, Nagarkar, Manjushree Thapa, Meera Syal, Amit Chaudhuri, M. G. Vassanji, Zora Neale Hurston, Taslima Nasreen, Ngugi wa Thiong'o, Nadine Gordimer, V.S. Naipaul, and Bessie Head. This book is crammed with variegated themes and aspects which at every step make the provision of plenty stuff for thinking brain. It comprises twenty four research papers.



Dr Adi Ramesh Babu is presently working as Asst. Professor, Department of English, Kakatiya Government Degree and PG College, Hanamkonda, Telangana State. He obtained his M.Phil and Ph.D degrees from Kakatiya University, Warangal. He also did PGCTE and PGDTE from EFLU (Hyderabad). His edited books are: ***Indian English Literature: A Memento of Feminist Minds, Indian Women Literature: A Montage of Leitmotiv, English Language Teaching and Learning: Problems and Remedies, Principles and Techniques in English Language Teaching and Learning, Subaltern Spaces in New Literatures: An Anthology Presented to K. Damodar Rao, Commonwealth Literature: An Anthology of Mosaic Themes,*** and ***Postcolonial Literature: Controversial concepts of Silence and Violence.*** He has published several articles and presented scholarly papers in national and international seminars. He is one of the Editors of The Criterion: An Online International Journal; International Journal of English Language, Literature and Translation Studies; Research Scholar: An International Refereed e-Journal of Literary Explorations; International Journal on Studies in English Language and Literature.

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vividly portrayed by the director Manu through the movie. So it is relevant to deal about such a socially and contemporary relevant theme to the present scenario with utmost care. The paper concerns about the dual stigma of the protagonist as a women and a victim of acid attack. Uyare is a 2019 Malayalam movie with the strong protagonists bring in to the future.

Keywords: Representation of victim, gender, professional, psychological

88. Undaunted Dreams of Young Adults in Rosa Cuthbert Guy's Edith Jackson

S.Snekha Sri, Ph.D Research Scholar (PT), Assistant Professor, Department of English
Periyar University, Salem, Tamil Nadu

Rosa Cuthbert captures the fleeting inner world of black adolescents and exposes the obstacles they confront at the very blooming façade of their lives. The present paper investigates the dreams and day dreams of black adolescents in America and studies various aspects of their lives. It aims to systematically analyze the root causes for the troubles confronted by black adolescents. Edith Jackson, the third novel of first trilogy of Rosa Guy is taken up for the study. Edith Jackson tells the story of Edith Jackson, a seventeen year old girl who moves between foster homes and tries to keep her family together. Edith takes it upon herself to take care of her sisters and maintain some sort of stability in their lives. This novel focuses on complex issues surrounding teen agers including parental loss, abortion, accidental death, sexual assault and death. It also exposes the culture, consequences, and institutions of poverty through various events in Edith's life. Edith is the target of sexual harassment and inter-racial and intra-racial prejudice. This novel strikingly conveys the message that adolescence is not simply filled with day-dreams and infatuations. On the other hand, it convincingly portrays through Edith Jackson that teen-agers are endowed with a high sense of family responsibility and invincible dreams.

89. Affirmation of Algerian Women's Identity through the Subaltern Voices in Woman without a Burial Space of Assia Djebar

Navreeti Sharma, Research Scholar, University of Delhi

Djebar retraces the life of brave and modern Zoulikha, through the collective memory of various women she interviews, on her return to her native town Cherchell in Algeria, almost after 20 years of exile. The subaltern voices of Hania, Mina, Dame Lionne and Zohra Oudai recall the remarkable role played by Zoulikha and themselves in the war of liberation, from the year 1956 to 1958. During the reconstruction of the historical past, Djebar also gives the voice to Zoulikha, who brings to light the sacrifice she made for her country and the torture she underwent, when caught by the French police. Hence, the novel is an attempt to affirm the existence of Algerian women within the patriarchal society, through their voices and their collective memory.

90. The Traumatized Speaks: A Postcolonial Feminist Reading of Tsitsi Dangarembga's Nervous Conditions

Amrutha Justin V, Assistant Professor, New Horizon College, Marathalli, Bangalore

Women's experiences are not just influenced by their gender but also by the specific contexts of the historical situation that they live in. The term 'Double Colonization' introduced by



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Materials for Biomedical Engineering: Organic Micro- and Nanostructures provides an updated perspective on recent research regarding the use of organic particles in biomedical applications. The different types of organic micro- and nanostructures are discussed, as are innovative applications and new synthesis methods. As biomedical applications of organic micro- and nanostructures are very diverse and their impact on modern and future therapy, diagnosis and prophylaxis of diseases is huge, this book presents a timely resource on the topic. Users will find the latest information on cancer and gene therapy, diagnosis, drug delivery, green synthesis of nano- and microparticles, and much more.

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ISBN
978-0-12-818433-2

Language
English

Published
2019

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Imprint
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DOI
https://doi.org/10.1016/C2017-0-04440-3

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Chapter 2 - Polymeric nanomaterial revolution in drug delivery systems: toward patient care

V. Nipun Babu [1, 2], Raju Vivek [2, 3], Chandrababu Rejeeth [2, 3], Soundarapandian Kannan [2, 4]

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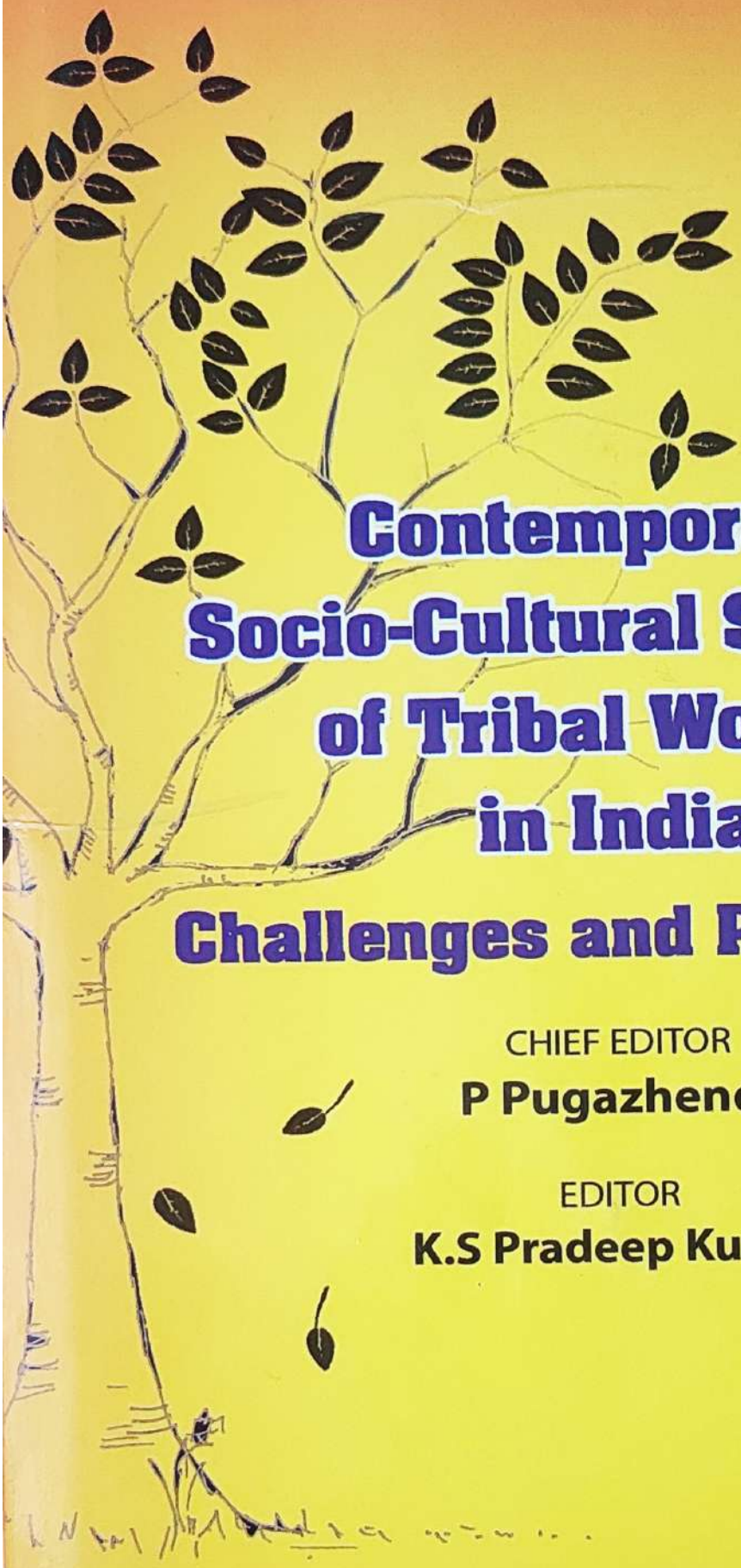
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Contemporary Socio-Cultural Scenario of Tribal Women in India

Challenges and Prospects

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First Published: May 2019

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K.V.Sona, V.Vaithianathan and A. Sugirtha Rani

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India has the second largest tribal population of the world. Different regions have different administrative history due to different administrative structures. Pre-independence tribals were living in forests and hills. The status of tribals was unsatisfactory during princely and colonial regime, as a policy of neglect and saga of exploitation. Due to this, their land and forests were slowly and gradually grabbed by the rich people like landlords and money lenders. They were turned into bonded labourers, leading a life of extreme poverty and misery. It is culturally distinct with the other tribal or social groups existing in the region. In India today, tribal groups are most marginalized

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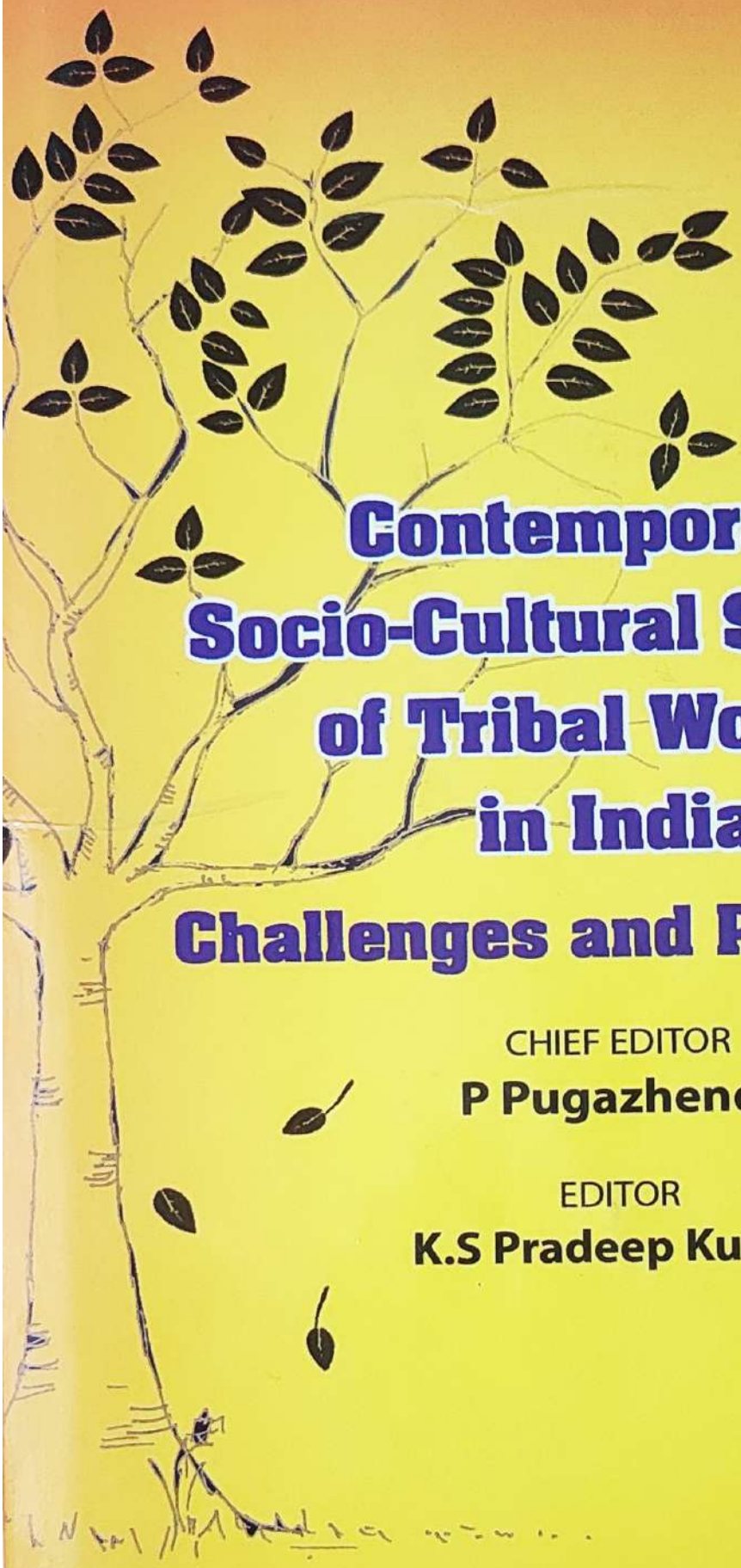
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In vitro Plant Breeding towards Novel Agronomic Traits: Biotic and Abiotic Stress Tolerance
23 November 2019, Pages 59-74

Role of silver nitrate and silver nanoparticles on tissue culture medium and enhanced the plant growth and development

(Book Chapter)

Mahendran, D.[a], Geetha, N.[a,b], Venkatachalam, P.[a]

[a]Department of Biotechnology, School of Biosciences, Periyar University, Salem, Tamil Nadu, India
[b]Department of Botany, Bharathiar University, Coimbatore, Tamil Nadu, India

Abstract

The objective of this review is to critically study the role of silver nitrate (AgNO3) and silver nanoparticles (Ag NPs) in changing plant growth and development. In recent years, basic studies on ethylene regulation opened novel outlooks for applied research in the field of micropropagation, somatic embryogenesis, and secondary metabolites production. Silver nitrate has evidenced to be a very effective inhibitor of ethylene action and is widely used in plant tissue culture. Nanotechnology opens a large scope of novel application in the field of biotechnology and agricultural, because nanoparticles (NPs) have unique physicochemical properties. Plant tissue cultures are the core of plant biology, which is important for conservation, mass propagation, genetic manipulation, bioactive compounds production, and plant improvement. Nowadays, the application of silver nanoparticles (Ag NPs) has successfully controlled the microbial contaminants from explants and proved the positive role of Ag NPs in callus induction, organogenesis, somatic embryogenesis, somaclonal variation, genetic transformation, and secondary metabolites production. Therefore, the present chapter highlights the significant role of AgNO3 and Ag NPs in plant growth and development. Also, nanoscience contributes new ideas leading us to understand the suitable mode of action of nanoparticles in plants which lead to better plant growth and development. © Springer Nature Singapore Pte Ltd. 2019.

SciVal Topic Prominence

Topic: Phytotoxicity | Zinc Oxide Nanoparticle | Ceric Oxide

Prominence percentile: 99.673

Author keywords

Micropropagation | Silver nanoparticles | Silver nitrate | Tissue culture

ISBN: 978-981329824-8;978-981329823-1
Source Type: Book
Original language: English
DOI: 10.1007/978-981-32-9824-8_4
Document Type: Book Chapter
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In vitro Plant Breeding towards Novel Agronomic Traits: Biotic and Abiotic Stress Tolerance
23 November 2019, Pages 75-82

Exploring the phytoremediation potential of Calotropis gigantea L. using a combined FTIR and principal component analysis

(Book Chapter)

Sangeetha, P.[a,b], Venkatachalam, P.[c], Geetha, N.[c,d]

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Abstract

Chromium (Cr) is a main concern pollutant and has been recognized to be harmful to fauna, flora, and human beings. The intent of the present study was to investigate the phytoremediation potential of Calotropis gigantea L. plant using a combined FTIR and principal component analysis (PCA) for effective Cr removal. Plant leaves were collected from unpolluted and polluted areas (near tanneries). After authentication, the composite leaf sample of each site was thoroughly washed and allowed to dry. The dried samples were finely powdered and used for FTIR analysis. The FTIR spectra of both the samples showed totally 8 peak values and corresponding 12 functional groups such as alcohols, phenols, alkanes, carboxylic acids, alkynes, alkenes, aromatics, amines, esters, ethers, aliphatic amines, and alkyl chlorides. The peak value's difference was found to be very low between samples. To confirm this, peak values were subjected to PCA which revealed that no functional groups of both the samples contributing variation were identified. This observation suggests that this plant has a protective mechanism to detoxify heavy metal Cr and could be used for phytoremediation purpose in the future. © Springer Nature Singapore Pte Ltd. 2019.

Author keywords

Calotropis gigantea | Chromium | FTIR | PCA | Phytoremediation

ISBN: 978-981329824-8;978-981329823-1
Source Type: Book
Original language: English
DOI: 10.1007/978-981-32-9824-8_5
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GIS and Geostatistical Techniques for Groundwater Science
1 January 2019, Pages 167-177

Simulation of seasonal rainfall and temperature variation-A case study of climate change projection in ponnaiyar river basin, Southern India

(Book Chapter)

Jothibasu, A., Anbazhagan, S.

Centre for Geoinformatics and Planetary Studies, Periyar University, Salem, India

Abstract

South India is widely covered by hard rock terrain, which thus leads to it being one of the most pressured areas in the world in terms of water supply. Climate change significantly affects the water resources in these areas. In the study presented here, an attempt was made to assess the baseline climate (1961-1990) and to make future (2010-2040 and 2040-2080) projections of the pattern of rainfall and temperature in the Ponnaiyar River Basin, Southern India. For a projection of the future climate, the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4) Special Report Emissions Scenarios (SRES) A1B, forcing scenario is used with the climate model of the Bjerknes Centre for Climate Research (BCCR), Univ. of Bergen, Norway and the Bergen Climate Model (BCM) Version 2. It is one of the methods that produces the most accurate and reliable results for India's climate conditions. The minimum and maximum temperatures and seasonal rainfall (winter, summer, southwest and northeast) were the parameters chosen for the simulation. The A1B scenario clearly shows that the future minimum temperature increases are in line with the results showing that the minimum and maximum temperatures will experience the greatest impact from climate change. The simulation shows that the summer and winter seasons are expected to face decreasing rainfall in the coming decades. Climate change is expected to lead to between 20 and 40 mm less rainfall by 2080. This is equivalent to a reduction in the average annual rainfall of about 40%. With less future rainfall in northern areas, groundwater recharge, surface water flow, and water quality are expected to also decrease. © 2019 Elsevier Inc. All rights reserved.

SciVal Topic Prominence

Topic: Downscaling | CMIP | Regional Climate

Prominence percentile: 99.602

Author keywords

Climate change | Ponnaiyar river basin | Rainfall | SRES A1B scenario | Temperature

ISBN: 978-012815413-7;978-012815414-4
Source Type: Book
Original language: English
DOI: 10.1016/B978-0-12-815413-7.00012-2
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GIS and Geostatistical Techniques for Groundwater Science
1 January 2019, Pages 91-112

Remote sensing and fuzzy logic approach for artificial recharge studies in hard rock terrain of South India

(Book Chapter)

Muthumaniraja, C.K.[a], Anbazhagan, S.[b], Jothibasu, A.[b], Chinnamuthu, M.[b]

[a]Groundwater Division, Tamil Nadu Water Supply and Drainage Board (TWAD), Erode, India
[b]Centre for Geoinformatics and Planetary Studies, Periyar University, Salem, India

Abstract

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The objective of this paper is to demarcate a suitable site for artificial recharge based on an aquifer management system in a hard rock area of Talaivasal block, Tamil Nadu, India using a fuzzy logic model. The important parameters, such as land use/land cover, geomorphology, drainage (stream order), lineament density, water level, and slope percentage, were chosen based on recharge characteristics. In the present study, knowledge-based weighted values were assigned for each thematic layer and these thematic maps were integrated into a fuzzy tool to determine membership values. © 2019 Elsevier Inc. All rights reserved.

SciVal Topic Prominence

Topic: Structural Properties (Geology) | Groundwater Recharge | Thematic Maps

Prominence percentile: 95.282

Author keywords

Aquifer management | Artificial recharge | Fuzzy logic | GIS | Talaivasal block

ISBN: 978-012815413-7;978-012815414-4
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GIS and Geostatistical Techniques for Groundwater Science
1 January 2019, Pages 297-308

Geostatistical studies for evaluation of fluoride contamination in part of Dharmapuri District, South India

(Book Chapter)

Anbazhagan, S.[a], Rajendran, M.[b], Jothibasu, A.[a]

[a]Centre for Geoinformatics and Planetary Studies, Periyar University, Salem, India
[b]Groundwater Division, Tamil Nadu Water Supply and Drainage Board (TWAD), Chennai, India

Abstract

Accurate information on fluoride distribution in groundwater and geochemical knowledge with spatial information on geology and climate are necessary to understand the source/cause, type, and level of fluoride contamination. The research presented here aims to evaluate fluoride contamination through various statistical analyses in the Nallampalli Block of Tamil Nadu, India. The Nallampalli Block is mostly covered by hard-rock terrain and demarcated as one of the fluoride contaminated zones in Tamil Nadu. This is mainly due to the occurrence of various rock types containing fluoride-bearing minerals. The fluoride content of the groundwater originates from the dissolution of fluoride-bearing minerals from the bed rock. For research purposes, groundwater samples from 34 locations of the Nallampalli Block were analyzed for pre and postmonsoon seasons. The frequency analyses of seasonal spatial variations, variations in relation to other ions, and geological traverses were carried out to evaluate fluoride contamination in the study area. In the premonsoon period about 31% of the block represented a risk zone for high fluoride concentrations in groundwater, whereas in the postmonsoon period the risk zone area decreased to 29%. The results revealed that the nearly 50% of the groundwater samples had high fluoride contamination, which exceeds the permissible limit. The results of this study will provide a better understanding of high fluoride concentrations in groundwater in an attempt to develop management plans for creating deep bedrock groundwater. In addition, these results can be used for developing a cost-effective treatment for high fluoride groundwater. © 2019 Elsevier Inc. All rights reserved.

SciVal Topic Prominence

Topic: Groundwater Samples | Hydrogeochemistry | Piper

Prominence percentile: 99.179

Author keywords

Fluoride contamination | Geological traverse | Nallampalli block | South India

ISBN: 978-012815413-7;978-012815414-4
Source Type: Book
Original language: English
DOI: 10.1016/B978-0-12-815413-7.00021-3
Document Type: Book Chapter
Publisher: Elsevier

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- Preface
- Merits and demerits of GIS and geostatistical techniques
- An introduction to various spatial analysis techniques
- Supplement of missing data in groundwater-level variations of peak type using geostatistical methods

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Frontiers in Artificial Intelligence and Applications

Volume 320, 2 October 2019, Pages 261-272

5th International Conference on Fuzzy Systems and Data Mining, FSDM 2019; Kitakyushu; Japan; 18 October 2019 through 21 October 2019; Code 158254

Feature reduction based on modified dominance soft set(Conference Paper)

Jothi, G., Hannah Inbarani, H., Azar, A.T., Almustafa, K.M.

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[d]Faculty of Computer and Artificial Intelligence, Benha University, Egypt
[e]College of Computer and Information Sciences, Prince Sultan University, Riyadh, Saudi Arabia

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Abstract

Big data is a collection of larger volume of unstructured types of data such as images, videos and social media data. Recently, the applications of big data analytics in the field of medical image processing increased rapidly. Tumor detection and classification of leukemia cells are challenging tasks in medical image processing, as manual data analysis is time consuming and most often not accurate. In big data applications, the feature reduction has a prominent role in eliminating the irrelevant features and building a good learning model. Clustering based on Backtracking Search Optimization Algorithm (BSA) is used to segment the nucleus. Various types of features were used to address the segmented nucleus including shape, texture and colour based features. In this paper, a Modified Dominance Soft Set-based Feature Reduction Algorithm (MDSSA) is designed to select the most prominent features for the leukemia image classification. The results of MDSSA are tested using Analysis of Variance (ANOVA). In the feature extracted datasets, the MDSSA selected 17% of the features that showed more promising performance in comparison to existing feature reduction algorithms. The proposed method also reduces the computation time for further analysis of Big Data. The ANOVA results confirm that the efficiency of the proposed feature reduction method is better than other methods. © 2019 The authors and IOS Press. All rights reserved.

Author keywords

Big Data analytics | Classification | Dominance relation | Dominance soft set | Feature reduction | Soft set theory

Indexed keywords

Engineering controlled terms: Advanced Analytics | Analysis of variance (ANOVA) | Big data | Clustering algorithms | Computation theory | Data Analytics | Data mining | Data reduction | Diseases | Fuzzy systems | Medical image processing | Set theory | Textures

Engineering uncontrolled terms: Backtracking search | Big data applications | Dominance relation | Feature reduction | Prominent features | Social media datum | Soft set theories | Soft sets

Engineering main heading: Classification (of information)

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Jothi, G. , Hannah Inbarani, H. , Azar, A.T.

Improved dominance soft set based decision rules with pruning for leukemia image classification

(2020) Electronics (Switzerland)

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The authors would like to thank Prince Sultan University, Riyadh, KSA for supporting this work.

ISSN: 09226389
ISBN: 978-164368018-7
Source Type: Book Series
Original language: English
DOI: 10.3233/FAIA190189
Document Type: Conference Paper
Volume Editors: Tallon-Ballesteros A.J.
Publisher: IOS Press

Azar, A.T.; College of Engineering, Prince Sultan University, Riyadh, Saudi Arabia;
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Proceedings of the 2nd International Conference on Intelligent Computing and Control Systems, ICICCS 2018

7 March 2019, Article number 8663102, Pages 525-534

2nd International Conference on Intelligent Computing and Control Systems, ICICCS 2018; Vaigai College of Engineering (VCE)Madurai; India; 14 June 2018 through 15 June 2018; Category numberCFP18K74-ART; Code 146012

Weighted Rank Ant Colony Metaheuristics Optimization Based Test Suite Reduction in Combinatorial Testing for Improving Software Quality(Conference Paper)

Bharathi, M., Sangeetha, V.

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[a]Periyar University College of Arts and Science Pennagaram, Department of Computer Science, Dharmapuri, Tamilnadu, India
[b]Periyar University College of Arts and Science Pappireddipatty, Department of Computer Science, Dharmapuri, TN, India

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Abstract

Software Product Lines (SPLs) contains a large number of feature combinations therefore pose challenges for testing software application program. In combinatorial testing, pair wise coverage maximization and test suite reduction plays a major role to reduce the testing cost of software program application. Few research works have been developed for combinatorial testing using different test suite reduction techniques. But, the conventional genetic algorithm does not present an optimal solution for test suite optimization problem because of process of randomly mutating bits of chromosome in mutation operation. In addition to that, genetic algorithm requires more computational time. In order to solve this limitation, Weighted Rank Ant Colony Metaheuristic Test Suite Optimization (WRACMTSO) Technique is proposed. WRACMTSO Technique designed a Weighted Rank Ant Colony Metaheuristic Optimization algorithm for test suite reduction in combinatorial testing. The WRACMO algorithm begins with initialization of ACO parameters with help of test cases in test suite. Then, ant chooses the one of two vertices to reach food source using trail's probability with weighted rank value and consequently updates pheromone trails. This process is repetitive until the ant attains food source. In WRACMO algorithm, vertices (test cases) elected by an ant to arrive at the food source are considered as optimal for performing combinatorial testing. By using this process, WRACMTSO Technique efficiently optimizes the test cases in test suite with minimum time. Therefore, WRACMTSO Technique enhances the test suite reduction rate and reducing the computational time of test cases for efficient combinatorial testing. The WRACMTSO Technique conducts the experimental works on metrics such as test suite reduction rate, computational time, testing cost and coverage rate with respect to different number of test suite and size of software product lines. © 2018 IEEE.

SciVal Topic Prominence

Topic: Prioritization | Software Testing | Bug

Prominence percentile: 94.325

Author keywords

Combinatorial Testing | Pheromone | Software Product Lines | Test Cases | Test Suite Optimization | Weighted Rank Value

Indexed keywords

Engineering controlled terms: Ant colony optimization | Application programs | Combinatorial mathematics | Computer software selection and evaluation | Control systems | Cost reduction | Genetic algorithms | Intelligent computing | Testing

Engineering uncontrolled terms: Combinatorial testing | Pheromone | Software Product Line | Test case | Weighted Rank Value

Engineering main heading: Software testing

ISBN: 978-153862842-3
DOI: 10.1109/ICCONS.2018.8663102
Source Type: Conference Proceeding
Document Type: Conference Paper
Original language: English
Publisher: Institute of Electrical and Electronics Engineers Inc.

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Proceedings of 2019 3rd IEEE International Conference on Electrical, Computer and Communication Technologies, ICECCT 2019

February 2019, Article number 8869366

3rd IEEE International Conference on Electrical, Computer and Communication Technologies: Computer Science and Engineering, ICECCT 2019; Coimbatore, Tamil Nadu; India; 20 February 2019 through 22 February 2019; Category numberCFP1733R-PRT; Code 152845

Bacterial Colony Optimization for Data Clustering(Conference Paper)

Revathi, J., Eswaramurthy, V.P., Padmavathi, P.

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Abstract

Clustering is the process of the grouping object in a given data objects based on their similarity between data objects. The swarm intelligent based clustering algorithms are generally stochastic search techniques that followed by the morality of cooperative behavior and self organization of an insect group. On the other hand, data clustering may be well planned as a complicated global optimization problem. Hence, the bacterial colony optimization is a new optimization algorithm which is followed by the behaviors of bacteria and proposed in this paper for solving the data clustering problem. The experimental results show that the proposed model achieves better clustering efficiency compared with other conventional clustering methods. © 2019 IEEE.

SciVal Topic Prominence

Topic: Data Clustering | K-Mean Algorithm | Number of Clusters

Prominence percentile: 96.506

Author keywords

Bacterial colony optimization | Bacterial foraging optimization | Data clustering | K-means | Particle swarm optimization

Indexed keywords

Engineering controlled terms: Behavioral research | Cluster analysis | Global optimization | Particle swarm optimization (PSO) | Stochastic systems

Engineering uncontrolled terms: Bacterial colonies | Bacterial foraging optimization | Conventional clustering | Data clustering | Global optimization problems | K-means | Optimization algorithms | Stochastic search techniques

Engineering main heading: K-means clustering

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Tamilarasi, K. , Gogulkumar, M. , Velusamy, K.

Enhancing the performance of social spider optimization with neighbourhood attraction algorithm

(2021) Journal of Physics: Conference Series

Ji, J. , Xiao, H. , Yang, C.

HFADE-FMD: a hybrid approach of fireworks algorithm and differential evolution strategies for functional module detection in protein-protein interaction networks

(2021) Applied Intelligence

Padmavathi, P. , Eswaramurthy, V.P. , Revathi, J.

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(2021) Lecture Notes in Electrical Engineering

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Original language: English
Publisher: Institute of Electrical and Electronics Engineers Inc.

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Materials Today: Proceedings

Volume 9, 2019, Pages 156-163

1st International Conference on Nanoscience and Nanotechnology, ICNAN 2016; Vellore; India; 19 October 2016 through 21 October 2016; Code 147014

Stilbene based organic dye as efficient sensitizer for NLO and dye-sensitized solar cells: A first principle study(Conference Paper)

Prakasam, M., Anbarasan, P.M.

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[a]Department of Physics, Periyar University, Salem, 636011, India
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Abstract

In this study, we have designed five different Stilbene based dyes as efficient sensitizers for Nonlinear Optical Properties (NLO) and Dye-Sensitized Solar Cells (DSSCs). Density Functional Theory (DFT) and Time-Dependent DFT (TD-DFT) have used to investigate molecular properties, in order to influence and performance of the dye sensitizer in the DSSCs. The theoretical result indicates that the HOMO and LUMO energy levels of this dye can be ensured a positive effect on the process of photoelectron injection into semiconductor surface and dye regeneration by the electrolyte. The solar energy conversion efficiency, effective key parameters in influence with the Short-Circuit Current Density (J_{SC}), Light Harvesting Efficiency (LHE) and Electron injection driving force (ΔG_{inject}) were discussed. The Stilbene-based dyes can be used as a potential sensitizer for photoelectron injection into the semiconductor surface due to its best electronic structure and optical properties of the good photovoltaic parameters. © 2019 Elsevier Ltd. All rights reserved. Selection and/or Peer-review under responsibility of International Conference on Nanoscience and Nanotechnology (ICNAN'16)

SciVal Topic Prominence

Topic: Dye-sensitized Solar Cells | Squaraine | Phenothiazines

Prominence percentile: 99.715

Author keywords

Driving force | Dye sensitizer | Light Harvesting Efficiency | Reorganization energy | Short-Circuit Current Density

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One of the authors, M.P acknowledges Periyar University Research Fellowship (URF) scheme.

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Pakravesh, F. , Izadyar, M. , Arkan, F.

Molecular engineering of triphenylamine-based metal-free organic dyes for dye-sensitized solar cells

(2021) International Journal of Quantum Chemistry

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Original language: English
DOI: 10.1016/j.matpr.2019.02.148
Document Type: Conference Paper
Volume Editors: Grace N.
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Prakasam, M.; Department of Physics, Periyar University, Salem, India;
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Advances in Intelligent Systems and Computing

Volume 750, 2019, Pages 229-239

International Conference on Big data and Cloud Computing, ICBDCC 18; Coimbatore; India; 23 March 2018 through 24 March 2018; Code 222009

Region-Wise Rainfall Prediction Using MapReduce-Based Exponential Smoothing Techniques(Conference Paper)

Dhamodharavadhani, S., Rathipriya, R.

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Department of Computer Science, Periyar University, Salem, India

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Abstract

Weather acts an important role in agriculture. Rainfall is the primary source of water that agriculturist depends on to cultivate their crops. Analyzing the historical data and predicting the future. As the size of the dataset becomes tremendous, the process of extracting useful information by analyzing these data has also become repetitive. To defeat this trouble of extracting information, parallel programming models can be used. Parallel Programming model achieves this by partitioning these large data. MapReduce is one of the parallel programming models. In general, Exponential Smoothing is one of the methods used for forecasting a time series data. Here, data is the sum of truth and error where truth can be “approximated” by averaging out previous data. It is used to forecast time series data when there is Level, Trend, Season, and Irregularity (error). In this paper, Simple Exponential Smoothing, Holt’s Linear, and Holt-Winter’s Exponential Smoothing methods are proposed with MapReduce computing model to predict region-wise rainfall. The experimental study is conducted on two different datasets. The first one is Indian Rainfall dataset which comprises of the year, state, and monthly rainfall in mm. The second is Tamil Nadu state rainfall dataset which consists of the year, districts, and monthly rainfall in mm. To validate these methods, MSE accuracy measure is calculated. From the results, Holt-Winter’s Exponential Smoothing shows the better accuracy for rainfall prediction. © 2019, Springer Nature Singapore Pte Ltd.

SciVal Topic Prominence

Topic: Low-Rank Approximation | Random Projection | Spectral Norm

Prominence percentile: 90.218

Author keywords

Holt-Winter’s method | Holt’s linear method | MapReduce | Prediction | Rainfall | Simple exponential smoothing method

Indexed keywords

Engineering controlled terms: Agriculture | Big data | Cloud computing | Forecasting | Parallel programming | Time series

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Namasudra, S. , Dhamodharavadhani, S. , Rathipriya, R.

Nonlinear Neural Network Based Forecasting Model for Predicting COVID-19 Cases

(2021) Neural Processing Letters

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Engineering uncontrolled terms

Exponential smoothing | Exponential smoothing method | Extracting information | Linear methods | Map-reduce | Parallel programming model | S-method | Simple exponential smoothing

Engineering main heading:

Rain

ISSN: 21945357
ISBN: 978-981131881-8
Source Type: Book Series
Original language: English
DOI: 10.1007/978-981-13-1882-5_21
Document Type: Conference Paper
Volume Editors: Peter J.D.,Alavi A.H.,Javadi B.
Publisher: Springer Verlag

Dhamodharavadhani, S.; Department of Computer Science, Periyar University, Salem, India;

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Materials Today: Proceedings

Volume 26, 2019, Pages 3531-3534

2019 International Conference on Emerging Materials and Modeling, ICEMM 2019; Tiruchengode; India; 7 January 2019 through 9 January 2019; Code 160821

Green synthesis of titanium dioxide nanoparticles using Phyllanthus niruri leaf extract and study on its structural, optical and morphological properties(Conference Paper)

Shanavas, S., Priyadharsan, A., Karthikeyan, S., Dharmaboopathi, K., Ragavan, I., Vidya, C., Acevedo, R., Anbarasana, P.M.

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View additional affiliations

Abstract

In this research non-toxic, cost-effective TiO_2 nanoparticles were prepared using Phyllanthus niruri leaf extract. The crystallinity and purity of green treated TiO_2 nanoparticles were investigated using X-ray diffraction (XRD) studies. The specific functional groups responsible for the reduction of TiO_2 nanoparticles were analyzed using Fourier transform infrared spectroscopy (FTIR). The formation of spherical shaped TiO_2 nanoparticles was confirmed using Transmission electron microscopy (TEM). The optical properties of green treated TiO_2 nanoparticles reveled through UV-Vis-Diffused reflectance spectroscopy (DRS). The obtained results show that the green treated TiO_2 nanoparticles can act as a better photocatalytic material. © 2019 Elsevier Ltd.

SciVal Topic Prominence

Topic: Silver Nanoparticles | Acid Gold Tetrachloride | Biofabrication

Prominence percentile: 99.959

Author keywords

Biomolecules | Green treatment | Nanoparticles | Photocatalyst | Phyllanthus niruri

ISSN: 22147853
Source Type: Conference Proceeding
Original language: English

DOI: 10.1016/j.matpr.2019.06.715
Document Type: Conference Paper
Volume Editors: Venkatesh M.,Suresh Kumar G.
Publisher: Elsevier Ltd

Anbarasana, P.M.; Nano and Hybrid Materials Laboratory, Department of Physics, Periyar University, Salem, India;

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García-Castañeda, M.C. , Castellanos-Águila, J.E. , Maury-Cuna, G.H.I.

A novel route to obtain TiO2 nanoparticles using green synthesis with vanillin and Bougainvillea glabra Choisy extract

(2021) Applied Nanoscience (Switzerland)

Rueda, D. , Arias, V. , Zhang, Y.

Low-cost tangerine peel waste mediated production of Titanium Dioxide Nanocrystals: Synthesis and characterization

(2020) Environmental Nanotechnology, Monitoring and Management

Velázquez-Hernández, M. , Schabes-Retchkiman, P. , Martínez-Gallegos, S.

Titanium nanoparticles phytosynthesized from Eichhornia crassipes leaf extract and their antimicrobial activity.

(2020) MRS Advances

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Materials Today: Proceedings

Volume 26, 2019, Pages 3514-3517

2019 International Conference on Emerging Materials and Modeling, ICEMM 2019; Tiruchengode; India; 7 January 2019 through 9 January 2019; Code 160821

Synthesis and optical characterization of cerium doped $MgWO_4$ phosphor(Conference Paper)

Jayaprakash, J., Krishnakumar, V.

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[a]Sri Krishna College of Engineering and Technology, Coimbatore, 641 008, India
[b]Department of Physics, Periyar University, Salem, 636 011, India

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Abstract

The synthesized pure $MgWO_4$ phosphor has wolframite structure with pure monoclinic phase and the cerium doped $MgWO_4$ phosphor has a secondary phase $[WO_6]^{6-}$ with the formation of Ce_2WO_4 on sintered at 1000 °C for 4 h. FESEM shows that the grain sizes are in the range of 1-4 μm and also deformation of rod like morphology as on doping with cerium. Photoluminescence studies shows blue emission spectrum at 470 nm for pure, 1%, 3% and 5% of Cerium doped $MgWO_4$ phosphor and its intensity is maximum for 3% of cerium doped $MgWO_4$ phosphor. © 2019 Elsevier Ltd.

SciVal Topic Prominence

Topic: Camoo4 | Phosphors | Molybdates

Prominence percentile: 96.954

Author keywords

Alkali earth oxides | Cerium | Fluorescence | Phosphor | Photoluminescence

Funding details

Funding sponsor	Funding number	Acronym
Science and Technology Department of Ningxia		
Council of Scientific and Industrial Research, India See opportunities by CSIR	03(1221)/12/EMR-II	CSIR
Bharathiar University		
Periyar University		

The authors are thankful to the Council of Scientific and Industrial Research, New Delhi, India for the financial assistance under a major research project (No: 03(1221)/12/EMR-II). The authors thanks Department of Physics, Periyar University, for Powder X-Ray diffraction, UV-DRS and Photoluminescence measurements. The authors thanks Department of Nano Science and Technology, Bharathiar University for FESEM and EDX measurements.

2

The authors are thankful to the Council of Scientific and Industrial Research , New Delhi, India for the financial assistance under a major research project (No: 03(1221)/12/EMR-II). The authors thanks Department of Physics, Periyar University, for Powder X-Ray diffraction, UV-DRS and Photoluminescence measurements. The authors thanks Department of Nano Science and Technology, Bharathiar University for FESEM and EDX measurements.

ISSN: 22147853
Source Type: Conference Proceeding
Original language: English
DOI: 10.1016/j.matpr.2019.05.385
Document Type: Conference Paper
Volume Editors: Venkatesh M.,Suresh Kumar G.
Publisher: Elsevier Ltd

Jayaprakash, J.; Sri Krishna College of Engineering and Technology, Coimbatore, India;
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Materials Today: Proceedings

Volume 26, 2019, Pages 3522-3525

2019 International Conference on Emerging Materials and Modeling, ICEMM 2019; Tiruchengode; India; 7 January 2019 through 9 January 2019; Code 160821

Structural and optical properties of Sn doped ZnO-rGO nanostructures using hydrothermal technique(Conference Paper)

Priyadharsan, A., Shanavas, S., Vidya, C., Kalyana Sundar, J., Acevedo, R., Anbarasan, P.M.

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[a]Department of Physics, Periyar University, Salem, Tamil Nadu 636 011, India
[b]Facultad de Ingeniería y Tecnología, Universidad San Sebastián, Bellavista 7, Santiago, 8420524, Chile

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Abstract

The structural and the optoelectronic properties of reduced graphene oxide based nanostructures were manageable, creating them favourable for applications in miscellaneous electronic devices. In this present work, Tin doped Zinc oxide/reduced graphene oxide (Sn doped ZnO/rGO) nanostructures were synthesized using a hydrothermal-assisted self-assemble method, and their structural and optical studies were investigated. The microstructural results confirmed the successful decoration of Sn-doped ZnO/rGO nanostructures. Therefore, these results can promote an excellent candidate for the applications of environmental issues. © 2019 Elsevier Ltd.

SciVal Topic Prominence

Topic: Photocatalytic Activity | Graphene Oxide | Holes (Electron Deficiencies)

Prominence percentile: 99.648

Author keywords

Hydrothermal | Nanostructures | Optoelectronic | Reduced graphene oxide | Sn doped ZnO/rGO

ISSN: 22147853
Source Type: Conference Proceeding
Original language: English

DOI: 10.1016/j.matpr.2019.05.440
Document Type: Conference Paper
Volume Editors: Venkatesh M.,Suresh Kumar G.
Publisher: Elsevier Ltd

Anbarasan, P.M.; Department of Physics, Periyar University, Salem, Tamil Nadu, India;

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Danish, M. , Muneer, M.

Facile synthesis of highly efficient Co@ZnSQDs/g-C3N4/MWCNT nanocomposites and their photocatalytic potential for the degradation of RhB dye: Efficiency, degradation kinetics, and mechanism pathway

(2021) Ceramics International

Das, H. , Xu, Q. , Datta, P.

Effect of ZnS and PbS shell on mem-behavior of CdS quantum dots

(2021) Journal of Materials Science: Materials in Electronics

Boulahlib, S. , Dib, K. , Özacar, M.

Optical, dielectric, and transport properties of Ag-doped ZnO prepared by Aloe Vera assisted method

(2021) Optical Materials

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Materials Today: Proceedings

Volume 26, 2019, Pages 3507-3513

2019 International Conference on Emerging Materials and Modeling, ICEMM 2019; Tiruchengode; India; 7 January 2019 through 9 January 2019; Code 160821

A facile one step hydrothermal induced hexagonal shaped CuS/rGO nanocomposites for asymmetric supercapacitors(Conference Paper)

Boopathiraja, R., Parthibavarman, M., Prabhu, S., Ramesh, R.

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[a]PG and Research Department of Physics, Chikkaiah Naicker College, Erode, Tamilnadu 638 004, India
[b]Department of Physics, Periyar University, Salem, Tamilnadu 636 011, India

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Abstract

We developed a facile hydrothermal route to synthesize hexagonal shaped CuS/reduced graphene oxide (rGO) composite for high performance supercapacitors. The as-obtained products were characterized by powder X-ray diffraction, Raman spectra, Transmission electron microscope, Energy dispersive spectra, X-ray photoelectron spectra, and Brunauer Emmett Teller (BET) analysis. XRD and TEM results suggest that CuS crystalline with hexagonal shaped particles are uniformly distributed onto the surface of rGO or wrapped in the rGO. The Lattice parameter of bare CuS was found to be a = b = c = 3.631Å and volume = 47.83 $Å^3$, further it was decreased to a = b = c = 3.591 Å and volume = 46.26 $Å^3$ for CuS/rGO composite. The XPS result confirms that presence of C and valance state of Cu^{2+} in the CuS/rGO composite. The BET analysis confirms that CuS/rGO composite shows high specific area (122 m^2g^{-1}) and lower pore size 8-10 nm compared with bare CuS (surface area = 71 m^2g^{-1} and pore size = 12-15 nm). Remarkably, the electrochemical performance of the CuS/rGO composite electrode exhibits a maximum capacity of 1604 Fg^{-1} at a specific current of 2 Ag^{-1} and results in good long term cyclic stability 97% capacitance retention after 5000 cycles. Furthermore, the fabricated CuS/rGO//AC based asymmetric supercapacitor showed outstanding cyclability (capacitance retention of 99.5% after 5000 cycles at 2 Ag^{-1}), and high-energy density (21 Wh kg^{-1} at a power density of 315 W kg^{-1}). © 2019 Elsevier Ltd.

SciVal Topic Prominence

Topic: Electrochemical Capacitors | Cobaltous Sulfide | Electrode Materials

Prominence percentile: 99.993

Author keywords

Asymmetric supercapacitor | CuS | Graphene oxide | High surface area | Hydrothermal route

Funding details

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Department of Science and Technology, Ministry of Science and Technology, India See opportunities by डीएसटी		डीएसटी

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Zhao, Y. , Zuo, Y. , He, G.

Synthesis of graphene-based CdS@CuS core-shell nanorods by cation-exchange for efficient degradation of ciprofloxacin

(2021) Journal of Alloys and Compounds

Chaudhary, S. , Raja, M. , Sinha, O.P.

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(2021) ACS Omega

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This research was financially supported by the Department of Science and Technology Science and Engineering Research Board, New Delhi, India (DST-SERB-EMR; File no: EMR/2016/007280).

ISSN: 22147853
Source Type: Conference Proceeding
Original language: English

DOI: 10.1016/j.matpr.2019.06.006
Document Type: Conference Paper
Volume Editors: Venkatesh M.,Suresh Kumar G.
Publisher: Elsevier Ltd

Parthibavarman, M.; PG and Research Department of Physics, Chikkaiah Naicker College, Erode, Tamilnadu, India;

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Materials Today: Proceedings

Volume 26, 2019, Pages 3526-3530

2019 International Conference on Emerging Materials and Modeling, ICEMM 2019; Tiruchengode; India; 7 January 2019 through 9 January 2019; Code 160821

Implication of lanthanum substituted hydroxyapatite/poly(n-methyl pyrrole) bilayer coating on titanium for orthopedic applications(Conference Paper)

Bhagya Mathi, D., Gopi, D., Kavitha, L.

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[a]Department of Physics, School of Basic and Applied Sciences, Central University of Tamilnadu, Thiruvarur, Tamil Nadu 610005, India
[b]Department of Chemistry, Periyar University, Salem, Tamil Nadu 636 011, India

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Abstract

Titanium is widely used as metallic implants due to their excellent biocompatibility. However, titanium lack in sufficient osseointegration required for implant longevity. To overcome this defect, we have fabricated lanthanum substituted hydroxyapatite/poly(N-methyl pyrrole) coating on Ti. Surface characterisation were performed which confirm the formation of La-HAP/PNMPy bilayer coatings. Morphological and elemental analysis were also carried out. Vicker's microhardness test of La-HAP/PNMPy bilayer showed enhanced values. A decrease in bacterial colonies was observed for the La-HAP/PNMPy bilayer which evidences the less probability for the implant failure. Hence, La-HAP on PNMPy coated Ti might be a promising material for orthopedic application. © 2019 Elsevier Ltd.

SciVal Topic Prominence

Topic: Hydroxyapatites | Bioceramics | Potentiodynamic Polarization

Prominence percentile: 88.470

Author keywords

Bilayer | Lanthanum | Load bearing implant | Osseointegration | Poly(N-methyl pyrrole)

ISSN: 22147853
Source Type: Conference Proceeding
Original language: English
DOI: 10.1016/j.matpr.2019.06.152
Document Type: Conference Paper
Volume Editors: Venkatesh M.,Suresh Kumar G.
Publisher: Elsevier Ltd

Kavitha, L.; Department of Physics, School of Basic and Applied Sciences, Central University of Tamilnadu, Thiruvarur, Tamil Nadu, India;

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Bhagya Mathi, D. , Gopi, D. , Kavitha, L.

Halloysite nanotubes strengthened hydroxyapatite/biopolymer composite coating on titanium for implant applications

(2020) AIP Conference Proceedings

Ozkazanc, H. , Menkuer, M. , Gundogdu, O.

Multifunctional poly(N-methylpyrrole)/nano-oxide composites: Optoelectronic, charge transport and antibacterial properties

(2020) Polymer

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Materials Today: Proceedings

Volume 26, 2019, Pages 3576-3578

2019 International Conference on Emerging Materials and Modeling, ICEMM 2019; Tiruchengode; India; 7 January 2019 through 9 January 2019; Code 160821

A role of annealing temperature on the properties of lanthanum oxide (La_2O_3) microplates by reflux routes(Conference Paper)

Karthikeyan, S., Selvapandiyan, M., Shanavas, S., Anbarasan, P.M., Acevedo, R.

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[a]Department of Physics, Periyar University PG Extension Centre, Dharmapuri, 636701, India
[b]Nano and Hybrid Materials Laboratory, Department of Physics, Periyar University, Salem, 11, India
[c]Facultad de Ingeniería y Tecnología, Universidad San Sebastián, Bellavista 7, Santiago, 8420524, Chile

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Abstract

The morphology controlled the synthesis of La_2O_3 is important for their application in the fields of semiconductors. In this work nanostructured La_2O_3 has been synthesized by reflux method using lanthanum nitrate, urea and double distilled water as starting materials. The approximate band gap of the as-prepared and calcined samples was calculated from the absorption spectrum are 5.8 and 5.9 eV respectively. The as-prepared and calcined products were characterized by X-ray diffraction (XRD), Scanning electron microscopy (SEM), Fourier transform infrared (FT-IR), Bandgap was calculated by UV-visible spectroscopy. © 2019 Elsevier Ltd.

SciVal Topic Prominence

Topic: Lanthanum Hydroxide | Phosphors | Lanthanide Nitrate

Prominence percentile: 74.843

Author keywords

La_2O_3 microplates | Monoclinic structure | Optical band gap | Reflux method | Urea

ISSN: 22147853
Source Type: Conference Proceeding
Original language: English

DOI: 10.1016/j.matpr.2019.07.700
Document Type: Conference Paper
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Selvapandiyan, M.; Department of Physics, Periyar University PG Extension Centre, Dharmapuri, India;

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Umar, A. , Ibrahim, A.A. , Kumar, R.

Fern shaped La2O3 nanostructures as potential scaffold for efficient hydroquinone chemical sensing application

(2020) Ceramics International

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Materials Today: Proceedings

Volume 26, 2019, Pages 3600-3603

2019 International Conference on Emerging Materials and Modeling, ICEMM 2019; Tiruchengode; India; 7 January 2019 through 9 January 2019; Code 160821

A comparative study of naturally and synthetically derived bioceramics for biomedical applications(Conference Paper)

Mathina, M., Shinyjoy, E., Kavitha, L., Manoravi, P., Gopi, D.

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[a]Department of Chemistry, Periyar University, Salem, Tamilnadu 636011, India
[b]Department of Physics, School of Basic and Applied Sciences, Central University of Tamilnadu, Thiruvarur, Tamilnadu 610005, India
[c]Materials Chemistry and Metal Fuel Cycle Group, Indira Gandhi Centre for Atomic Research, Kalpakkam, Tamil Nadu 603102, India

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Abstract

Hydroxyapatite (HAp) is a bioactive material, similar to the mineral constituent of natural bone and teeth. Naturally derived HAp is currently used in various types of orthopedic and maxillofacial applications because of their osteoconductive properties and tissue responses. In recent years, the use of natural biogenic structures and materials for medical purpose has been motivated by limitations in producing synthetic materials. Our study mainly focused to synthesis of hydroxyapatite from biogenic waste (squid pens) material. Naturally derived HAp can develop a tight bond with bone tissue, which is stable towards bio resorption and has no adverse effects on the human body. For these reasons the scope of the present work is focused on the synthesis of HAp derived from biogenic waste for biomedical applications. Our results showed that biogenic HAp is non-toxic and improve the cell adhesion. All the as-synthesized sample were investigated by Fourier transform infrared spectroscopy (FTIR), X-ray diffraction (XRD), Field emission scanning electron microscopy (FESEM) and Energy dispersive X-ray analysis (EDAX). © 2019 Elsevier Ltd.

SciVal Topic Prominence

Topic: Hydroxyapatites | Bioceramics | Hydroxyapatite-Beta Tricalcium Phosphate

Prominence percentile: 99.168

Author keywords

Bioactive material | Biomedical applications | Biowaste | Hydroxyapatite | Squid pens

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Meshkini, A. , Sistanipour, E. , Oveisi, H.

Induction of osteogenesis in bone tumour cells by purine-conjugated zinc-hydroxyapatite

(2020) Bioinspired, Biomimetic and Nanobiomaterials

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One of the author D. Gopi acknowledges the major financial support from the Department of Science and Technology (DST-SERB, Ref. No.:EMR/2017/003803), Council of Scientific and Industrial Research , New Delhi, India (CSIR, Ref. no. 01(2859)/16/EMR-II, dated: 12.05.2016) and University Grants Commission -Department of Atomic energy (UGC-DAE CSR, Ref. No. CSR-KN/CRS-118/2018-19/1056, Dated: 26.12.2018). Also, One of the author E. Shinyjoy acknowledge the University Grants Commission for Dr. D.S. Kothari Fellowship, New Delhi, India (No.F.4-2/2006 (BSR)/CH/18-19/0078; Dated: 06-02-2019).

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One of the author D. Gopi acknowledges the major financial support from the Department of Science and Technology (DST-SERB, Ref. No.:EMR/2017/003803), Council of Scientific and Industrial Research, New Delhi, India (CSIR, Ref. no. 01(2859)/16/EMR-II, dated: 12.05.2016) and University Grants Commission-Department of Atomic energy (UGC-DAE CSR, Ref. No. CSR-KN/CRS-118/2018-19/1056, Dated: 26.12.2018). Also, One of the author E. Shinyjoy acknowledge the University Grants Commission for Dr. D.S. Kothari Fellowship, New Delhi, India (No.F.4-2/2006 (BSR)/CH/18-19/0078; Dated: 06-02-2019).

ISSN: 22147853
Source Type: Conference Proceeding
Original language: English

DOI: 10.1016/j.matpr.2019.08.222
Document Type: Conference Paper
Volume Editors: Venkatesh M.,Suresh Kumar G.
Publisher: Elsevier Ltd

Gopi, D.; Department of Chemistry, Periyar University, Salem, Tamilnadu, India;

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Materials Today: Proceedings

Volume 26, 2019, Pages 3579-3582

2019 International Conference on Emerging Materials and Modeling, ICEMM 2019; Tiruchengode; India; 7 January 2019 through 9 January 2019; Code 160821

Fabrications of magnetic responsive hydroxyapatite platform: In vitro release of chemo drug for cancer therapy(Conference Paper)

Sangeetha, K., Vidhya, G., Girija, E.K., Ashok, M.

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[a]Department of Physics, Muthayammal College of Arts and Science, Rasipuram, Tamilnadu 637408, India
[b]Department of Physics, Periyar University, Salem, Tamilnadu 636011, India
[c]Department of Physics, National Institute of Technology, Tiruchirappalli, Tamilnadu 620015, India

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Abstract

In this study, multifunctional platform consists of cobalt ferrite magnetite particles fixed in a hydroxyapatite have been synthesized by microwave assisted wet precipitation method. The synthesized samples were studied by X-ray diffraction, Fourier transform infrared spectroscopy, field emission scanning electron microscopy, transmission electron microscopy and vibrating sample magnetometer. TEM results showed that hydroxyapatite embedded cobalt ferrite platform calcined at 900 °C have core-shell morphology and showed a maximum saturation magnetization of 3.9 emu/g. Developing an efficient chemotherapy vehicle, magnetic hydroxyapatite was combined by major chemo agent doxorubicin by adsorption technique and exhibited controlled release to 98 h. The results indicate that the doxorubicin modified magnetic hydroxyapatite nanoparticles have great potential to be part of a specific drug delivery system for cancer treatment. © 2019 Elsevier Ltd.

SciVal Topic Prominence

Topic: Hydroxyapatites | Bioceramics | Hydroxyapatite-Beta Tricalcium Phosphate

Prominence percentile: 99.168

Author keywords

Cobalt ferrite | Core-shell structure | Doxorubicin | Hydroxyapatite | Magnetic particles

Funding details

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The author K. Sangeetha expresses her sincere thanks to Science and Engineering Research Board (SERB) , India (Project Ref. No: PDF/2016/002255) for financial support.

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Ding, Y. , Zhang, H. , Wang, X.

Immobilization of dextranase on nano-hydroxyapatite as a recyclable catalyst

(2021) Materials

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ISSN: 22147853
Source Type: Conference Proceeding
Original language: English
DOI: 10.1016/j.matpr.2019.08.153
Document Type: Conference Paper
Volume Editors: Venkatesh M.,Suresh Kumar G.
Publisher: Elsevier Ltd

Sangeetha, K.; Department of Physics, Muthayammal College of Arts and Science, Rasipuram, Tamilnadu, India;
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Materials Today: Proceedings

Volume 26, 2019, Pages 3583-3587

2019 International Conference on Emerging Materials and Modeling, ICEMM 2019; Tiruchengode; India; 7 January 2019 through 9 January 2019; Code 160821

Fabrication of zinc substituted hydroxyapatite/cellulose nano crystals biocomposite from biowaste materials for biomedical applications(Conference Paper)

Sridevi, S., Ramya, S., Akshaikumar, K., Kavitha, L., Manoravi, P., Gopi, D.

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Abstract

The research goal of the present study is to synthesis zinc substituted hydroxyapatite (Zn-HAP) from country eggshell in a waste to wealth approach and to develop Zn-HAP/CNC biocomposite coating on Ti6Al4V by electrophoretic deposition. The as-developed Zn-HAP/CNC biocomposite coating is characterized by Fourier transform infrared spectroscopy (FT-IR), X-ray diffraction (XRD), field emission scanning electron microscopy (FESEM) and energy dispersive X-ray analysis (EDAX). In addition to this, the biocomposite coating is evaluated for antibacterial activity, apatite growth and mechanical strength. From the obtained results, it is well evident that the biocomposite coating exhibited improved mechanical, antibacterial and bioactivity properties. Thus, the Zn-HAP/CNC biocomposite coated Ti6Al4V can act as a prospective implant material for biomedical applications. © 2019 Elsevier Ltd.

SciVal Topic Prominence

Topic: Hydroxyapatites | Bioceramics | Potentiodynamic Polarization

Prominence percentile: 88.470

Author keywords

Antibacterial activity | Electrophoretic deposition | Mechanical strength | Substituted hydroxyapatite | Ti6Al4V

Funding details

Funding sponsor	Funding number	Acronym
	26.12.2018,CSR-KN/CRS-118/2018-19/1056	
Department of Science and Technology, Ministry of Science and Technology, India See opportunities by डीएसटी		डीएसटी

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Zn-doped hydroxyapatite in biomedical applications

(2021) Journal of the Australian Ceramic Society

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Science and Engineering Research Board See opportunities by SERB	EMR/2017/003803	SERB
Department of Science and Technology, Government of Kerala		

1

One of the author D. Gopi acknowledges the major financial support from the Department of Science and Technology (DST - SERB , Ref. No. : EMR/2017/003803), Council of Scientific and Industrial Research, New Delhi, India (CSIR , Ref. No. 01(2859)/16/EMR-II , dated: 12.05.2016) and University Grants Commission-Department of Atomic energy (UGC -DAE CSR, Ref. No. CSR-KN/CRS-118/2018-19/1056, Dated: 26.12.2018). Also, One of the author S. Ramya acknowledge the University Grants Commission Dr. D.S. Kothari Fellowship, New Delhi, India. (F.4-2/2006 (BSR)/CH/17-18/0170, Dated: 25.09.2018).

2

One of the author D. Gopi acknowledges the major financial support from the Department of Science and Technology (DST-SERB, Ref. No. :EMR/2017/003803), Council of Scientific and Industrial Research, New Delhi, India (CSIR, Ref. No. 01(2859)/16/EMR-II, dated: 12.05.2016) and University Grants Commission-Department of Atomic energy (UGC-DAE CSR, Ref. No. CSR-KN/CRS-118/2018-19/1056, Dated: 26.12.2018). Also, One of the author S. Ramya acknowledge the University Grants Commission Dr. D.S. Kothari Fellowship, New Delhi, India. (F.4-2/2006 (BSR)/CH/17-18/0170, Dated: 25.09.2018).

ISSN: 22147853
Source Type: Conference Proceeding
Original language: English

DOI: 10.1016/j.matpr.2019.08.204
Document Type: Conference Paper
Volume Editors: Venkatesh M.,Suresh Kumar G.
Publisher: Elsevier Ltd

Gopi, D.; Department of Chemistry, Periyar University, Salem, Tamilnadu, India;

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Materials Today: Proceedings

Volume 26, 2019, Pages 3552-3558

2019 International Conference on Emerging Materials and Modeling, ICEMM 2019; Tiruchengode; India; 7 January 2019 through 9 January 2019; Code 160821

Dynamic instability in neuronal microtubules(Conference Paper)

Priya, R., Kavitha, L., Gopi, D.

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Abstract

The Hamiltonian describing the interaction between the two neighbouring filaments of neuronal microtubules (nMTs) and in addition of u and φ model, which may be represented as longitudinal and radial displacements. From this Hamiltonian, we get discrete Nonlinear Schrodinger (DNLS) like equations by using the Rotating wave approximation (RWA). In order to analyze the instability nature of the system, we perform modulational instability (MI) analysis for the DNLS equations of motion which attribute for the energy localization phenomenon and it paves way for bio-energy transport in intracellular communications. © 2019 Elsevier Ltd.

SciVal Topic Prominence

Topic: Soliton Solution | Heisenberg | Spin Chains

Prominence percentile: 62.480

Author keywords

Double-well potential | Electric field | Modulational instability | Neuronal microtubules | Solitons

Funding details

Funding sponsor	Funding number	Acronym
Council of Scientific and Industrial Research, India See opportunities by CSIR		CSIR
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On the dynamics of a curved microtubule-associated proteins by considering viscoelastic properties of the living biological cells

(2021) Journal of Biomolecular Structure and Dynamics

Shariati, A. , Habibi, M. , Tounsi, A.

Application of exact continuum size-dependent theory for stability and frequency analysis of a curved cantilevered microtubule by considering viscoelastic properties

(2020) Engineering with Computers

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2

One of the authors, R. P. gratefully acknowledges UGC for the Rajiv Gandhi National Fellowship , India. L.K gratefully acknowledges the financial support from DST-SERB , CSIR , UGC-DAE , India in the forms of major research projects and ICTP, Italy, in the form of Regular Associateship.

ISSN: 22147853
Source Type: Conference Proceeding
Original language: English
DOI: 10.1016/j.matpr.2019.07.312
Document Type: Conference Paper
Volume Editors: Venkatesh M.,Suresh Kumar G.
Publisher: Elsevier Ltd

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Materials Today: Proceedings

Volume 15, 2019, Pages 344-352

2018 International Conference on BioMaterials, BioEngineering and BioTheranostics, BioMET 2018; Vellore; India; 24 July 2018 through 28 July 2018; Code 157761

Comparative study of hydroxyapatite prepared from eggshells and synthetic precursors by microwave irradiation method for medical applications(Conference Paper)

Vidhya, G., Suresh Kumar, G., Kattimani, V.S., Girija, E.K.

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Abstract

Recently research on biogenic derived hydroxyapatite (HAp) is being focused. In the present study it is proposed to make a comparative analysis of microwave synthesised HAp derived from eggshell based calcium precursor with two commercial calcium soruces calcium nitrate tetrahydrate and calcium carbonate using EDTA as the organic modifier. The as-synthesized samples was characterized by XRD, FT-IR, SEM and EDAX. Comparative studies were carried out with eggshell derived HAp and synthetic precursors. Eggshell derived HAp exhibited lesser decomposition into β-TCP and EDAX confirmed the presence of magnesium element with plays a key role in bone metabolism. Eggshell derived hydroxyapatite also revealed somewhat better changes in the cytocompatibility, antimicrobial activity and drug release.
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SciVal Topic Prominence

Topic: Hydroxyapatites | Bioceramics | Hydroxyapatite-Beta Tricalcium Phosphate

Prominence percentile: 99.168

Author keywords

Ciprofloxacin | Drug release | Eggshell waste | Hydroxyapatite

Funding details

Funding sponsor	Funding number	Acronym
Department of Science and Technology, Ministry of Science and Technology, India See opportunities by डीएसटी	DST/TSG/WM/2015/576/G	डीएसटी

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The authors express their sincere thanks to Department of Science and Technology (DST), India (Project Ref. No: DST/TSG/WM/2015/576/G) for financial support.

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(2021) Ceramics International

Schütze, E. , Gypser, S. , Freese, D.

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(2020) Soil Systems

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ISSN: 22147853
Source Type: Conference Proceeding
Original language: English
DOI: 10.1016/j.matpr.2019.05.015
Document Type: Conference Paper
Volume Editors: Manivasagam G.,Mantovani D.,Popat K.,Sen D.,Jaiswal A.
Publisher: Elsevier Ltd

Girija, E.K.; Department of Physics, Periyar University, Salem, India;
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Materials Today: Proceedings

Volume 36, 2019, Pages 228-231

2018 NANOSMATAFRICA 2018; CapeTown; South Africa; 19 November 2018 through 23 November 2018; Code 166930

Preparation and characterization studies of pure and Li+doped ZnO nanoparticles for optoelectronic applications(Conference Paper)

Chandrasekar, M., Panimalar, S., Uthrakumar, R., Kumar, M., Raja Saravanan, M.E., Gobi, G., Matheswaran, P., Inmozhi, C., Kaviyarasu, K.

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Abstract

In this present work, the synthesis of pure and Li doped zinc oxide nanoparticles by hydrothermal method using zinc nitrate and sodium hydroxide synthesized and has been reported. CTAB added in nanoparticles preparation, where CTAB used as the size reducing reagent, is one of the most essential properties for the nanoparticle's preparation and its characterisation. The synthesized zinc oxide nanoparticles were characterized by X-ray diffraction (XRD), Fourier Transform Infrared (FTIR) Spectroscopy and UV Visible Spectroscopy (UV-vis) were reported in detail. © 2019 Elsevier Ltd. All rights reserved.

SciVal Topic Prominence

Topic: Photocatalytic Activity | Cerium Nitrate | Wurtzite

Prominence percentile: 88.697

Author keywords

FTIR | Hydrothermal method | UV-vis | XRD | ZnO NPs

ISSN: 22147853
Source Type: Conference Proceeding
Original language: English
DOI: 10.1016/j.matpr.2020.03.228
Document Type: Conference Paper
Volume Editors: Maaza M.,Ali N.
Publisher: Elsevier Ltd

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Remarkable Relief Measures Pronounced by the Political Party 'Dravida Munnetra Kazhagam' (DMK) for the Welfare of the Transgenders of Tamil Nadu

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The political parties in Tamil Nadu have a long history to be cherished. A few parties acclaim the historical heritage. They are one with the people of Tamil Nadu; they have united families, befriended people, business assortments and even paved way for marriage proposals. Most importantly it has given efficient leaders to the state. The political leaders and the parties of Tamil Nadu are being praised by the political parties of other states too. The two political masses that the land has inherited over the years are the Dravida Munnetra Kazhagam (DMK) and the All India Anna Dravida Munnetra Kazhagam (AIADMK). Both the parties are possessing a strong alliance since its inception.

Among the two political parties the paper aims to focus on the accomplishments of DMK, which is presently holding the position of a strong opposing party in Tamil Nadu. The party has contributed enormously for the welfare of the Dravidians. They have done pioneering deeds for the people of Tamil Nadu. The leaders of the party such as C.N. Annadurai, E.V.

Ramaswamy Naicker and Kalaignar Karunanidhi have rendered selfless service for the people of Tamil Nadu.

The party has offered support through its various welfare systems to the people who were marginalised based on caste, class and gender. The noble thoughts of the party's veterans have rendered liberty to the people. The DMK party has made welfare possible for the people living in the fringes of the society.

The relief measures and welfare schemes sanctioned by DMK for both men and women without any gender bias are noteworthy. The support and recognition that the party has given and continues to give to the Transgender community of Tamil Nadu are remarkable. The efforts taken for it are imbibed by the party's present leaders too. It has also been taken forward by other parties in Tamil Nadu and by the political parties outside the state. Tamil Nadu remains outstanding in exhibiting progression among the transgenders and in projecting a fair status of transgenders when compared to the other state. Therefore the objective of the research paper is to enlist the various merits of DMK in enhancing the welfare of the transgenders of Tamil Nadu.

The welfare for transgenders was vividly initiated by former Chief Minister Kalaignar Karunanidhi. He adorned them with a respectful name. He was the first person to give them the name 'Thirunangai', the term that originates from the Tamil language. The two syllables 'thiru' and 'nangai' constitute the word thirunangai; 'thiru' denotes the respectful term in Tamil addressed to a person which is equivalent to 'Mr' in English and 'nangai' refers to a woman who is great amongst the women.

The term thirunangai has also been conceived with other similar meanings. "Karunanidhi didn't just call transgender people "*aravani*," their traditional name, but addressed them as "*thirunangai*," a respectful term that can be translated as "mister lady" "

(Merelli). The term gave independence to transwomen who were abused verbally with derogatory words. It has provided them the correct recognition and respect.

The term thirunangai and its connotations are similar to the word 'Hijra' that addresses transgenders in the northern parts of the country. 'Hijra' is explained with its meaning by Laxminarayan Tripathi, a transwoman in her memoir *Me Hijra, Me Laxmi*. " The word '*hij*' refers to the soul, a holy soul. The body in which the holy soul resides is called 'hijra'" (Tripathi 39). The concept of "mister lady" relating to thirunangai is similar to Laxmi's understanding of hijra and the concept underlying it. " A hijra is neither a man nor a woman. She is feminine, but not a woman. He is masculine, a male by birth, but not a man either" (Tripathi 40).

It can be witnessed that the approach of DMK towards the upheaval of the transgender community is unique and is welcomed by the transgenders. Besides pronouncing schemes to control HIV/AIDS among transgenders, the DMK party exhibits a different approach towards the transgenders and it is rewarding too.

Kalaignar Karunanidhi who was the Chief Minister of Tamil Nadu in 2008 amended schemes that were proclaimed for the first time in the history of Tamil Nadu. He established a welfare board for the transgenders which was not only the first in the state but in the country.

> Tamil Nadu State government has shown unprecedented efforts to address the social protection needs of *aravani* or *thirunangai* (male-to-female transgender people). In April 2008, Tamil Nadu Aravanigal (Transgender) Welfare Board was formed as the nodal body to address the social protection needs of transgender people. TGWB has introduced TG-specific schemes of its own and has facilitated transgender people's access to existing social protection schemes of the State and Central government. (Chakrapani)

"A confluence of several factors contributed to the formation for Tamil Nadu Transgender Welfare Board (TGWB). These factors ranged from gain in the political support as a legitimate minority, increase in the acceptance of the general public and mass media, and advocacy efforts of transgender community leaders and activists and civil society" (Chakrapani). The joint efforts brought in by the political influence for the Transgender Welfare Board sets a model for other states in the country to act in a similar way towards the transgender community.

The board's objectives are catering to the primary needs of the transgender community. Fulfilling the primary needs will accentuate the standard of living of the community and will leave them with the ability to meet their further needs.

TGWB addresses these needs as:

- an agency that ***designs and implements schemes exclusively for TG people*** focusing on income/employment, housing, education and health care needs of TG people.

- a platform to bring ***various government departments together to discuss what can be done to address these basic needs by allowing access to government's pre-existing services, schemes, or institutions*** for TG people – thus trying to end the social exclusion and marginalization of TG populations. (Chakrapani)

The benefits of the Transgender Welfare Board are being benefited by the transgenders and is evident when the beneficiaries project it through the media. One such article that discloses the beneficiaries of the welfare board is the testimony of a transwoman named Saroja, that has been recorded on Mr.Karunanidhi's demise in the year 2018.

"Beyond just being respected, we could enjoy government benefits because he gave us voting rights," she said. Having a voter ID, with their gender on it facilitated them to apply for other ID proofs, she said.

A grateful Saroja, said she now lived in a settlement created for them by the late DMK leader.

"Without his inclusive welfare schemes, we would have lived in huts and other areas which made us vulnerable to exploitation," she said, crying.

It was during Karunanidhi's rule in 2008, Tamil Nadu established the country's first-ever Transgender Persons Welfare Board.

The board gave recognition to the third-gender for the first time through the "Aravani identity card", allowing them to apply for family cards, voter IDs, and other documents. (Ramakrishnan)

Another article is about M Radha, a transwoman who contested in elections; who implemented her life with the beneficiaries awarded by the welfare board. M Radha is a post graduate degree holder aged 38 and is the first transgender candidate to contest in elections in Tamil Nadu.

If she feels empowered to stand for election, says Radha, it's because of something that happened in 2008: Her gender got a name.

Until then, people used terms such as "*ussu*,""*pottai*" ("impotent man"), "*oothu*"—all derogatory—for transgender persons. Things changed that year with the arrival of M Karunanidhi as Tamil Nadu chief minister. He established the country's first transgender person welfare board and later provided third gender people an identity card. (Merelli)

A cis gender too acclaims the changes brought about by DMK for the transgender's existence.

> Nila, an advisor of Radha's and a transgender NGO worker, agrees that the official recognition in the label *thirunangai* was important not just to educate and change people outside the transgender community, but even inside. A majority of the transgender people in her community prefer being referred to as "third gender," she says, and being referred to as *thirunangai* empowered them to take pride in that. (Merelli)

Another notable person from DMK who brought significant changes for the welfare of the transgenders is Mr.Tiruchi Siva. Mr.Siva is a Member of Rajya Sabha since 2014 from Tamil Nadu. He was responsible for passing the Transgender Persons Bill (a Private Member's bill) in Rajya Sabha. The bill was passed with the objective of advocating the rights of transgenders in the country in the year 2014.

The bill was the outcome of a single person's attitude; Mr.Siva's thought of action for the transgenders reflects the virtues that he has imbibed from the DMK party.

> Siva says it was his party's ideology that motivated him to take up cudgels on their behalf. "The DMK is a party that believes in social reforms and working for the downtrodden," he said. Over the years, Tiruchi Siva and his wife Devikarani, who passed away in August, frequently invited transgender people to their home for meals. (Chandra)

Mr.Siva's Dravidian principles have made him pass the bill to bring about a lifetime change for the transgenders spread across the country. His deeds for the transgenders is found to be implanted in him and in his family for a long time.

The bill proposes to fulfil all the primary needs of transgenders. “Mr Siva’s Bill has 58 clauses in 10 chapters dealing with different aspects ranging from social inclusion, rights and entitlements, financial and legal aid, education, skill development to prevention of abuse, violence and exploitation” (Gandhi and Ramachandran).

One of the spectators who witnessed the passing of the bill expressed her gladness in the execution of the Transgender Persons Bill. “New Delhi-based activist and community member Simran Shaikh, who watched from the gallery as the Rajya Sabha passed the Bill by voice vote, said: “This Bill’s passage is a remarkable thing. It is part of a long drawn struggle including the Supreme Court’s judgment last year” ” (Gandhi and Ramachandran). The bill also provides an opportunity for the cis genders to treat transgenders equally with respect and without any bias.

There is also a mention about Mr.Siva and The Rights of Transgender Persons Bill in the transwoman, A.Revathi’s memoir *A Life in Trans Activism*. The bill is being referred by Revathi in her memoir in chapter 21 titled “A Ray of Hope”.

> One such recent promising development is the Rights of Transgender Persons Bill, 2015, the first private member bill passed in the Rajya Sabha in the last 36 years, on April 24, 2015 by Mr Tiruchy Siva, Member of Parliament from DMK. In another first, it is a bill introduced by a legislator who was not acting on behalf of the executive. (Revathi 235).

Revathi in her memoir has explicitly discussed about the policies of the bill. She has enumerated the various significances of the bill. As a part of the transgender community, Revathi affirms that the bill will bring substantial benefits to the transgenders. She insists on the bill being made permanent without any bias. The core objectives of the bill that Revathi has furnished are: “The Bill rests on the following core principles of equality and dignity:

non-discrimination, participation in society, equality of opportunity, accessibility and acceptance of transgender persons as part of human diversity" (Revathi 236).

Revathi also shares in her memoir about the opportunity rendered to her by the DMK party to voice out and represent the requirements of the society. It exhibits the party's involvement in listening to the voice of the victims that delineates the party's objective attitude towards people.

> On April 13, 2013, I was invited as a special speaker in the Women's Revolution Conference organized by the political party Dravida Kazhagam, in Coimbatore. I spoke about the human rights violations experienced by transgender people in their homes, at school and in society in general. I even suggested that the Tamil Nadu Aravani Welfare Board be renamed as Tamil Nadu Transgender Welfare Board and that it reach out to trans men as well. The members of the Dravida Kazhagam received my suggestions and presented them to the then chief minister of Tamil Nadu. (Revathi 235)

The DMK party continues to voice out for the transgender community even in 2019 when the party is not ruling the state and even after the demise of Kalaignar Karunanidhi. Mr. K.Stalin continues to carry the baton of concern and care for the transgenders and other downtrodden people from his illustrious father. In a recent article in *The Hindu*, the DMK party has announced that it has felt the need to provide space for the transgenders in the political arena and enrol them as members in their party.

> Explaining the rationale behind the decision, DMK women's wing secretary Kanimozhi, who has been campaigning for transpersons' rights, said that though some members of the community were affiliated to certain political parties, the DMK felt there was a need for providing them a space in the political spectrum. (Jesudasan)

The lineage of the DMK party and its leaders is taken forward by the next level of leaders. It can be noted that the foreword thoughts contemplated by Mr.Karunanidhi for transgenders

is not left behind rather it is devised in different angles in different periods. " "It is a continuation of what *Thalaivar Kalaignar* (late CM Karunanidhi) did for the welfare of transpersons," she added" (Jesudasan).

The recent announcement of DMK is welcomed by its beneficiaries, the transgender community.

> Jaya, general manager of Sahodaran, an association of transpersons, welcomed the decision and recalled that the DMK government had recognised the community before any other regime did in the country. " At a time when there is vote bank politics everywhere, the DMK has taken this step for us, who number between 50,000 and 1 lakh in the State," she said. (Jesudasan)

Jaya also reiterates the vision of Mr.Karunanidhi for transgenders in her report to the newspaper. "Jaya added that it was former Chief Minister M.Karunanidhi who constituted a Board for the welfare of transpersons" (Jesudasan). The transgender community has not forgotten the benefits proclaimed by the DMK party for them. The community refrain the niceties gained through DMK in several circumstances.

The paper has thus enclosed the remarkable relief measures pronounced by the Dravida Munnetra Kazhagam (DMK) for the Welfare of the Transgenders of Tamil Nadu. These amenities are provided to build the transgender community. All of the welfare measures are assuring the transgender victims the primary needs to equip them for the initial stages of development.

The primary needs such as education and acceptance assured by the welfare measures is vital for the transgenders to exist in any circumstances. They provide transgenders independence and security to live life despite facing denial from their family members. Acquiring primary skills enable the transgenders to build or develop their secondary skills to meet the secondary needs of their life.

The paper has thus mapped the remarkable efforts of DMK to develop the transgender community of the state and the rehabilitation that the efforts have brought in the lives of the transgenders through testimonies and life instances.

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INFORMATION SOURCES AND SERVICES FOR USING RESEARCH SCHOLARS AND FACULTY MEMBERS IN THE SCHOOL OF LIFE SCIENCE IN PERIYAR UNIVERSITY, SALAM, TAMILNADU: A CASE STUDY

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ABSTRACT

This paper described that users visit the school of Life Science in Periyar University for collecting information from Research scholars and faculty members. The researchers have attempted to find out the perceptions and outlook of the university library users with highly response to utilize the facility is available. The study shows that the quality of collection with respect to books, Journals and e-resources. Purpose of using e-resources and satisfaction level of using e-resources. This study reveals that the accuser to spent more than one hours for searching e-resources. Access e-resources for preparing the papers for seminars and conferences at the same time Google is the most widely used search engine and next level Bing search engine are very much satisfied with the use of e-resources. Services Quality for the university library in Inter Library Loan (ILL) Services through DELNET and INFLIBNET.

Keywords, E-Resources, Open Access resources, Library resources, Library services, User Studies.

1. INTRODUCTION

Information plays major role in meeting the information needs of the user community. Information has its own value and essential for survival and progress of the society. The information which was preserved in lock and key, is shared, exchanged and disseminated to the user community.

Since the information is a vital integration to the educational institutions, library is considered as store house of information needs to stimulate the academic and research community to utilize available resources, because huge amount is being spent for procuring the resources.

Information plays significant role in development of the individual as well as the nation. Due to advancements of Information and Communication Technology (ICT), the growth of information is manifold. The major reasons for information explosion are easy publication of information over the web, interdisciplinary research, multidisciplinary research, specialization and varying information needs of the user community. Library is treated as central focus of any institution procures, organises, preserves and disseminate the information to the right user at right time in right perspective way. In this digital environment, lots of electronic resources are available. The resources are such as electronic journals, electronic books, e-Databases, e-Theses and Dissertations, e-Reports, e-Magazines, e-Newspapers and lot of Open Access Resources (OAR) are available must be brought to the notice of the user community and ensure that the resources are being utilised effectively.

Every institute spends sizable portion of the amount to subscription of various resources to the user community. The amount invested for subscription of resources can be compensated if the resources are being utilised effectively by the academic community, otherwise the common man tax will become waste and it will be great loss to the individual, institution and the nation as a whole. Library has to take a judicial role in procuring the resources which are very much useful to the academic and research community such as students, research scholars and faculty members. It is also important that the library professionals should ensure whether balanced collection is being maintained so that all the discipline users will use the resources and the research also will be same in all disciplines.

1.1 . Impact of Information Technology on libraries

Library attached to the educational institutions are considered as hub of the institutions where all the information sources and services are available meets the information needs of the students, research scholars and faculty members.

Information Technology (IT) poses series of challenges to the libraries which has shown a great impact on library services. Access to information over the web has changed the role of the libraries and librarians. Librarians and libraries of today have to deal with both printed as well as electronic information. When comparing to the printed resources, electronic resources are flexible can be accessed from multiple locations by multiple users at any time.

The electronic resources can be made available within the library, local, regional, national and international. Hence, libraries in these days must work with both printed as well as electronic resources, which is also called hybrid library. RFID, which eliminates LIS professionals intervention and they can work on some other activities.

1.2 . Information seeking behaviour

Information Seeking Behaviour (ISB) refers to the activities performed by the users in searching, identifying and use of the identified resources. It is totally human behaviour in relation to sources and channels of information, including both active and passive information seeking and information use.

1.3 Electronic resources

Electronic resources are information available in digital format which needs computers and communication networks to access the resources. In this digital technology era, for every printed resources, there is an equivalent electronic resources. There are different types of electronic resources such as electronic journals, electronic books, e-Databases, e-Theses and Dissertations, e-Magazines/Newspapers, e-Reports, multimedia resources, CD-ROMs. There are many limitations in print resources such as use of single user, access within the library timings, loss of books, theft. Electronic resources are considered as important one because of access by many users simultaneously, access by removing the geographical boundaries, have multiple copies and access at any time. There are many publishers such as IEEE Explore, Elsevier Science Direct, ASCE Journals, ASME Journals, EBSCO, Springer etc have brought their information through electronic mode. These resources can be accessed or subscribed based on subscription through payment. The publishers will made it available of the above said resources based on IP range so that the user who falls in the specified IP range can access the sources. Most of the academic libraries have subscribed electronic resources either individually or through consortia for their academic and research community.

1.3.1 Different types of e-resources

Electronic resources are available in different formats same like printed resources. Following are the list of electronic resources.

- e-books

- e-journals
- e-theses and dissertations
- e-magazines
- e-newspapers
- e-bibliographic databases
- full text databases
- e-audio/visual resources
- e-data archives
- Institutional repositories
- e-manuscripts
- e-reports
- e-maps

2. REVIEW OF LITERATURE

The university Library most uses research scholars and faculty members using for books, journals and magazine use for research purposes. Most of the scholars and faculty used printed materials than electronics materials and in web based information services. OPAC and ugc-infonet digital library consortium resources by scholars and faculty members of school of life science. The main aim is to determine the needs of scholars and faculty members of Periyar University in the discipline of varies activities and to find out how far their information needs are fulfilled by the information resources available through ugc-infonet digital library consortium. The paper attempts to define this consortium, its objectives, scope, e-resources subscribed and the government initiative to provide current information in various disciplines for research and teaching excellence.

A study on user attitude towards electronic information resources in Academic Libraries: a cross faculty analysis was conducted by **Dehigama& Dharmarathne (2015).**For the study, the authors have selected two faculty libraries of University of Peradenia. The study falls under descriptive nature. From the analysis of the study, it is found that majority of the

respondents were not aware of the electronic information resources, which was the major reason that they were not using the electronic information sources. Among various electronic resources, highest numbers of respondents have used e-mails, e-databases and e-journals and other sources were utilised less by the respondents. The respondents have faced many problems, in which some of the problems are that they have less number of computers and requested the authority to make it available of the resources at convenient time. They also requested that the information should be accessed from outside the library. The study recommended that user awareness programme should be provided to the users quite often to utilise there sources.

A study on "Awareness and Usage of Electronic Information Resources among Post Graduate Students of Library and Information Science in Southern Nigeria" was conducted by **Alkpojotor (2016)**. The major purpose of the study was to find out the awareness level and usage of electronic resources among the students. Based on the analysis, the study found significant difference between the respondents level of awareness with usage of electronic resources, and found that post graduate students of the surveyed institution has high level of awareness, usage of electronic resources and skills and encountered number of challenges while accessing the electronic resources. The study concluded that electronic information resources are very much essential to the post graduate students for their academic purpose.

User satisfaction on electronic resources and services in Kerala State University libraries was conducted by **Binu & Baskaran (2017)**.Kerala is one of the Indian states has many universities. For this study, the researcher has selected only six universities. In order to collect data from the respondents, the researcher has used questionnaire method. 421 questionnaires distributed to the students, research scholars and faculty members. The respondents have used electronic resources for various purposes such as projects, assignments and so on. With regard to satisfaction with the available resources and services, the respondents have mentioned that they were happy with the resources. Based on the findings of the study, the study recommended procuring more resources and providing periodic training to the user community in order to utilise the electronic resources effectively and compensate the amount spent for procuring electronic resources.

A study on "User Perception of Electronic Information Resources: A case study of Alagappa College of Arts and Science, Tamil Nadu, India" was conducted by **Alagu & Thanuskodi (2018),** The major objectives of the study were to find out awareness, current use of electronic resources, level of satisfaction, and purpose of using electronic resources. Survey research design was used for the study. Findings of the study revealed that 85% of the respondents were aware of e-Resources and e- Journals and e-Books were the mostly used by the respondents. It was also found that most of the respondents used e-Resources for preparing projects followed by writing articles, prepare study notes, and only small number of respondents used electronic resources for seminars/assignments and to get general knowledge. Again, majority of the respondents were satisfied with the relevance of the electronic resources followed by second highest were highly satisfied and very less was moderately satisfied. The study suggested to provide more training to the users and recommended to install surveillance system to identify which journals are used much by the respondents and to cancel other resources if those resources are not utilised properly.

A study on "Use of Electronic Information resources: a case study of Thapar University" was conducted by **Kaur &Verma (2019).** The major objective of the study was to know the use and awareness of electronic resources and find the impact of usage of print as well as electronic resources. Survey method was used to collect primary data. The respondents were undergraduate, post graduate students, research scholars and faculty members of the university. The findings of the study shows that e-Journals were used by large number of users, the impact showed that there is a decreasing trend in collection of print journals. The results also revealed that the respondents use in library is low, which is because of the users were able to access the resources from anywhere. By seeing the decrease in use of print journals, Thaper University is putting maximum effort to provide electronic information services to the users.

3. ABOUT PERIYAR UNIVERSITY

Periyar University is one of the Tamil Nadu State Government Universities established in the month of September 1997 as per the provisions of Periyar University Act, 1997. Each university covers certain districts as jurisdiction area. Periyar University covers four districts namely Salem, Namakkal, Dharmapuri and Krishnagiri. The university has got

12 (B) and 2f status from University Grants Commission (UGC), New Delhi and accredited with "A" Grade by National Assessment and Accreditation Council (NAAC), Bangalore, which is accreditation council assess the universities and colleges in India periodically for ranking and funding. Based on the rankings, the university has bagged 68th position among the Indian Universities by NIRF, Ministry of Human Resource Development (MHRD), New Delhi.

3.1. Periyar University Library

Periyar University Library is being established in 1997 has 92,567 volumes of books and reference books on various disciplines. The library subscribes 180 National and International journals and 13 leading Newspapers. The library follows open access system and meets the needs of the P.G. Students, M.Phil. and Ph.D. scholars, faculty members and staff of the University. The library used modern technologies for all library activities has good infrastructure and digital technology facilities. Library has various sections namely Reference Section, Stack Area for text books, Competitive Examination Section, Theses Dissertations Section, Back Volumes Section, Reprographic Section, Question Banks etc. Library not only serves of the University, it also serves the students and faculties of affiliated colleges.

3.2. Library services

1. Circulation Service: (Books issue / return /renewal)
2. Reference Service
3. Online Public Access Catalogue(OPAC)
4. Selective Dissemination of Information Service(SDI)
5. Current Awareness Service(CAS)
6. Question Bank Service
7. Reprographic Service
8. Internet Service
9. Inter Library Loan (ILL) Services through DELNET and INFLIBNET
10. Courseware Repositories

11. Article Repositories
12. TOC (Table of Contents) e-delivery service.

3.3. Library resources

The library has very good collection of books, journals both print and online, theses and dissertations, back volumes, newspapers, CDs, reports, Audio & Video Cassettes.

3. OBJECTIVES OF THE STUDY

The main objectives of the present study are as follows:

- To know the gender wise and department wise analysis on the usage of E- Resources by Research Scholars and Faculty members of Life Science school in Periyar University.
- To determine the type of some information sources and services require the users community
- To find out the satisfaction level on different electronic resources available in the library
- To find out the satisfaction level on electronic services provided by the library
- To find out the satisfaction level on various infrastructure facilities available in the university library

5. METHODOLOGY

A structured questionnaire was distributed to the 86 respondents of users in school of life science and received 70 questionnaires from research scholars and faculty members of university. All the Valued responses were tabulated analyzed and interpreted in the following paragraph.

6. Analysis of Data

This analysis is based on the data collection through questionnaire from Research Scholars and Faculty members of Life Science school in Periyar University.

Table 1: Gender wise distribution of respondents

S.No	Gender	No. of respondents	Percentage
01	Male	38	54.29
02	Female	32	45.71
Total		**70**	**100**

Sources: Primary Data

Different categories of gender among the respondents were covered under the study. Among the 38(54.29%) respondents was Male, 32(45.71%) respondents Female. It was found from the current investigation that male respondents were higher than female respondents. Through more male respondents use library resources female respondents also access the same. This shows the interest among both men and women in using library resources.

Figure1: Gender wise distribution

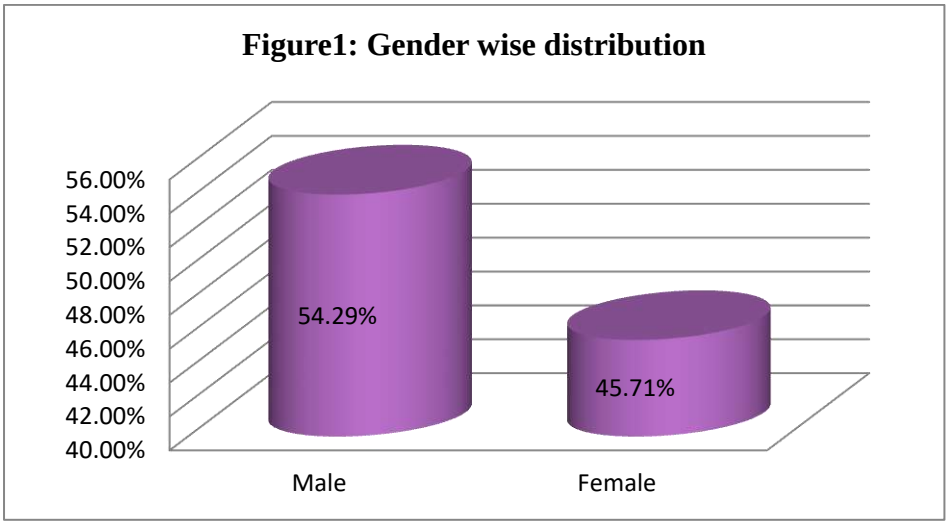


Table: 2 Statuses of Respondents

S.No	Status	No. of Respondents	Percentage
01	Research Scholars	48	68.57
02	Faculty Members	22	31.43
Total		**70**	**100**

Sources: Primary Data

Different categories users have surveyed in this study are shown in Table 2. Among the 48(68.57%) respondents was Research scholars, 22(31.43%) respondents Faculty Members. It was found from the current investigation that Research scholars respondents largest. Through more Research scholars respondents use library resources Faculty Members respondents also access the same. This shows the interest among both Research scholars and Faculty Members in using resources.

Figure-2: Statuses of Respondents

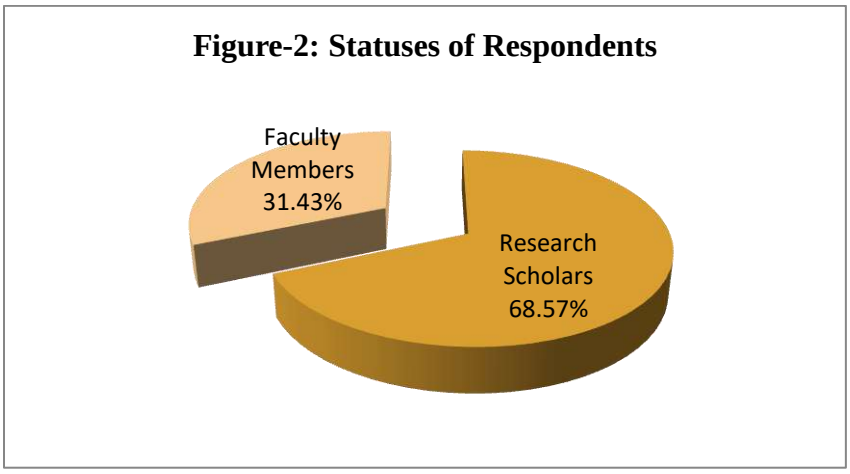


Table 3: Department Wise Respondents

S.No	Department	No. of Respondents	Percentage
01	Botany	21	30
02	Zoology	17	24.29
03	Environmental Science	20	28.57
04	Nutrition Dietetics	12	17.14
Total		**70**	**100**

Sources: Primary Data

Table.3 describes that 21(30%) of respondents belong to Botany Department, 20(28.57%) of respondents were Environmental Science, 17(24.29%) of respondents are Zoology and 12(17.14%) of respondents are Nutrition Dietetics departments Research scholars and Faculty Members. Majority of the Research scholars and Faculty Members belongs to the Botany department.

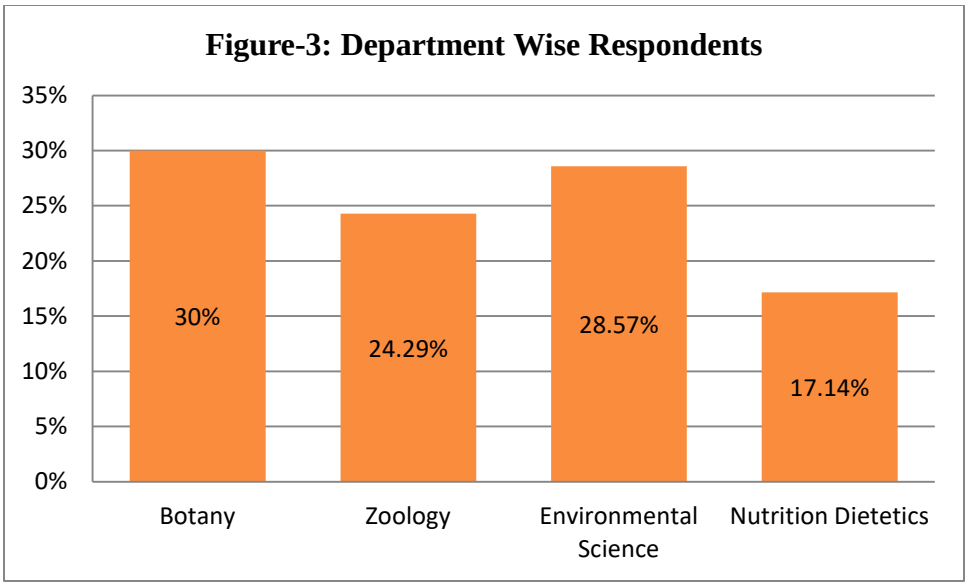


Table 4: Age Wise Respondents

S.No	Gender	No. of Respondents	Percentage
01	Below 20	0	0
02	21-25	10	14.28
03	26-30	25	35.72
04	31-35	15	21.43
05	36 and Above	20	28.57
Total		**70**	**100**

Sources: Primary Data

Table.4 was evidenced from the current study 25 (35.72%) that respondents belong to the age of 26-30 years followed by 20 (28.57%) respondents belong to the age of 36 above years than followed by 15(21.43%) respondents belonged to the category of up to 31-35. Further, it was also found that 10(14.28%) respondents belonged to the category of up to 21-25 and the remaining 0(0%) respondents belonged to the category of below 20 Years. A majority of the respondents covered in the present survey belonged to the age category of 26-30 Years. Young People are adaptive in nature. They use more Journals, Magazines, e-resources for their Information needs.

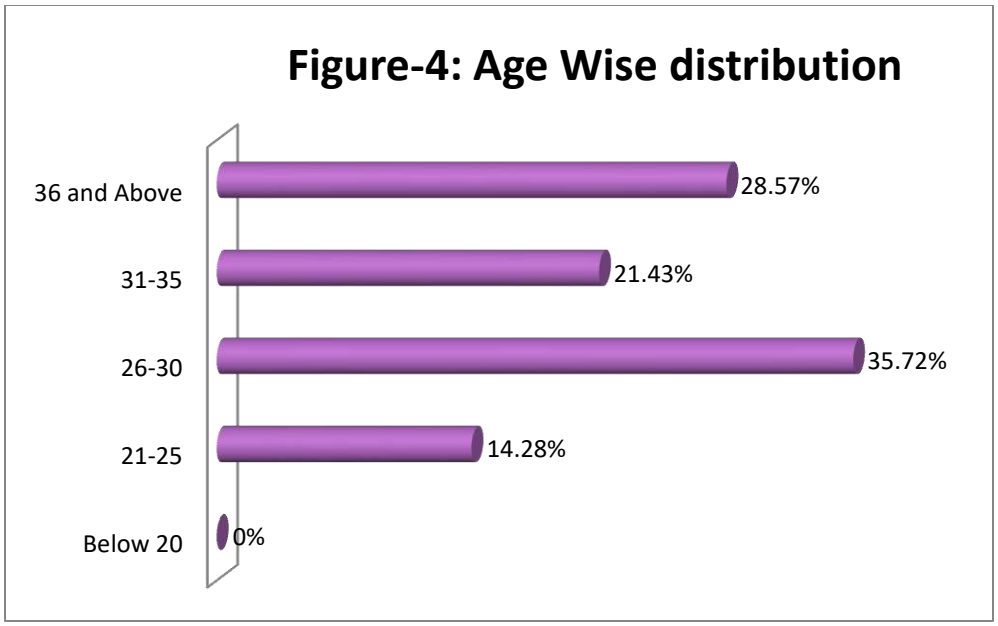


Table: 5 Frequency of Library visit

S. No	Usage of E-Resources	No. of respondents	Percentage
01	Daily	35	50
02	Twice a Week	20	28.57
03	Once a week	10	14.29
04	Once in a Month	5	7.14
Total		**70**	**100**

Sources: Primary Data

Table.5 describes the Frequency of users visit the University library for as among the 70 respondents, of which 35(50%) respondents are library collection used for daily. In this study, 20(28.57%) respondents are using twice a week, 10(14.29%) respondents use weekly once, and 5(7.14%) respondents use the library E-Resources once in a month. Hence the majority of the respondents used the library E-Resources for daily.

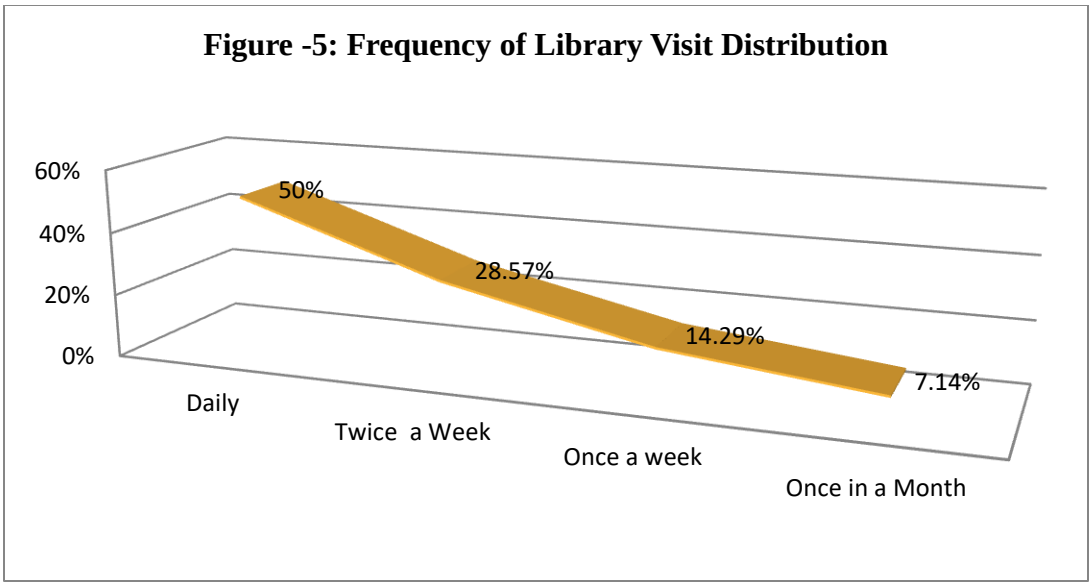


Table 6: Purpose of visit to the library

S.No	Purpose of visit	No. of Respondents	Percentage
01	To Prepare for lectures	12	17.14
02	To prepare Projects/Seminars/assignment	21	30
03	To prepare for moot court	8	11.43
04	To refer journal articles	14	20
05	To browse database	15	21.43
Total		**70**	**100**

Sources: Primary Data

Table.6 describes the Frequency of various Purpose of visit to the University library for to Prepare for lectures, seminars, lectures to use database and to refer journals for as among the 70 respondents, of which 21(30%) respondents are to prepare Projects/Seminars/assignment. In this study, 15(21.43%) respondents are to be browse database, 14(20%) respondents are to be to refer journal articles, 12(17.14%) respondents are to be Prepare for lectures, and remaining 8(11.43%) respondents are to be preparing for moot court use the library. Hence the majority of the respondents used the library to prepare Projects/Seminars/assignment.

Figure-6 :Purpose of visit to the library

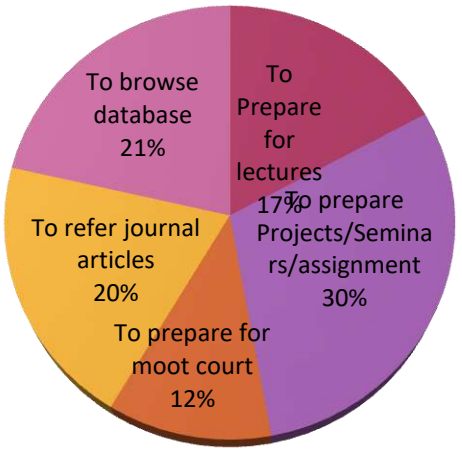


Table 7: Services Quality

S.No	Types of library services	No. of Respondents	Percentage
01	Selective Dissemination of Information Service(SDI)	11	15.71
02	Current Awareness Service(CAS)	13	18.57
03	Inter Library Loan (ILL) Services through DELNET and INFLIBNET	24	34.29
04	Courseware Repositories	12	17.14
05	TOC (Table of Contents) e-delivery service	10	14.29
Total		**70**	**100**

Sources: Primary Data

Table.6 describes the Frequency of the University library Services Quality for various services among the 70 respondents, of which 24(34.29%) respondents are Inter Library Loan (ILL) Services through DELNET and INFLIBNET, than followed by 13(18.57%) respondents are Current Awareness Service (CAS) and than followed 12(13.05%) respondents Courseware Repositories, than followed by 11(15.71%) Selective Dissemination of Information Service (SDI) and the remaining by 10(14.29%) TOC (Table of Contents) e-delivery service. Hence the majority of the respondents Services Quality for the university library in Inter Library Loan (ILL) Services through DELNET and INFLIBNET.

Figure-7: Services Quality

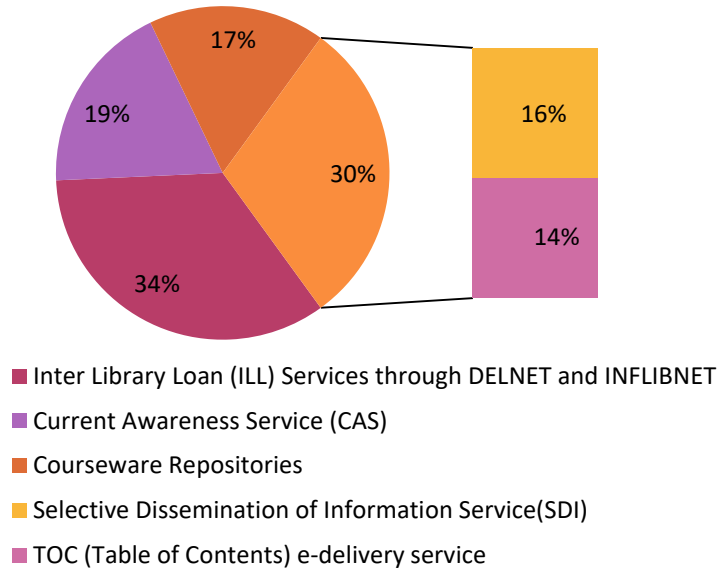


Table 8: Satisfaction with E-Resources

S.No	Satisfaction with E-Resources	No. of Respondents	Percentage
01	Highly Satisfied	42	60
02	Satisfied	18	25.71
03	Not Satisfied	10	14.29
Total		**70**	**100**

Sources: Primary Data

Table .8 shows the level of satisfaction of e-resources 42(60%) Respondents are report that access of e-resources is highly satisfied, 18(25.71) Respondents report that access e-resources is satisfied and the remaining by 10(14.29) respondent not satisfied for e-resources. Hence the majority of the respondents highly satisfied for using e-resources.

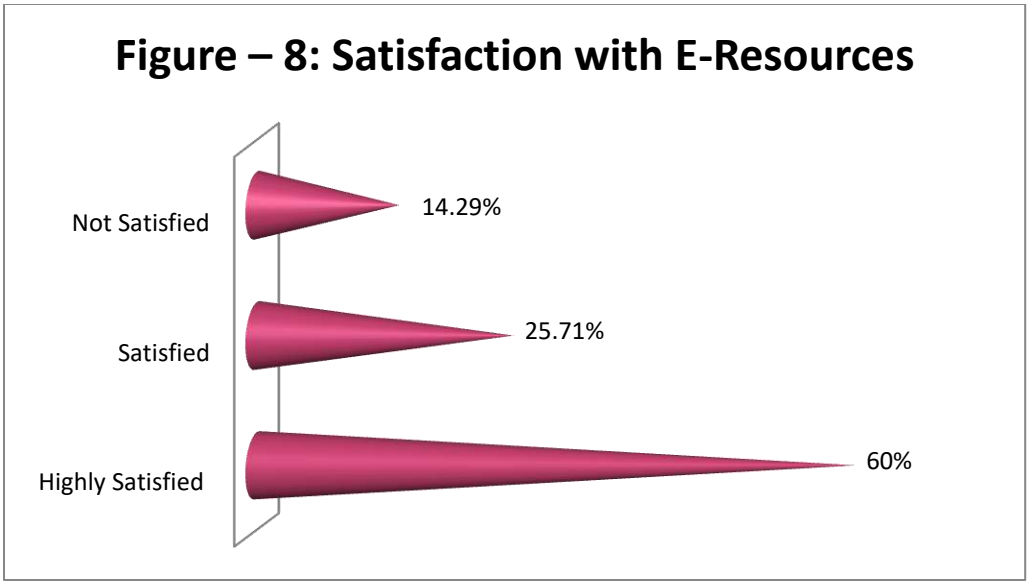


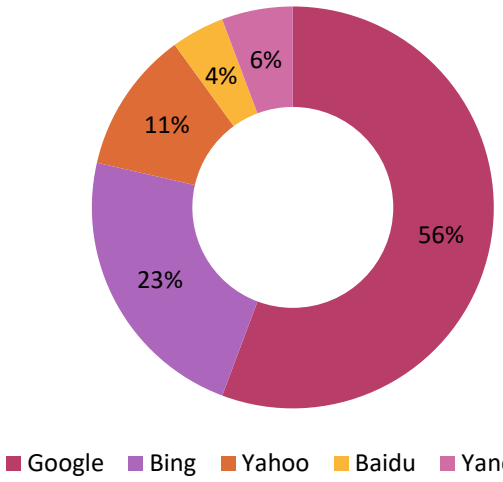
Table: 9 Use of Search Engines Searching E-resources

S.No	Search Engines	No. of Respondents	Respondents Percentage
01	Google	39	55.71
02	Bing	16	22.86
03	Yahoo	8	11.43
04	Baidu	3	4.28
05	Yandex	4	5.72
	Total	**70**	**100**

Sources: Primary Data

Table.9 describes the Frequency of the University library using search engines Searching E-resources for the 70 respondents, of which 39(55.71%) respondents Google, than followed by 16(22.86%) respondents use search engine Bing, next respondents Yahoo 8(11.43%), next respondents Yandex 4(5.72%), and the remaining 3(4.28%) respondent using search engines Baidu. Hence the majority of the respondents using search engines Searching E-resources for Google in the University library.

Figure – 9: Use of Search Engines Searching E-Resources



7. CONCLUSION

This study discussed user much more interest on using internet for accessing scientific information in which global level publications. This study reveals that faculty of science respondents secured maximum level due to keen search and obtained information by scientific journals and electronic publications. The maximum number of users are visited the library for preparing seminars, conferences and assignments. The Internet users prefer Google search engine and is next Bing position in this study. Latest enhancing Information and Communications technology for the Library services in 21st century the readers can be use the resources at anywhere. Researchers must access more electronic journals and databases provide by UGC-Infonet. Faculty members and research scholars can be accessed electronic resources through campus wide network facility provide in the University.

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ISSN INTERNATIONAL STANDARD SERIAL NUMBER
ISSN-2321-7065

IJELLH

International Journal of English Language, Literature in Humanities

Indexed,Peer Reviewed (Refereed) Journal

UGC Approved Journal



Volume 6, Issue 11, November 2018

www.ijellh.com

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Unscrolling the Reality of the Hard Facts in Grimm's Children and Household tales

Abstract : Fairy tales often include different cultures and ways of doing things. The aim of this paper is to explore the myriad depths of fairy tales and the unfathomable meanings and implications which arise from subsequent readings. In spite the vicious and gory depictions of certain fairy tales, the ultimate aim was empowering children with the underlying strength for facing and overcoming life's hardships. Though debates and controversies have shrouded certain violent fairy tales, the ultimate aim was to instill awareness within children to alert them to the disasters they were likely to encounter in the real world. In weaving complex and violent themes within stories, the authors tried to encompass the deep rooted evil within society. These tales,

often hyperbolic in nature due to the gory descriptions, can be viewed as the stepping stones for children to confidently into the 'big bad world'. Keeping children away from all forms of violence make them vulnerable since they are wrapped in a cocoon of safety and fantasy. This would be detrimental to a child's health emotional development and thus the author's use of violence can be a justifiable means to an end.

Keywords: Grimm, fairy tales, children, mutilation,cannibalism.

Most of Grimm's fairy tales are filled with violent and horrible thoughts. Although, the tales had a happy ending, most of their tales pictured the violence as some type of usual cultural doings. Grimm's tales were tales collected from ancient German people by Grimm brothers. However, it was not written as they narrated, Grimm brothers brought out their own thoughts in their writings. Degh stated that, "But the statement of the marker is not altogether true because the stories were more adapted than written, and some were adapted (or written) by the brothers, some by others".(Degh 83).

It can be because they thought the growing children should know everything that was happening around them. In fact, it is the reality that the Grimm portrayed in his fairy tales. Maria Tatar says that most of the children prefer Grimm's fairy tales even though it is packed with horrible incidents. She inquired as to how children could like such violent stories. She also points out that "…murder, mutilation, cannibalism, infanticide, and incest that fill the pages of these bedtime stories for children".(Tatar 3). Tolkein's in his On Fairy Stories says "A stable plot still leaves much room for variation. Skillful raconteurs can take the same story line and give it

unique twists and turns. The tone may vary from one tale to the next, and the hero may be presented in different lights". (Tolkein 110).

Though they are meant to be scary, they are examples of danger continuously witnessed in this era as probably predicted by them or maybe existed in those days. As pointed out by Maria Tatar, currently murder for love or lust, mutilation as revenge, cannibalism, infanticide, incest all prevail in our society. In fact most of the people have become accustomed to such incidents. Grimm brothers most likely wanted their future generations to be aware of the coming era and hence desisted to remove the violence from their tales. Most certainly this will alert the children from the darker society they are growing up with.

People of today's world are selfish, and wealth is more important for them than any relationship. They run behind money and luxury, thus they are unable to spend time with their family. However, all parents instinctively want their kids to have better lives than their own. It is as natural as hungry birds feeding their fledglings. However in this decade materialism have distorted those instincts and hence our new generation are unaware of many things that they are supposed to know.

Nowadays a mother is ready to abandon her own child born either out of wedlock or due to any such circumstances. Unfortunately, they are dumped in dust bins than nurtured in homes. The mothers assumed their status in this society as more important to their love towards the child. They selfishly worries about the society, fails to think about the baby's life. With such incidents prevailing in the society, it is not surprising to picture a stepmother to be despicable towards their stepdaughter or to illustrate their violent doings to get rid of them.

Mirror Online news reporter has reported on February, 22nd 2018, a German policeman who murdered, dismembered and ate a man he met on a cannibalism website was jailed for lifetime. This was followed by several similar incidents and still continues through means of websites. This type of cannibalism was mentioned in Grimm's fairy tales and probably this was to alert our generation of these atrocious happenings. In Grimm's 'The Juniper Tree' the step mother kills her stepson and chops him into pieces and prepares dishes from him and serves it to her husband. Reality of today's world was exactly brought by Grimm in his stories. "….we will make him into black-puddings. Then the mother took the little boy and chopped him in pieces, put him into the pan and made him into black-puddings". (Grimm's 157).

Humans of this century were doing many horrible deeds for their illegal relationships. Independent news has recently reported that an Argentine man, aged 56 was accused of keeping his own daughter as sex slave for two decades and fathering eight children with her. These types of incest have become frequent in our society as once illustrated by Grimm brothers in their tales. In 'Allerleirauh' the king after the death of his wife finds it difficult to get a new wife that resembled her. However as he observes resemblance of his wife in his daughter, he decides to marry her. "…I will marry my daughter, for she is the counterpart of my late wife, otherwise I can find no bride who resembles her". (Grimm's 231).

Grimm's tales pictured people to be selfish and self centered. Similarly, it has become hard in finding lovable relationship in this century. They forget about values that are actually more important than our material well-being like the value of community, family, caring for other people, and feeling connected to young children.

This is the century where people could not get affection even from their parents. According to Maria Tatar,

> In "The Robber Bridegroom," a young woman watches in horror as her betrothed and his accomplices drag a girl into their headquarters, tear off her clothes, place her on the table, hack her body to pieces, and sprinkle them with salt. Her horror deepens when one of the thieves, spotting a golden ring on the murdered girl's finger, takes an axe, chops of the finger, and sends it flying through the air into her lap. Such behavior may not be wholly out of character for brigands and highwaymen, but even the Virgin Mary appears to be more of an ogre than a saint in the Grimm's collection (Tatar 5).

These are evidences that reality of today's humankind was exactly pictured out in Grimm's Fairy tales. As deer was the victim of Lion's hunger, women were the victim of brutal men. Women gets tortured, raped and brutally killed by men. Nowadays even children have been raped and killed. As a result, only when the child understands the human beings and the world, he/she could escape from these harms. Grimm's aim was not only to give stories to the child but also to convey the evil things that would happen to them. Though it was too much for them to hear all these violent stories at their tender age, Grimm particularly wanted them to know about these evil happenings so that they can escape from the evil things.

As child cannot read fairy tales by themselves, parents should read it for them and should tell them in the way that they should be aware of all these bad happenings. Stories should be like, it should teach everything. It should be entertaining, should teach good and bad and also end with morals like Grimm's Children and Household tales.

Grimm's Children and Household tales teach children that good will always triumphs and, while this may not be true in aspects of the real world, the lesson is simple and important. Be the hero, not the villain. Learn to hope for better. Not all characters can be good role models; even 'the goodies' can be damsels in distress, or reckless (or feckless) princes. What the stories do teach though is that when bad things happen, you have decisions to make.

The truth of life is that not everything that happens in childhood is safe and everything about everyone is dangerous. The Bible says that there is no one who lives correctly, that the world is filled with people who will try to tear you apart and the even more offensive truth is that you and I are part of the problem. They are "fairy tales" for children, but they are also images of an extremely unsafe world filled with terror.

Once Grimm's stories are read or understood keeping aside the expectation, magic or the violence; they were trying to focus on what possibly could happen and happened or will happen in our society and the ways one can overcome them. In short it can be said that the violence incidents are just there as approaches to get to the matter: evil punished, the fun a rascal can have, the mighty brought low, wits triumphing over wealth, pretensions crushed, and other lessons learned.

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INFOKARA RESEARCH

A Peer Reviewed/ Referred Journal

International Conference on
"Emerging Trends and Themes in English Language and Literature" [ICETTELL]

organised by

South-Asian English Language & Literature Teachers Association [SELLTA]
&
PG & Research Department of English, Bishop Heber College (Autonomous), Tiruchirappalli, TN, India

Volume VIII, Issue XI, NOVEMBER 2019

5.3 IMPACT FACTOR

Edited By
INFOKARA RESEARCH JOURNAL
www.INFOKARA.com

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INFOKARA RESEARCH
ISSN: 1021-9056
An UGC-CARE Approved Group - A Journal (S. No.: 15775)
A Peer Reviewed / Refereed Journal with Impact Factor: 5.3

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A Long Drive towards Freedom from Slavery in Yaa Gyasi's *Homegoing*

Dr. V. Sangeetha*
T. Pavithra**

Freedom is a birth right of every human being born in this world. The denial of freedom, domination and ill treatment over them resulted in slavery. The sufferings and pain endured by people as slaves are portrayed to the world through literary works. This portrayal shows the basic need to value mankind. Similarly the life of slaves and the effects of slavery can be well traced through Yaa Gyasi's novel *Homegoing* that depicts how mankind should be valued. Through this novel Gyasi shows how slavery has affected the lives of the people of almost seven generation. Thereby she focuses the hardships faced by African American people in the western society. The physical punishment and mental sufferings endured by the slaves due to slavery is expressed by Gyasi in a realistic way in this novel.

Every human born in the earth has freedom to lead their life according to their will and wish. Freedom is a fundamental right that every human possesses from birth to death. The changing material needs and the need for power made men to dominate their fellow human beings and ill treat them based on their colour, race, community and religion. As a result of domination the people were treated as slaves. The life of slaves brings out inhuman sufferings and pain that evokes empathy among people. They lose their identity, freedom and work hard to uplift their family.

Yaa Gyasi's novel *Homegoing* brings into light the hardships experienced by the African people as slaves in the western society. Though the plight of African American life is portrayed in literary works, their sufferings continue. It is said, " The multiplicity of African American life represented in our rich literary tradition offers varied stories of Black life, but is often met with disdain or skepticisim by a white critical position inclined to praise only that which it finds universal" (Kirlew 252). The novel covers the struggle of people who were slaves for seven generation. The effects of slavery can be well traced through the characters of Esi Asare and her following generations, one of the Maame's decendants who is the central character in the novel. The characters of Esi's generations are Ness Stockham, Kojo Freeman, H Black, Willie Black, Carson Clifton nicknamed Sonny and Marcus Clifton.

Esi Asare was sold as a slave when she was only fifteen years old. The slaves were kept in a small dungeon which was completely dark. There was no clue left for them to predict whether it was day or night. They survived among filth with no proper food and clothing. The most dreadful thing was that the women slaves were raped by the soldiers. In the dungeon there would be no space to walk and they would lie down one by one on the top of another when the soldiers came in. Eventually when they urinate and defecate it will pass through the other persons down them. Afua, one of the slave girls committed suicide in the dungeon by holding her breath as her baby was killed by the soldiers. Afua was unable to produce milk and feed her baby due to lack of food. This made Afua hate her life which instigated her to commit suicide.

The women's condition was very pathetic and they were beaten brutally inside the dungeon as though they were inanimate objects. They were also ill treated as men considered them as sexual objects. It is evident when the white man James selected the slaves by touching their breasts and placing his hand between their legs. Though Esi was found bleeding at the time when he touched he told the soldiers to take her with them. Ness Stockham, Esi's daughter was also a slave and taken from her mother as a child. She led her life by working in different plantations and married a fellow slave named Sam. She was beaten for speaking in her mother tongue Twi and was forced to speak in English. This clearly shows that the slaves had no freedom of expression in their mother tongue. Amidst these sufferings Ness's character shows motherly concern that is evident when she cares for Pinky, her master's daughter. She was also discriminated because of her physical appearance as her body was fully covered with scars. The scars are the marks of injustice towards slaves due to the existence of slavery. Thus the physical appearance was one of the reasons for the discrimination of black people in the western society.

Kojo Freeman, Ness's son had escaped from slaveland but still suffered due to slavery. He was not completely free though his very name signifies that he was free. Kojo and her wife Anna had seven children which they named in alphabetical order ending in letter G. It was essential for his family members to carry the papers that they were made free by the slave owners. This shows how a paper was considered as a symbol of freedom for the African slaves in the western society. Kojo lost his wife as she was found without papers in the street. When Anna was captured she was carrying their eighth child which they named H earlier. Though Kojo had no physical punishment experienced by the slaves he underwent emotional sufferings by

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META COGNTIVE STRATEGIES TO ENHANCE TEACHING COMPETENCIES

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ABSTRACT

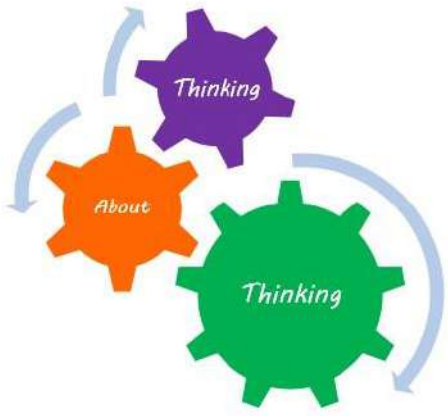
This paper discuss about the perspective challenges this assumption and in doing so casts meta cognition in a much more interesting light. In place of the view of meta cognitive teaching as a simple amount of caring, it proposes that there are qualitatively different motivational frameworks, driven by people's beliefs and goals, that affect basic attention and cognitive processes. By doing so, these meta cognitive teaching strategies can substantially change intellectual performance even among individuals who care very much about succeeding. Interestingly, the incremental theorists' grade advantage was mediated partially through their learning goals and partially through their greater belief in the efficacy of effort, both of which led to more vigorous, mastery oriented strategies in the face of difficulty.

Keywords:

meta cognition, intellectual performance, cognitive processes, cognitive creativity ,mastery oriented, divergent thinking ,etc.

Introduction

Metacognition is "cognition about cognition", "thinking about thinking", "knowing about knowing", becoming "aware of one's awareness" and higher-order thinking skills. The term comes from the root word meta, meaning "beyond".



The metacognitive activities include planning how to approach a learning task, using appropriate skills and strategies to solve a problem, monitoring one's own comprehension of text, self-assessing and self-correcting in response to the self-assessment, evaluating progress toward the completion of a task.

Definition

This higher-level cognition was given the label metacognition by American developmental psychologist John H. Flavell(1976).

The term metacognition literally means 'beyond cognition', and is used to indicate cognition about cognition, or more informally, thinking about thinking. Flavell defined metacognition as knowledge about cognition and control of cognition. For example, a person is engaging in metacognition if he notices that he is having more trouble learning A than B, or if it strikes him that he should double-check C before accepting it as fact. J. H. Flavell (1976). Andreas Demetriou's theory (one of the neo-Piagetian theories of cognitive development) used the term hypercognition to refer to self-monitoring, self-representation, and self-regulation processes, which are regarded as integral components of the human mind. Moreover, with his colleagues, he showed that these processes participate in general intelligence, together with processing efficiency and reasoning, which have traditionally been considered to compose fluid intelligence.

Metacognitive strategies

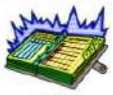
Metacognitive strategies refers to methods used to help students understand the way they learn; in other words, it means processes designed for students to 'think' about their 'thinking' the process consists of three main stages: (i) **planning** and **development** (ii) carrying out the plan and (iii) examining.

Teaching Metacognitive Skills

Metacognition has been defined as “one’s knowledge concerning one’s own cognitive processes or anything related to them” (Flavell, 1976, in Kaplan et al., 2013) and is commonly referred to as “thinking about one’s thinking”. Having well-developed metacognitive thinking skills is associated with improved learning. While some students develop metacognitive skills on their own, others need explicit instruction.

According to metacognitive theories, metacognition includes two domains: **knowledge of cognition** and **regulation of cognition** (Schraw & Moshman, 1995). **Knowledge of cognition** includes knowledge about oneself as a learner, knowledge about learning strategies, and knowledge about why and when to use a given strategy. **Regulation of cognition**includes the ability to plan, monitor, regulate and evaluate your learning process. Instructors can incorporate strategies to help students develop their self-

regulatory skills and/or they can use strategies that guide students to think metacognitively about course content (i.e., to think like a professional, approach problems as a professional in the discipline would).

CALLA CONTENT AND LANGUAGE LEARNING STRATEGIES		
STRATEGY		DESCRIPTION
METACOGNITIVE STRATEGIES		
Plan / Organize	 Planner	Before beginning a task: -Set goals. -Plan the task or content sequence. -Plan how to accomplish the task (choose strategies). -Preview a text.
Monitor / Identify Problems	 Check	While working on a task: -Check your progress on the task. -Check your comprehension as you use the language. Do you understand? If not, what is the problem? -Check your production as you use the language. Are you making sense? If not, what is the problem?
Evaluate	 I did it!	After completing a task: -Assess how well you have accomplished the learning task. -Assess how well you have used learning strategies. -Decide how effective the strategies were. -Identify changes you will make the next time you have a similar task to do.
Manage Your Own Learning	 Pace Yourself	-Determine how you learn best. -Arrange conditions that help you learn. -Seek opportunities for practice. -Focus your attention on the task.

General Approach to Incorporating Metacognitive Strategies

- **Be intentional about teaching metacognitive skills.** When designing course, identify opportunities in which to incorporate strategies to teach metacognitive skills. For example, you might decide to build metacognitive strategies into an assignment, or around your midterms. Decide when to focus on self-regulation skills and when to focus on guiding students to think metacognitively about course content.
- **Be explicit when teaching metacognitive skills**. Talking about metacognitive skills with the students; define metacognition and explain why developing metacognitive skills is important during and after university. If you have structured your course so that specific themes, relationships or contrasting perspectives emerge, give students your road map or use activities such as a concept map to help them identify it themselves. In other words, don't assume that students will automatically see relationships that might be obvious to teachers.
- **Don't overdo it.** Pick your spots and let other opportunities go. Students would be overwhelmed if most or all of the following strategies were incorporated into one course.

Many of the following strategies are based on Kimberley Tanner's 2012 article "Promoting Student Metacognition".

Instructional strategies to foster self-regulation skills

- **Encourage goal-setting.** Prompt students to consider why they are taking your course, what grade they want to earn and how they plan to achieve that goal. For example, have students work in groups to brainstorm strategies for earning an "A" in the course.
- **Build in ways for students to "stop and take stock" during class.** During class, ask students to pause for 1-2 minutes and think about what they are doing at that moment (i.e., taking notes, engaging in off-task activities, working on another course). After the pause, this could be a good time for students to ask questions.
- **Prompt students to think about how they prepare for class.** At the beginning of class, show a slide with the prompt "How have I prepared for class today?" Ask students to write their answers, or respond via Clicker, to a set response options. Showing multiple response options enables students to see strategies that they might not have thought of on their own. Talk about your expectations regarding class preparation and why that is important to their learning.
- **Emphasize the importance of learning versus getting the correct answer.** After posing a question to the class, give students time to discuss how they arrived at the answer they chose. Specifically, ask them to consider their process, the main reason for choosing the response, why they discarded other possible steps or answers, how confident they were about their answer, etc. Follow up with an explanation of why you have asked students to spend time on this.
- **Use a lecture wrapper.** A wrapper is a strategy that immediately precedes and follows an activity, whether that activity is a class, assignment, or test. Wrappers are useful because they help students to self-monitor and reflect on the learning process. At the beginning of class, highlight an active listening strategy (e.g., how to take notes, the importance of keeping personal devices out of sight). At the end of class, ask students to submit the three most important ideas from class then present the three ideas that you consider to be the most important. The immediate feedback will help students to self-monitor their learning.

Strategies for Quizzes and Midterms

- **Tell students the format of their tests and exams.** Knowing what to expect can help students to plan how they study. Ask students to discuss how the format affects their study strategies (Dutke et al., 2010). Summarize and provide feedback on their points.
- **Give practice questions and prompt students to evaluate their readiness for a quiz through frequent self-assessment.** Explain that many students under-estimate how much they know and base their

assessment of quiz readiness on how much time they've spent studying. Students who self-assess while studying will develop a more accurate idea of how much they really know.

- **Before a quiz, ask students to analyze sample quiz questions.** Give students practice exam questions in the left side of a two column table. The questions should reflect the format of the questions they will encounter on their exams. In the right column, ask students to identify which level of Bloom's Taxonomy that question reflects. You could add a third column in which students identify how they would study for that type of question.
- **Use an Exam Wrapper.** Exam wrappers prompt students to consider 3 kinds of questions:
  - How did you prepare for the exam? Giving students a number of options to choose from (e.g., I read over my notes a few times, I completed practice questions, I created a concept map) might help those who aren't aware of strategies other than the ones they use.
  - Which questions did you find difficult to answer, and/or what kinds of errors did you make on the exam? Encourage students to look for patterns (e.g., on a multiple choice test, did they find application questions more difficult to answer than factual questions)
  - What will you do differently to prepare for the next exam? Ask students to plan how they will use this information as they prepare for the next test. Point out the importance of using prior experiences to plan for future ones.

Strategies for Assignments

- **Use an Assignment Wrapper.** When giving an assignment, give students a self-assessment question that focuses their attention on the skills they need for the assignment. At the end of the assignment provide follow-up questions that prompt students to reflect on their skills and describe how they will use this experience to plan for future assignments. For example, if the assignment involves solving a set of problems, ask students how quickly and easily they were able to solve the problems.
- **Incorporate reflective questions at the end of an assignment.** As part of the assignment, ask students to evaluate the process they used when completing the assignment. See Tables 1 and 2 in Tanner, 2012 for prompts. Examples of reflective prompts are also provided in CTE's Critical Reflection Teaching Tip Sheet.
- **Ask students to reflect on assignment feedback.** After giving back a graded assignment, ask students to write one word on the back of their marked assignment that summarizes how they feel about their grade. Ask students to write a brief reflection using that word as their guide. Alternatively, give back comments only and ask students to estimate their grade based on those comments. Release the grade online after students submit their written estimate (Webb, 1997).

Instructional strategies to foster metacognitive thinking about course content

- **Give a diagnostic quiz early in the term.** Diagnostic quizzes help students determine what they already know and where they need to focus their attention. Frame the quiz with questions that prompt the student to think about their learning (see Tanner 2012).
- **Explicitly model metacognitive thinking.** Explain your thinking process out loud as you walk through the steps of how you, yourself, execute a skill that you are teaching (e.g., how you would search for a journal article, write a reflection, solve a physics problem, read peer feedback, etc.). Specifically, talk about how you decide what to do first, what you do when you are unsure of your work or when you get stuck, how you check your work, and how you know when the task is complete. Remember that many of these thinking skills have become automatic through years of experience and that students are still developing skills.
- **Use a concept map.** Concept maps can be used to show the relationship between concepts or topics. Students can work alone or in groups to create a concept map that illustrates the relationships between course topics or concepts. Alternatively, give students a partially finished concept map and have them fill it in during a lecture (or as homework) or ask students to create a concept map to show their prior knowledge of a topic.
- **Ask students to identify either the muddiest, most interesting, or most relevant point(s).** In this activity students identify which concepts from a lecture or reading that they find particularly complex or interesting. This not only helps students to engage with the course material, it also creates an environment where confusion is acceptable.
- **Link the purpose of an assignment to course objectives and professional skills.** When giving an assignment, ask students to think about why you chose that assignment and how it relates to their professional development. See Tables 1 and 2 in Tanner 2012 for prompts.

Think Aloud

Great for reading comprehension and problem solving. Think-alouds help students to consciously monitor and reflect upon what they are learning. This strategy works well when teachers read a story or problem out loud and periodically stop to verbalize their thoughts. This allows students to follow the teacher's thinking process, which gives them the foundation they need for creating their own strategies and processes that can be useful for understanding what they are trying to comprehend.

Checklist, Rubrics and Organizers

Great for solving word problems. These organizational tools support students in the decision-making process because they serve as an aid for planning and self-evaluation. Typically they ask what students know and need to know to arrive at an answer, and emphasize the need to reread the problem and self-check responses.

Explicit Teacher Modeling

Great for math instruction. Explicit teacher modeling helps students understand what is expected of them through a clear example/model of a skill or concept. When a teacher provides a easy to follow procedure for solving a problem, students have a memorable strategy to use for approaching a problem on their own.

Reading Comprehension

Truly comprehending reading involves students actively engaging with a text and accurately deciphering the layers of meaning. It is very important for students to develop solid reading comprehension skills because statistics show that people who have low reading comprehension ability suffer in academic, professional, and personal pursuits.

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Journal of The Gujarat Research Society

ISSN: 0374-8588
Volume 21 Issue 10, November 2019

Child Abuse: A Predatory Exploitation of Juveniles in Eleanor Taylor Bland's *Gone Quiet*

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African American Literature is a conglomeration of rich black heritage and distinctive American experience. Through their writing, African American writers shared their common experience of humiliation and oppression. African American literature achieves depth and universality by bringing out the impact of culture, gender, sexuality, nationality and ethnicity. Blacks ceased to exist as human beings in the white world. Blackness was seen as closely aligned to slavery and was the embodiment of evil to the white. Blackness, which is regarded as an infirmity, was converted into artistic strength by writers. Blackness operates as a creative element which proves their identity as artists and more importantly, as human beings with equal privileges in society.

As a part of the African American Literature, the contribution of African American women writers is as significant as that of black male writers. Black women writers have been pioneers in various fields, especially literature. They examine the complicated social issues from the perspective of being black and women. They express the unfathomable pain, injustice and the atrocity of slavery. Major women writers have delved deep into this issue. For example, Toni Morrison in *The Bluest Eyes*, Maya Angelou in *I Know Why the Caged Bird Sings*, Louise Meri *Whether in Daddy Was a Number Runner*, Paule Marshall in *Brown Girl, Brownstones* and many other works all deal with the experiences of a black girl growing up in a hostile environment.

Child sexual abuse is a serious issue which spread its enormous impacts in all over the world. A budding child, especially a female, becomes a burnt one before attaining maturity by the sexual predators. According to a survey conducted by Townsend, C., & Rheingold, A.A., "About one in 10 children will be sexually abused before their 18th birthday and about one in seven girls and one in 25 boys will be sexually abused before they turn 18". A child is ignorant of what is happening to her and finds incapable to recognise the facts that she has been molested and the consequences of it. It is pitiable to state that in the present scenario, that too in the era of globalisation, child abuses have increased rather having decreased. Most of the victims are prepubescent and their mere survival is questionable in this society. Many writers have focused on such themes in their literary works and made an impact among the global readers. Even many women writers have been victims of this distressing issue and daringly address it in their works. Apart from mainstream literature, popular fiction has acclaimed its status in the second half of twentieth century and

Journal of The Gujarat Research Society
ISSN: 0374-8588
Volume 21 Issue 10, November 2019

African American fiction has got its own unique way to exhibit the realities of the existing society. Among them, Eleanor Taylor Bland is one such writer who has predominantly concentrated on the excruciating problems like child sexual abuse and paedophile presented in the African American society. The present study is an attempt to highlight the victimization of child abuse and paedophile and the consequences encountered by them with reference to Bland's *Gone Quiet*.

Being born in the African American community, Eleanor Taylor Bland (1972- 2010) has ordinarily dealt with the issues pertaining to children, women, homeless and mentally ill people in all her novels and her mere attempt to articulate the problems faced by them is successful. She believes that the detective fiction acts as a social commentary to exhibit the dark and untold mysteries to the world. She intellectually utilises her novels as a vehicle to transport her inner feelings and emotions related to the voiceless people and the purposefully created the protagonist as her mouthpiece to articulate it. Among the other heart throbbing issues, Bland has given much importance to the female children since they have been highly victimised and become so vulnerable in this chauvinistic society. Among all the novels of Bland, *Gone Quiet* deals with the story of a sexual predator who abused his own daughters in their prepubescent period and the pathetic conditions of the sexually abused children. The real danger for the female child resides not outside the society but within it. Abusers mostly are the neighbours, friends and the members of the family. Female children are physically abused predominantly by the relatives. In this regard, Whealin, J. figures out that "approximately 30% of children who are sexually abused are abused by family members" (1). Reiterating this fact, Henry Hamilton, a pervert in the novel *Gone Quiet*, who has abused and molested his stepdaughters when they are in prepubescent period, has never bothered about his filthy acts. Another facts that raises the eyebrows is made by Snyder, H. N. who says that "the younger the victim, the more likely it is that the abuser is a family member. Of those molesting a child under six, 50% were family members. Family members also accounted for 23% of those abusing children ages 12 to 17" (1).

Denise Stevenson and Belle are the victims of child sexual abuse and paedophile and the way they got abused by Henry is disgusting and disturbing. When Denise turns five years old, he begins to abuse her. He uses her as a toy to satisfy his sexual needs without considering her age and traumatic consequences He makes them to get scared of him whenever he calls them nearby him. Denise fearfully remembers those bad old memories after Henry's death. The filthy deeds done by Henry to them is atrocious in nature and this kind of predators exist everywhere in the universe.

Dennis Stevenson, a juvenile probation officer in the African American society, is one of the victims of paedophile issues. Her mental health is highly affected by the traumatic incidents happened in her childhood days and the predator is living in her house as her stepfather in the name of daddy. She remembers how Henry handled her and made her a victim of child sexual abuse gradually. When Denise crosses Henry's room, she feels the same sense of fear and revulsion that she has undergone in her childhood. She visualises the dark days of her life:

> She had sat on his lap in that that old chair dispatched to the city dump years ago. She would stiffen against to him as his hands began rubbing the inside of her thighs, and the more rigid she became, the more that pleased him. He wanted her to be afraid. For a long time he just rubbed her, slowly at first, then faster and faster until he was panting, then stop all at once. (*Gone Quiet* 263)

Five year old child is not at all fit to undergone such situation and this getting more worsen when she turns six. Henry's approach is augmented and his expectation is increased. Denise's situation has become worse:

> That March when she had turned six, it changed. He let her see it, watch it grow while he rubbed her. In her dreams he got larger than she was, no longer a part of him but something unto to itself, towering her over, covering her, drowning her. And when she woke crying for Momma, she could not say what she had dreamed. (*GQ* 263)

Children are vulnerable enough to deal with certain offense made against them in the name of family and relationships. The post- traumatic condition of child sexual abuse is getting weak psychologically and unable to express it to others since the victims are intertwined by the cobweb of cultural and sociological frameworks. According to the study done by London, K., Bruck, M., Ceci, S., & Shuman, D., the primary reason is that only about 38% of child victims disclose the fact that they have been sexually abused. Some never disclose" (194). They could not articulate what happened to them and still proceed with it silently. These issues do not stop in the life of Denise, further it becomes pathetic: "Next, he pushed her head down to when it was, rubbing her, making her face feel sticky and wet. "Your mouth, girl," he urged her, laughing when she didn't understand, forcing her head down with a hand on her neck" (263). The gradual way of getting know to the unwanted things made a child to feel guilty of doing something wrong and turned silent forever.

Ignorance is bliss. However, once a child is exposed to any kind of violence, like sexual assault, it gets adopted to that situation and further it starts yield to that act mechanically. This is what happened to Denise too. When she turns seven, Henry asked for Belle, his another daughter instead of Denise. At some extent, Denise feels relieved in order to not going into that devil again but feels very bad about the condition of her sister Belle. The same Henry has done to Belle. Instead of getting fear, Belle's attitude has been totally changed. She becomes more mischievous, bad in her studies and got into fights in the neighbourhood: "Momma said . . . Devil's sure got into her." Neither belt nor switch beat the devil out of Belle, But Belle did become clever in her mischief" (264). Both Denise and Belle have been victimised by Henry and their life become more miserable. They can understand each other and their pains they undergo silently. Two little buds are burnt by their own father without revealing anything to anyone even to their mother Gladys. Every night they cry in silence and tears rolled down their cheeks, both wiped their tears never revealed. There is a kind of understanding between the victims as they do not disclose to anyone throughout their life. It is a curse for a female child to undergo such situations. Ultimately Henry has reached his cruel nature into next level by calling Belle. Nevertheless, instead of Belle, Denise has gone to him to save Belle. At the age of seven, a blooming bud is yet to burnt: "he sat her on it. The pain got so bad she thought he was ripping her open. He held his handkerchief over the mouth. There was a blood, she didn't know if she would stop bleeding" (264). It will be the cry of everyone that no child should have experienced this kind of cruelty but still this society has many Denises and Belles who are crying silently.

Though the predator is no more, the impact he has made in their life is there persistently whatever heights they reach. Being an abused child, Denise does not give up and attained the level of juvenile probation officer later. Due to the personal pain, she has got in her childhood, carved her mind to understand and skilfully deal the children with utmost care in her profession.

By portraying these incidents, Bland courageously throws light on the dark realities of every family where a silent sexual predators is preying the vulnerable ones without the knowledge of other family members. Being a man, the predator has escaped from the punishment which shows how the society constructs a safe place for the male gender where the safety of female is questionable. Many survey represents the facts that the female children, especially African American female children are highly affected by the child sexual abuse the post traumatic conditions is even more pathetic. Such issues cause various psychological impact on the child and change their attitude different forever. Self-alienation, depression, lack of appetite make them psychologically weak and they become more silent. They do not speak with others, they do not laugh, and active like others.

Since child sexual abuse is an unavoidable universal phenomenon, child must be educated about sex, self-defence and very importantly they must be able to articulate whatever the problem they encounter. Thus voicing out is the only way to eradicate the cruel predators who are the dangerous threat to the society.

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Winter 8-6-2019

EVALUATION OF RESEARCH PAPERS ON OTORHINOLARYNGOLOGY DURING THE PERIOD 1989-2018: A SCIENTOMETRIC STUDY

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EVALUATION OF RESEARCH PAPERS ON OTORHINOLARYNGOLOGY DURING THE PERIOD 1989-2018: A SCIENTOMETRIC STUDY

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ABSTRACT

The purpose of this study was to measure the number of contributions and highlight the contributions made by the researchers in the field of Otorhinolaryngology and published on the Web of Science database during 1989-2018 using scientometric analysis. Data were interpreted by using software such as Histcite, Vosviewer, and tabulated using MS Excel. The results indicated that 2039 papers were published during 1989 - 2018 and the highest number of publications 199 (9.8%) was produced in 2017. The average number of publications per year was 67.96. The major channel of communication used by the researchers was journals for thirty years. The trends in multi-authored papers have tremendously increased (85.58%) compared to (14.42%) single-authored papers. The relative growth rate (0.37) and degree of collaboration (0.86) is noted significantly and the highest no of papers (16.87%) was contributed by the collaboration of four authors. It also noted that the value of the highest degree of collaboration was (0.96) in 2017. The publication behavior of researchers shows that they were highly selective in publishing the research results in specialized journals. The International Journal of Pediatric Otorhinolaryngology, Laryngo-Rhino-Otologie stands first and second places respectively. The anonymous author (58, 2.8%) contributed more numbers of papers in the domain of Otorhinolaryngology with Germany (422, 20.7%) being the country producing more research papers followed by Turkey, the UK, and the USA. More than 200 papers had been published in Otorhinolaryngology, Surgery, and Medicine General Internal.

Keywords: Otorhinolaryngology, Otorhinology, Laryngology, Scientometrics.

1. INTRODUCTION

Scientometrics is the quantitative study of science, technology, and science policy. It has been evolved over time from the study of indices for improving information retrieval from peer-reviewed scientific publications (commonly described as the "bibliometric" analysis of science) to cover other types of documents and information sources relating to science and technology. Scientometric indicators contribute to standardize, collect, report and analyze a wide range of science, technology, and innovation activities.

Otorhinolaryngology is a specialty within medicine that deals with conditions of the ear, nose, and throat (ENT) and associated connection of the head and neck. Patients seek treatment from an otorhinolaryngologist for diseases of the ear, nose, throat, base of the skull, and for the surgical management of cancers and benign tumors of the head and neck. Otorhinolaryngology (ORL) comprises 20% of the adult general practice consultations. Like all medical and surgical specialties, Otorhinolaryngology faces important questions about the quality and quantity of health care being

delivered. As Otorhinolaryngology deals with most of the parts of the head and neck, it is connected with other areas of research in medicine. Otology, Neurology, Pediatric Otolaryngology, Rhinology, Laryngology, Head and Neck, Facial plastic and reconstructive surgery are the seven subspecialties of Otorhinolaryngology.

One method of measuring professional or academic interest in the medical field is a scientometric analysis of publications. It is believed that publications represent the awareness and usage level of the given field. In medicine, citation count denotes the academic influence of a subject area. The study thus determines to uncover the distribution of ORL articles by analyzing the characteristics of these articles such as year, author, language, publication type, country, subject, journal, keyword etc which in turn will be helpful in determining the qualities that make an ORL article important to the field of science as well as medicine.

2. REVIEW OF LITERATURE

Balasubramani, R., & Murugan, C. (2011) used a scientometric method to quantitatively analyze the research articles in remote sensing during 1975-FEB 2010. Various factors such as number of papers published, cited references, country-wise publications, productive authors, number of institutions involved in the research, most preferred journal, most preferred language by the scientist, etc were studied in a detailed manner. During their study period, 1,188 articles were published and cited references were 30,654. Their results indicated that the average number of publications published per year was 38.07.

Cimmino et al., (2005) evaluated the distribution and scope of papers published in the world in ORL journals and compared the impact of this research among different countries. Papers published in the 29 ORL journals screened by the Institute for Scientific Information (ISI, Philadelphia, PA, and the USA) during 1995-2000 were considered. The journal impacts factor (IF), the source country population, and gross domestic product (GDP) were recorded. All keywords, both assigned by the authors and attributed by ISI, were identified and their frequency was also calculated using a special-purpose program. The total number of papers in the ORL literature during the period 1995-2000 increased from 2036 to 3705. The leading keywords were "cancer" for disease and "surgery" for treatment. The data shows high scientific production of relatively small countries. It was suggested that the dispersion of keywords should be avoided and journal editors should enhance their standardization.

Gupta et al., (2015) examined 4117 global publications in nasal polyps research covered in Scopus during the period 2004-2013. They observed an average annual growth rate of 6.92% and citation impact per paper of 3.30. The world nasal polyps research output came from 83 countries and the top 10 most productive countries include the USA, the UK, Germany, Turkey, Japan, South Korea, China, Italy, Belgium, and India accounted for 91.24% share of the global publication and citation output during 2004-13. The USA contributed the largest citation share to the global citations in nasal polyps, followed by the UK, Belgium, Germany, Italy, Japan, China, South Korea, Turkey, and India during 2004-13. The top 10 most productive countries share the international collaborative papers in nasal polyps varied from 6.25% to 53.70% during 2004-13, with highest share from Belgium, followed by the UK, China, Germany, Italy, the USA, Japan, South Korea, India, and Turkey during 2004-13.

Gurberg et al., (2014) assessed the Canadian contribution to the Otolaryngology literature during the period 2008-2012. All articles published from January 2008 - December 2012 in 5 Otolaryngology journals were reviewed. Nationality, number of authors, and study type were extracted. The output, number of authors, and study type of Canadian papers were compared to International papers using Mantel-Haenszel Common Odds Ratio Estimate, Pearson's Chi-Squared or Fisher's exact tests. 4519 papers were analyzed. THERE was a statistically significant decrease in Canadian authored papers from 12.8% in 2008, 9 to 10.2% in 2011–12 (Fishers exact, $p = .01$). Multi-authorship increased in Canadian papers ($\chi 2$, $p = .01$). The types of studies published by Canadian Otolaryngologists did not find any change over the study period. Canadian authored papers in a sample of Otolaryngology journals decreased from 2008 to 2012. The increase in multi-authorship, instead of increasing collaboration, suggested reduced per capita publication productivity.

Narzary, R., & Murugan, C. (2018) analyzed colorectal cancer research output based on the data available on the Web of Science (WoS) database during the period 2005-2016. A total of 1219 records were taken for the analysis of Indian publications on colorectal cancer. The analysis revealed that there is an increasing trend in colorectal cancer research publications and the majority of the publications are in the form of articles across the world. India's highest collaborating country was the USA with 15.6% of the total collaborative work undertaken. The country-wise distribution and year wise contributions showed that 50% of world CRC research came from three countries viz. the USA, China, and Japan.

Sanabria, A. (2019) had done a bibliometric analysis on the International Head and Neck Scientific Group (IHNSG) activity organized in 2009 which deals with the head and neck oncology. Data was downloaded from the Web of Science database. This study conducted a descriptive analysis of the articles; an analysis of citations and a network analysis by co-authorship and by co-occurrence. From January 2009 to June 2018, 213 articles were published during the period. The mean number of articles by year was 20.7±6.4. The mean number of authors per article was 10.3±5.8. The year with the highest number of articles was 2013 with 28 articles. The total number of authors was 281. Authors from 35 countries contributed to the publications. 150(70%) articles were reviews and 44(21%) editorials. The articles have been published in 29 journals with a mean IF value of 4.5±6.4. 663 journals have cited publications of the group. The experience of a group focused on critically appraising, reviewing, and summarizing the literature had been positive with significant impact. The scientific production of the IHNSG had resulted in significant impact and its results help in the dissemination of information to authors around the world. Similar initiatives in other fields should be encouraged.

Saunders, T. F. C., Rymer, B. C., & McNamara, K. J. (2017) studied the ENT surgical literature over a period of 5 years using bibliometric methods to find out the global contributions by country. The study identified that the largest contributor at a global level was the USA with 4462 articles, followed by the UK with 1215 articles, and then by Spain, Taiwan, and the Netherlands. The highest number of publications per million populations (18.9) was contributed by the UK. Greece had the most cost-effective publication output and Japan had the least. The greatest increase in publication-quality was observed in the countries of India, Greece, and Japan.

3. OBJECTIVES

1. To find the language-wise distribution of articles.
2. To study the pattern of growth of publications during the period.
3. To find out the document type of the publications.
4. To analyze the authorship pattern, degree of collaboration, relative growth rate and doubling time.
5. To know the country-wise distribution of the publications.
6. To examine the label and cluster analysis of the otorhinolaryngology research.

4. METHODOLOGY

The data had been collected from the web of science database using the following search string retrieved on 27-Feb-2019. Topic: Otorhinolaryngology. Timespan: 1989-2018. The total number of articles retrieved was 2039. The retrieved articles were analyzed using Histcite software. Further analysis was done using MS Excel and VosViewer software.

5. DATA ANALYSIS

5.1 Year-wise distribution of publications

Table 1 shows the distribution of articles published on Otorhinolaryngology research during 1989-2018 (30 years) inclusive of 1989 and 2018. It can be observed that from 1989 to 2006, there was a frequent change of increase and decrease in the publications. After 2006, it can be noted that there is a

gradual increase in the ORL publications from 2.4% to 9.7%. The maximum number of articles was published in 2017 with 199 (9.8%) records, the next highest publication could be observed in the year 2018 with 198 (9.7%) records. The least number of articles was observed in the year 1990 with 3 (0.1%) records.

Table-1: Year-wise distribution of Publications

Publication year	TP*	%	TLCS*	TGCS*
1989	9	0.4	0	9
1990	3	0.1	1	42
1991	13	0.6	2	196
1992	13	0.6	9	177
1993	18	0.9	3	203
1994	28	1.4	10	425
1995	23	1.1	10	372
1996	43	2.1	13	299
1997	39	1.9	17	485
1998	37	1.8	16	434
1999	40	2.0	14	484
2000	49	2.4	13	410
2001	39	1.9	15	949
2002	47	2.3	19	955
2003	83	4.1	27	1772
2004	52	2.6	17	1015
2005	83	4.1	24	950
2006	48	2.4	13	818
2007	61	3.0	23	694
2008	70	3.4	15	1079
2009	76	3.7	19	745
2010	75	3.7	23	729
2011	74	3.6	21	701
2012	95	4.7	23	598
2013	96	4.7	17	564
2014	106	5.2	22	589
2015	146	7.2	22	488
2016	176	8.6	12	333
2017	199	9.8	8	182
2018	198	9.7	1	65
Total	**2039**	**100**	**429**	**16762**

***TP:** "Total Publication"; **TLCS:** "Total Local Citation Score"; **TGCS:** "Total Global Citation Score"

5.2 Relative Growth Rate and Doubling Time of ORL Literature

Table 2 depicts that Relative Growth Rate and Doubling Time of total publications. Though the publication had grown from 1989 (9 records) to 2018 (198 records), the relative growth rate was 0.29 in 1989 which decreased up to 0.10 in 2018. A mean relative growth rate of 0.37 could be deduced for the

study period. The mean doubling time during the period 1989-2003 was 3.13 and for 2004-2018 it was increased to 7.44. The overall mean doubling time was 10.57.

Table-2: Relative Growth Rate and Doubling Time

Year	Total Publications	Cumulative No. of Publications	W1*	W2*	R(a) (W2-W1)	Mean R(a) 1-2*	Doubling Time Dt(a)	Mean Dt(a) 1-2
1989	9	9	-	2.20	-		-	
1990	3	12	2.20	2.48	0.29		2.41	
1991	13	25	2.48	3.22	0.73		0.94	
1992	13	38	3.22	3.64	0.42		1.66	
1993	18	56	3.64	4.03	0.39		1.79	
1994	28	84	4.03	4.43	0.41		1.71	
1995	23	107	4.43	4.67	0.24		2.86	
1996	43	150	4.67	5.01	0.34		2.05	
1997	39	189	5.01	5.24	0.23		3.00	
1998	37	226	5.24	5.42	0.18	0.28	3.88	3.13
1999	40	266	5.42	5.58	0.16		4.25	
2000	49	315	5.58	5.75	0.17		4.10	
2001	39	354	5.75	5.87	0.12		5.94	
2002	47	401	5.87	5.99	0.12		5.56	
2003	83	484	5.99	6.18	0.19		3.68	
2004	52	536	6.18	6.28	0.10		6.79	
2005	83	619	6.28	6.43	0.14		4.81	
2006	48	667	6.43	6.50	0.07		9.28	
2007	61	728	6.50	6.59	0.09		7.92	
2008	70	798	6.59	6.68	0.09		7.55	
2009	76	874	6.68	6.77	0.09		7.62	
2010	75	949	6.77	6.86	0.08	0.09	8.42	
2011	74	1023	6.86	6.93	0.08		9.23	7.44
2012	95	1118	6.93	7.02	0.09		7.80	
2013	96	1214	7.02	7.10	0.08		8.41	
2014	106	1320	7.10	7.19	0.08		8.28	
2015	146	1466	7.19	7.29	0.10		6.61	
2016	176	1642	7.29	7.40	0.11		6.11	
2017	199	1841	7.40	7.52	0.11		6.06	
2018	198	2039	7.52	7.62	0.10		6.78	
Total	**2039**					**0.37**		**10.57**

*****R (1-2) = Mean Relative Growth Rate over the Specified Period interval;
*****W1= log w1 (Natural log of the initial number of publications)
*****W2 = log w2 (Natural log of the initial number of publications)
*****T2-T1= the unit Difference between the initial time and final time.
*****R (a) = Relative Growth Rate per unit publication per unit of time (Year)

Relative Growth Rate and Doubling Time

Formula

$$R(1-2) = \frac{W2 - W1}{T2 - T1}$$

$$Dt(a) = \frac{0.693}{R(a)}$$

WHERE,

R (1-2) = Mean relative growth rate for the specified period.
W1= log w1 (Natural log of the initial number of publications)
W2 = log w2 (Natural log of the initial number of publications)
T2-T1= the unit difference between the initial and the final time.
R (a) = relative growth rate per unit publication per unit of time.

5.3 Exponential Growth Rate

The exponential growth rate of publications in Otorhinolaryngology research during 1989-2018 could be seen in table 3. The maximum growth rate (4.33%) was found in the year 1991 (13 records), followed by 1.77% in the year 2003 (83 records). The least exponential growth rate (0.33%) was observed in the year 1990 (3 records). The average exponential growth rate was 35.61% during the period. It shows high variations in growth rate from 1989 to 2006 and after 2007 a stable growth rate could be observed.

Table-3: Exponential Growth Rate

S.No	Year	No. of Publications	Exponential Growth rate
1	1989	9	-
2	1990	3	0.33
3	1991	13	4.33
4	1992	13	1.00
5	1993	18	1.38
6	1994	28	1.56
7	1995	23	0.82
8	1996	43	1.87
9	1997	39	0.91
10	1998	37	0.95
11	1999	40	1.08
12	2000	49	1.23
13	2001	39	0.80
14	2002	47	1.21
15	2003	83	1.77
16	2004	52	0.63
17	2005	83	1.60
18	2006	48	0.58
19	2007	61	1.27

20	2008	70	1.15
21	2009	76	1.09
22	2010	75	0.99
23	2011	74	0.99
24	2012	95	1.28
25	2013	96	1.01
26	2014	106	1.10
27	2015	146	1.38
28	2016	176	1.21
29	2017	199	1.13
30	2018	198	0.99
	Total	**2039**	**35.61**

5.4 Prolific Authors wise Distribution

The top 20 prolific authors were recognized in Otorhinolaryngology research. They had published 9 or more papers during 1989-2018. The identified 20 authors had brought about 271 (13%) papers. An anonymous person became the most productive author who contributed 58 (2.8%) articles, followed by Feldmann H with 15 (0.7%) articles, Guntinas-Lichius O, Mallard O, and Werner JA with 14 (0.7%) articles.

Table-4: Prolific authors wise distribution (Top 20)

S.No	Author	Records	%	TLCS	TGCS
1	[Anonymous]	58	2.8	0	0
2	Feldmann H	15	0.7	14	94
3	Guntinas-Lichius O	14	0.7	6	91
4	Mallard O	14	0.7	1	27
5	Werner JA	14	0.7	14	221
6	Laccourreye O	13	0.6	5	52
7	Hormann K	12	0.6	3	118
8	Aaltonen LM	11	0.5	9	66
9	Laskawi R	11	0.5	3	78
10	Pitkaranta A	11	0.5	7	136
11	Verillaud B	11	0.5	0	30
12	Back L	10	0.5	2	99
13	Bootz F	10	0.5	8	137
14	Huttenbrink KB	10	0.5	8	165
15	Iro H	10	0.5	2	142
16	Michel J	10	0.5	0	14
17	Stuck BA	10	0.5	4	147
18	Bequignon E	9	0.4	0	12
19	Bonfils P	9	0.4	4	38
20	Escabasse VP	9	0.4	0	12

5.5 Authorship Pattern of Publications

5.5.1 Single Author versus Multi-Authors

Table 5.1 shows the contributions of a single author and multiple authors of Otorhinolaryngology research during the period 1989-2018. Single authors had contributed 294 (14.42%) publications and multiple authors had contributed 1745 (85.58%) publications out of 2039 publications. Hence, it was inferred that the majority of the articles were published by multiple authors.

Table-5.1: Single vs. Multi Authors

S.No	Authorship Pattern	Publications	%
1	Single Author	294	14.42
2	Multiple Authors	1745	85.58
	Total	**2039**	**100**

5.5.2 Authorship Pattern

Table 5.2 shows the authorship pattern in otorhinolaryngology research during 1989-2018. The utmost number of papers (344) had been brought out by the collaborative work of four authors followed by three authors (297), single author (294), five authors (290), two authors (248), six authors (215), seven authors (138), eight authors (76), more than ten authors (70), nine authors (40) and the least with the collaborative work of ten authors (27) records.

Table-5.2: Authorship Pattern of Publications

S.No	Authors	No. of Publications	%
1	Single Author	294	14.42
2	Two Authors	248	12.16
3	Three Authors	297	14.57
4	Four Authors	344	16.87
5	Five Authors	290	14.22
6	Six Authors	215	10.54
7	Seven Authors	138	6.77
8	Eight Authors	76	3.73
9	Nine Authors	40	1.96
10	Ten Authors	27	1.32
11	Above Ten Authors	70	3.43
	Total	**2039**	**100**

5.5.3 Year-wise Authorship Pattern

Table 5.3 shows the authorship pattern of publications by year based on collaborative research.

Table-5.3: Year-wise Authorship Pattern

Year	1	2	3	4	5	6	7	8	9	10	10+	Total
1989	4	2		2	1							**9**
1990	1							1				**2**
1991	6	3	4	1								**14**
1992	4	1	4	2	1	1						**13**
1993	9	2	4	3								**18**
1994	11	2	3	7	1	2	2					**28**
1995	14	2	1	2	3		1					**23**
1996	17	9	7	4	3		1	1		1		**43**
1997	18	6	6	7	1	1						**39**
1998	11	7	2	5	2	5	2	2			1	**37**
1999	18	2	6	8	4	1		1				**40**
2000	14	7	6	10	6	4	1	1				**49**
2001	5	7	8	8	7	1	1			1	1	**39**
2002	12	6	4	13	4	1	4	3				**47**
2003	23	8	18	9	12	5	3	2	1		2	**83**
2004	8	7	5	7	16	3	2	2	1	1		**52**
2005	20	15	14	14	12	4	2	1			1	**83**
2006	5	4	6	13	9	5	3			1	2	**48**
2007	7	10	8	15	7	2	2	5	2		3	**61**
2008	6	14	9	13	9	9	3	3	2	1	1	**70**
2009	10	10	5	16	11	11	4	2	1	3	3	**76**
2010	4	9	15	8	12	10	9	4	1		3	**75**
2011	5	9	8	11	11	15	7	5	3			**74**
2012	8	13	12	16	17	14	8	2	3	1	1	**95**
2013	8	10	15	19	13	13	5	5	4	1	3	**96**
2014	6	7	19	17	17	19	5	5	5	1	5	**106**
2015	15	15	23	16	22	21	14	8	2	4	6	**146**
2016	9	15	28	31	33	17	16	9	3	6	9	**176**
2017	7	18	26	36	27	30	25	7	8	2	13	**199**
2018	9	28	31	31	29	21	18	7	4	4	16	**198**
Total	**294**	**248**	**297**	**344**	**290**	**215**	**138**	**76**	**40**	**27**	**70**	**2039**

5.6 Degree of Collaboration

Table 6 amounts to calculate the degree of collaboration in Otorhinolaryngology research by using the formula given by (K. Subramanyam, 1982) which was,

$$C = \frac{NM}{NM + NS}$$

Where,

C - the degree of collaboration

NM - no. of multi-authored papers

NS - no. of single-authored papers

The degree of collaboration varied from 0.56 to 0.96 for the duration of the study. The average mean value was 0.86 suggesting the increase of collaborative research in Otorhinolaryngology.

Table-6: Degree of Collaboration

S.No	Year	Single Author (NS)	Multiple Authors (NM)	Total (NS+NM)	Degree of Collaboration C=NM/NM+NS
1	1989	4	5	9	0.56
2	1990	1	1	2	0.50
3	1991	6	8	14	0.57
4	1992	4	9	13	0.69
5	1993	9	9	18	0.50
6	1994	11	17	28	0.61
7	1995	14	9	23	0.39
8	1996	17	26	43	0.60
9	1997	18	21	39	0.54
10	1998	11	26	37	0.70
11	1999	18	22	40	0.55
12	2000	14	35	49	0.71
13	2001	5	34	39	0.87
14	2002	12	35	47	0.74
15	2003	23	60	83	0.72
16	2004	8	44	52	0.85
17	2005	20	63	83	0.76
18	2006	5	43	48	0.90
19	2007	7	54	61	0.89
20	2008	6	64	70	0.91
21	2009	10	66	76	0.87
22	2010	4	71	75	0.95
23	2011	5	69	74	0.93
24	2012	8	87	95	0.92

25	2013	8	88	96	0.92
26	2014	6	100	106	0.94
27	2015	15	131	146	0.90
28	2016	9	167	176	0.95
29	2017	7	192	199	0.96
30	2018	9	189	198	0.95
	Total	**294**	**1745**	**2039**	**0.86**

5.7 Language-wise distribution of Publications

Table 7 depicts the language-wise distribution in otorhinolaryngology research. It was clearly evident that English was the most preferred language for research publication in most of countries. Majority of the papers were in the English language 1663 (81.6%), followed by German 280 (13.7%), Spanish 13 (1.5%), French 21 (1%), Turkish 16 (0.8%) and so on.

Table-7: Language wise distribution of Publications

Language	TP*	%	TLCS*	TGCS*
English	1663	81.6	333	15487
German	280	13.7	93	1114
Spanish	31	1.5	0	52
French	21	1	0	61
Turkish	16	0.8	2	10
Czech	6	0.3	0	5
Portuguese	6	0.3	0	27
Russian	4	0.2	0	1
Slovene	3	0.1	0	0
Hungarian	2	0.1	1	5
Italian	2	0.1	0	0
Korean	2	0.1	0	0
Serbian	2	0.1	0	0
Malay	1	0.1	0	0
Total	**2039**	**100**	**429**	**16762**

***TP:** "Total Publication"; **TLCS:** "Total Local Citation Score"; **TGCS:** "Total Global Citation Score"

5.8 Document wise distribution of publications:

Table 8 reveals the type of document used for publication during the period 1989-2018. It could be seen that most of the publications were in Articles with 1603 (78.6%), followed by Review 171 (8.4%), Article; Proceeding Paper 111 (5.4%), Editorial Material 86 (4.2%), Letter 34 (1.7%), Meeting Abstract 11 (0.5%) and so on.

Table-8: Document wise distribution of Publications

S.No	Document Type	TP*	%	TLCS*	TGCS*
1	Article	1603	78.6	344	12946
2	Review	171	8.4	39	1930
3	Article; Proceedings Paper	111	5.4	33	1759
4	Editorial Material	86	4.2	6	55
5	Letter	34	1.7	6	43
6	Meeting Abstract	11	0.5	0	0
7	Biographical-Item	6	0.3	0	5
8	Note	6	0.3	0	5
9	Correction	3	0.1	0	12
10	Article; Book Chapter	2	0.1	1	7
11	Item About an Individual	2	0.1	0	0
12	News Item	2	0.1	0	0
13	Book Review	1	0.1	0	0
14	Review; Book Chapter	1	0.1	0	0
	Total	**2039**	**100**	**429**	**16762**

***TP:** "Total Publication"; **TLCS:** "Total Local Citation Score"; **TGCS:** "Total Global Citation Score"

5.9 Country-wise distribution of publications:

Table 9 gives the distribution of otorhinolaryngology publications by the country during 1989-2018. Germany had ranked top among the countries in terms of publications with 422 (20.7%) records, followed by Turkey and the UK with 163 (8%) and the USA with 152 (7.5%) publications. India had contributed 111 (5.4%) and ranks 5th in the top 20 countries.

Table-9: Country-wise distribution of Publications (Top 20)

Country	Records	%	TLCS	TGCS
Germany	422	20.7	150	3718
Turkey	163	8	22	969
UK	163	8	61	1862
USA	152	7.5	23	1704
Unknown	129	6.3	17	365
India	111	5.4	7	654
Italy	88	4.3	17	1272
France	78	3.8	13	577
Brazil	67	3.3	20	633
Netherlands	67	3.3	14	956
Japan	62	3	4	375
Finland	55	2.7	32	610
Spain	46	2.3	2	205
Peoples R China	43	2.1	2	264
Austria	40	2	15	683

South Korea	38	1.9	3	287
Malaysia	32	1.6	0	120
Sweden	32	1.6	6	488
Switzerland	30	1.5	11	712
Denmark	27	1.3	11	326

5.10 Institution wise distribution

Table 10 shows the contribution of the top 20 countries during 1989-2018. It showed that Unknown Institution had contributed 94 (4.6%) publications, followed by Helsinki University with 44 (2.2%), Munich University with 26 (71.3%) publications, Cologne University with 23 (1.1%), and so on. It could be noted that Cologne University had the highest Global Citation Score" of 465 and Unknown Institution with the least global citation Score" of 14. Helsinki University had the highest Local Citation Score of 26.

Table-10: Institution wise distribution (Top 20)

S.No	Institution	Records	%	TLCS	TGCS
1	Unknown	94	4.6	6	14
2	Univ Helsinki	44	2.2	26	458
3	Univ Munich	26	1.3	11	390
4	Univ Cologne	23	1.1	14	465
5	Univ Munster	22	1.1	15	111
6	Helsinki Univ Hosp	20	1	3	43
7	Montefiore Med Ctr	15	0.7	4	48
8	Univ Amsterdam	15	0.7	0	119
9	Hacettepe Univ	14	0.7	5	127
10	Tech Univ Munich	14	0.7	0	99
11	Univ Erlangen Nurnberg	14	0.7	2	179
12	Univ Sao Paulo	14	0.7	2	87
13	Univ Ulm	13	0.6	5	77
14	Univ Fed Sao Paulo	12	0.6	8	210
15	Univ Sains Malaysia	12	0.6	0	15
16	Univ Gottingen	11	0.5	1	88
17	Univ Hosp	11	0.5	1	69
18	Univ Paris 05	11	0.5	2	39
19	Univ Tubingen	11	0.5	7	205
20	Univ Vienna	11	0.5	1	105

5.11 Subject category-wise distribution

Table 11 shows the top 20 subjects wise distribution of ORL Literature during 1989-2018. The highest publication could be seen from the subject Otorhinolaryngology with 1223 (59.98%) records, followed by Surgery with 254 (12.45%), Medicine-General Internal with 205 (10.05%), Pediatrics with 182 (8.92%), and so on.

Table-11: Subject category-wise distribution (Top 20)

S.No	Subject	Records	%
1	OTORHINOLARYNGOLOGY	1223	59.98
2	SURGERY	254	12.45
3	MEDICINE GENERAL INTERNAL	205	10.05
4	PEDIATRICS	182	8.92
5	MEDICINE RESEARCH EXPERIMENTAL	87	4.26
6	CLINICAL NEUROLOGY	83	4.07
7	DENTISTRY ORAL SURGERY MEDICINE	41	2.01
8	ONCOLOGY	34	1.66
9	PHARMACOLOGY PHARMACY	33	1.61
10	PUBLIC ENVIRONMENTAL OCCUPATIONAL HEALTH	30	1.47
11	ANESTHESIOLOGY	28	1.37
12	RADIOLOGY NUCLEAR MEDICINE MEDICAL IMAGING	25	1.22
13	NEUROSCIENCES	24	1.17
14	RESPIRATORY SYSTEM	24	1.17
15	HEALTH CARE SCIENCES SERVICES	17	0.83
16	IMMUNOLOGY	17	0.83
17	INFECTIOUS DISEASES	16	0.78
18	ALLERGY	15	0.73
19	PATHOLOGY	13	0.63
20	PSYCHIATRY	13	0.63

5.12 Journal wise distribution

Table 12 shows the top 20 Journal wise distribution of ORL Literature during 1989-2018. The International Journal of Pediatric Otorhinolaryngology was the most preferred journal with 147 (7.2%), followed by Laryngo-Rhino-Otologie journal with 124 (6.1%), Journal of Laryngology and Otology with 123 (6%), and so on. Indian Journal of Otolaryngology and Head & Neck Surgery was ranked 8th in the Top 20 Journal of ORL research.

Table-12: Journal wise distribution (Top 20)

S.No	Journal	Records	%	TLCS	TGCS
1	INTERNATIONAL JOURNAL OF PEDIATRIC OTORHINOLARYNGOLOGY	147	7.2	28	1217
2	LARYNGO-RHINO-OTOLOGIE	124	6.1	38	529
3	JOURNAL OF LARYNGOLOGY AND OTOLOGY	123	6	42	714
4	HNO	120	5.9	56	554
5	EUROPEAN ARCHIVES OF OTO-RHINO-LARYNGOLOGY	109	5.3	32	960
6	CLINICAL OTOLARYNGOLOGY	89	4.4	18	531
7	ACTA OTO-LARYNGOLOGICA	45	2.2	11	220
8	INDIAN JOURNAL OF OTOLARYNGOLOGY AND HEAD & NECK SURGERY	45	2.2	4	86
9	OTOLARYNGOLOGY-HEAD AND NECK	45	2.2	7	596

	SURGERY				
10	LARYNGOSCOPE	44	2.2	37	1335
11	ARCHIVES OF OTOLARYNGOLOGY-HEAD & NECK SURGERY	37	1.8	12	1026
12	EUROPEAN ANNALS OF OTORHINOLARYNGOLOGY-HEAD AND NECK DISEASES	35	1.7	5	129
13	OTOLOGY & NEUROTOLOGY	29	1.4	3	292
14	BRAZILIAN JOURNAL OF OTORHINOLARYNGOLOGY	27	1.3	8	137
15	JOURNAL OF EVOLUTION OF MEDICAL AND DENTAL SCIENCES-JEMDS	21	1	0	0
16	AMERICAN JOURNAL OF OTOLARYNGOLOGY	19	0.9	8	319
17	B-ENT	18	0.9	4	46
18	JOURNAL OF CRANIOFACIAL SURGERY	16	0.8	1	61
19	ACTA OTORHINOLARYNGOLOGICA ITALICA	15	0.7	1	100
20	ACTA OTORRINOLARINGOLOGICA ESPANOLA	14	0.7	0	12

5.13 Keyword wise distribution of Publications

Figure 1 indicates the major keywords used in ORL research articles. 4304 keywords were used as mesh headings and top 20 keywords were taken for calculating Zipf's law. Zipf's law had given the relationship between the rank of a word and frequency of its appearance in a sentence or passage.

$$r*f = c$$

'r' - the rank of a word and 'f' - frequency of occurrence

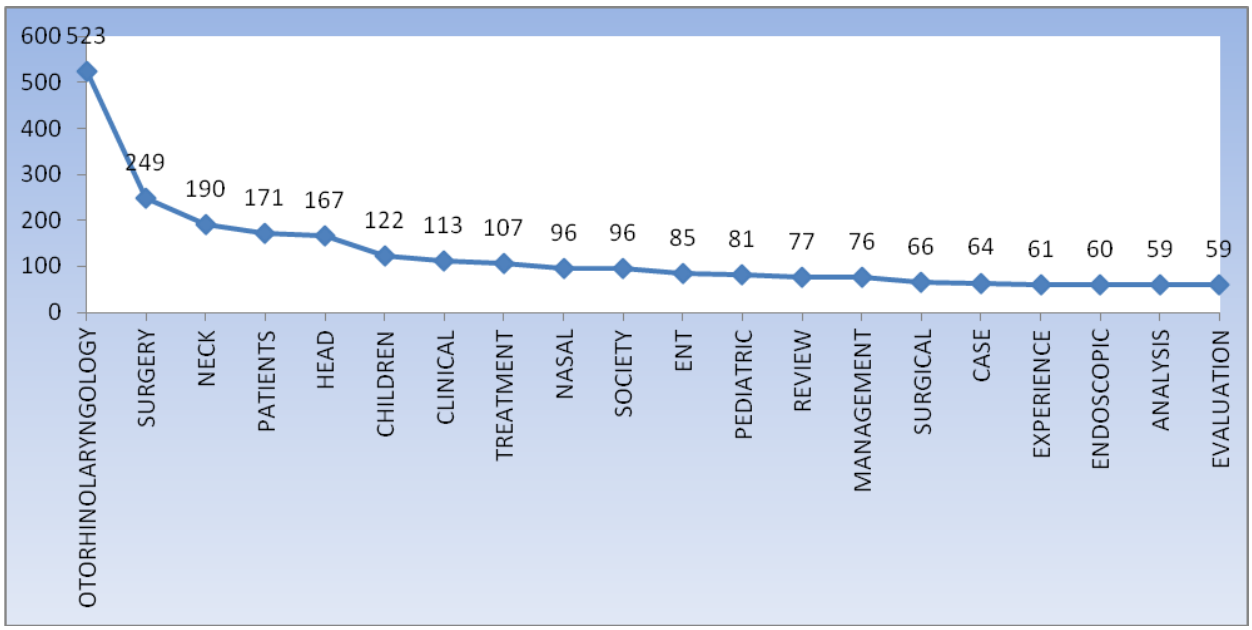


Figure-1: Application of Zipf's Law

5.14 Highly cited papers in ORL research

Table 13 reveals that Fokkens WJ, 2012, RHINOLOGY, V50, P1is the top most cited paper and it had been cited 21 times followed by KOUFMAN JA, 1991, LARYNGOSCOPE, V101, P1 with 14 records, Friedman M, 1999, LARYNGOSCOPE, V109, P1901, DOI 10.1097/00005537-199912000-00002 with 10 records, and so on.

Table-13: Highly cited papers in ORL publications

S.No	Author/Year/Journal	Records	%
1	Fokkens WJ, 2012, RHINOLOGY, V50, P1	21	1
2	KOUFMAN JA, 1991, LARYNGOSCOPE, V101, P1	14	0.7
3	Friedman M, 1999, LARYNGOSCOPE, V109, P1901, DOI 10.1097/00005537-199912000-00002	10	0.5
4	HOUSE JW, 1985, OTOLARYNG HEAD NECK, V93, P146, DOI 10.1177/019459988509300202	10	0.5
5	Hummel T, 1997, CHEM SENSES, V22, P39, DOI 10.1093/chemse/22.1.39	10	0.5
6	Ang KK, 2010, NEW ENGL J MED, V363, P24, DOI 10.1056/NEJMoa0912217	9	0.4
7	Haynes AB, 2009, NEW ENGL J MED, V360, P491, DOI 10.1056/NEJMsa0810119	9	0.4
8	KENNEDY DW, 1985, ARCH OTOLARYNGOL, V111, P576	9	0.4
9	WILSON WR, 1980, ARCH OTOLARYNGOL, V106, P772	9	0.4
10	BYL FM, 1984, LARYNGOSCOPE, V94, P647	8	0.4
11	CROFT CB, 1991, CLIN OTOLARYNGOL, V16, P504, DOI 10.1111/j.1365-2273.1991.tb01050.x	8	0.4
12	Hummel T, 2007, EUR ARCH OTO-RHINO-L, V264, P237, DOI 10.1007/s00405-006-0173-0	8	0.4
13	Robinson K, 1996, ANN OTO RHINOL LARYN, V105, P415, DOI 10.1177/000348949610500601	8	0.4
14	Shah RK, 2004, LARYNGOSCOPE, V114, P1322, DOI 10.1097/00005537-200408000-00003	8	0.4
15	Stammberger H., 1991, FUNCTIONAL ENDOSCOPI	8	0.4
16	YOUNG T, 1993, NEW ENGL J MED, V328, P1230, DOI 10.1056/NEJM199304293281704	8	0.4
17	BENT JP, 1994, OTOLARYNG HEAD NECK, V111, P580, DOI 10.1016/S0194-5998(94)70525-9	7	0.3
18	BRODSKY L, 1989, PEDIATR CLIN N AM, V36, P1551	7	0.3
19	Belafsky PC, 2001, LARYNGOSCOPE, V111, P1313, DOI 10.1097/00005537-200108000-00001	7	0.3
20	Brown P, 2004, LANCET, V364, P697	7	0.3

5.15 Label and Cluster Analysis of ORL Research

For analyzing the bibliometric network, VOS viewer is used. Maps were created by using net and vec file from bibexcel. Figure 2 and Figure 3 depicts the Cluster view and Label view of Otorhinolaryngology respectively.

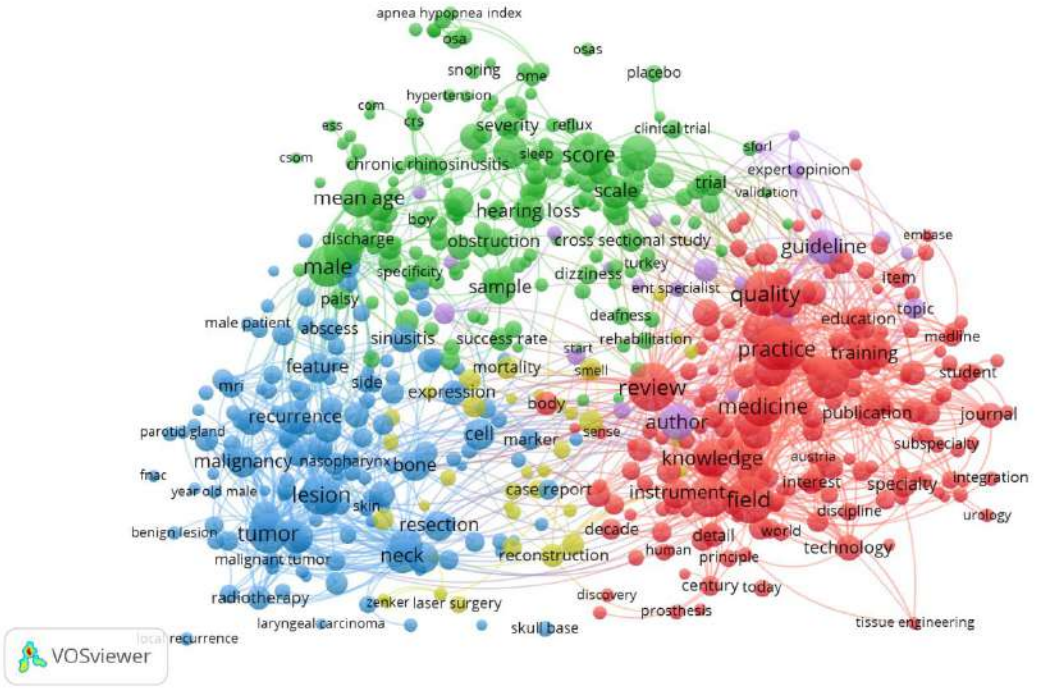


Figure-2: Cluster view of Otorhinolaryngology

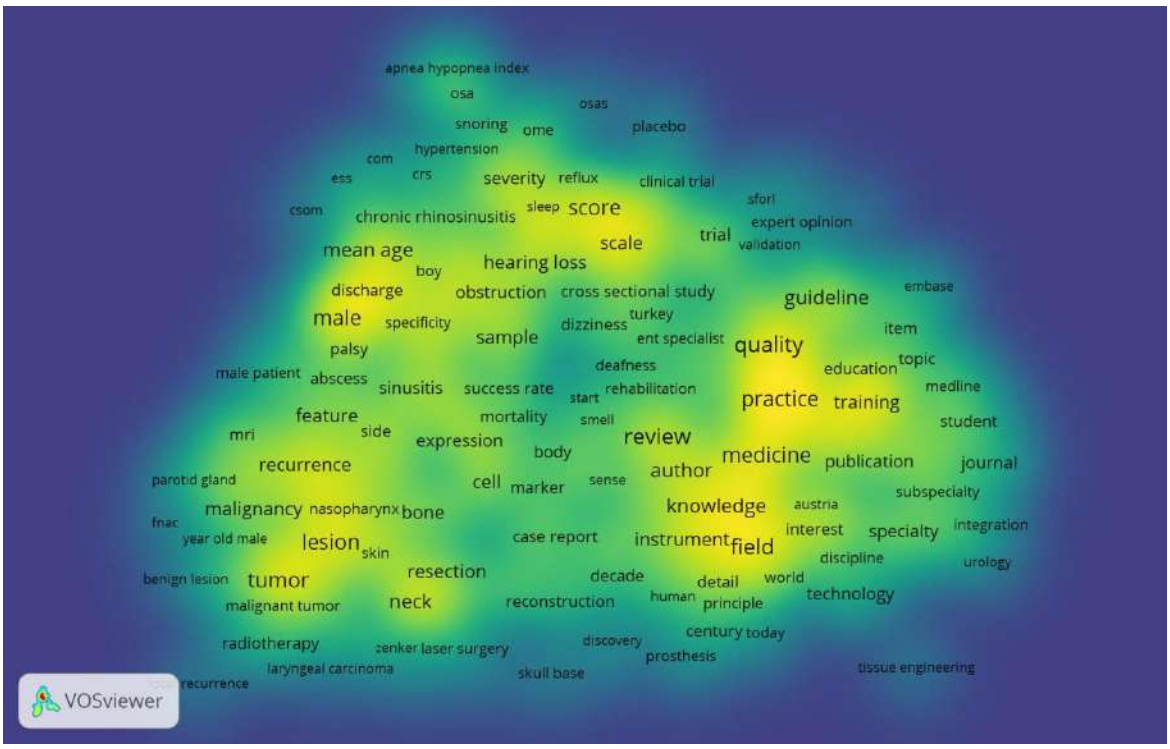


Figure-3: Label view of Otorhinolaryngology

6. FINDINGS AND CONCLUSION

The distribution of ORL literature by language showed that the most common scholarly communication was in the English language with 1663 (81.6%) articles.

The distribution of articles by year displayed that a total of 2039 publications were published in Otorhinolaryngology during 1989-2018 (30 years). The maximum number of articles 199 (9.8%) were published in the year 2017. There could be observed an increasing and decreasing trend in the relative growth rate and doubling time data. The mean relative growth rate for the period 1989-2018 was 0.37. The mean doubling time was 10.57 and the average exponential growth rate was 35.61% for the period of 1989-2018.

The distribution of publications by document type was found mostly in the form of journal articles with 1603 (78.6%) publications during the study period.

From the prolific author's list, it could be seen that Anonymous author was the most productive author with 58 (2.8%) records. The authorship pattern indicated that the maximum number of papers was published by the collaborative work of four authors 344 and the least number of papers published by a group of ten authors with 27 records. The Degree of Collaboration varied from 0.56 to 0.95 during the period of the study. High collaborative research could be seen from the mean value of 0.86.

The top 20 distribution of articles by the country during 1989-2018 ranked Germany at the top among all the countries with 422 (20.7%) publications. The top 20 Institution wise distribution of productivity during 1989-2018 showed that Unknown Institution had contributed 94 (4.6%) publications.

The top 20 Journal wise distribution in ORL literature during 1989-2018 showed that “International Journal of Pediatric Otorhinolaryngology” had contributed 147 (7.2%) publications making it the most preferred Journal. The most highly cited paper in ORL literature was “Fokkens WJ, 2012, RHINOLOGY, V50, P1” with 21 citations. The most common keyword used by the researcher was “Otorhinolaryngology” with 523 (25.6%) of the total records.

The publications in the Otorhinolaryngology research had grown from 9 in the year 1989 to 198 in the year 2018. During 2014 to 2018 there was a tremendous and gradual increase in the publishing of ORL papers where multiple authors i.e., 1745 (85.58%) had contributed more than the single authors i.e., 294 (14.42%). The publications from varied disciplines such as Surgery, Pharmacology, Dentistry, Radiology, Neurosciences indicated the growing trend of ORL literature in various disciplines.

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2019

A SCIENTOMETRIC STUDY ON JOURNAL OF CLIMATE BASED ON WEB OF SCIENCE DATABASAE

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A SCIENTOMETRIC STUDY ON JOURNAL OF CLIMATE BASED ON WEB OF SCIENCE DATABASE

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Abstract

The present study explores the Scientometric analysis of the journal on "JOURNAL OF CLIMATE". This study covered 2787records worldwide from 2014 to 2018. The data were collected from the web of science database. In this study discussed the Journal of climate year by year in this study. The study was undertaken to examine the year wise distribution of contributions, authorship pattern, co-author index and degree of collaboration, relative growth rate and doubling time, Document wise distribution of records. A Number of publications published in the year of 2015 with 575(20.6%) records. USA ranked first in the journal of climate research with 1707 (61.2%) records followed by China (650), UK (308), and Australia (182) with second, third and fourth position. A number of records published through the article 2698 (96.8%). Only 3% of the total publications were contributed by the single authors and rest of the 97% research publications were contributed by multi-authors in this study. The study revealed that the Degree of Collaboration was high i.e. 2014(0.91. The study analyzed the relative growth rates (RGR) has decreased from 2013(0.71) to 2017 (0.28) in the span of five years. The doubling time (DT) has rapidly increased while calculated year wise i.e.2013 (0.97) to 2017(2.47).

Keywords: *Scientometric, RGR, CAI, Doubling Time, Climate, authorship pattern, web of science,*

Introduction

Scientometric is one of the techniques which are a set of mathematical and statistical methods used to analyze and measure the quantity and quality of the journals, articles and other forms of publications.

Journal of climate (JOC) is an American meteorological society (AMS) publication. The journal on "journal of climate" started its publication in the year 1988 and still, 2019 have been 32 volumes published. It is a semi-monthly publication that publishes book reviews, articles, and bibliographic essays; the journal impact factor is 4.553(2018).

The present study highlights the journal issue of materials science research development as reflected in web of science database for the period from 2014 to 2018. Climate is a major determinant of the evolution and manifestation of life. Modern human societies are changing the global climate. The investigation of climate dynamics and of the interaction of climate with ecosystems, and the assessment and control of human impacts are among the greatest challenges facing present and future generations. Climate Research evaluates the important new information in these vital areas of environmental research, with specific emphasis on the effect of climate variability and change on organisms and ecosystems.

Review

Husain, S., & Mushtaq, M. (2017) their study analyzed the climate change during the period 2009-2013 as produced in the field of environmental science and ecology. The source of data downloaded from Web of Science and its data found that about 17, 266 publications are produced in the field from different research-based institutes around the globe. The highest data were published in the year 2013 (4788), and the lowest data was published in the year 2009 (2238) publications. The highest number of publications produced USA country followed by England. W. Thuiller followed by P. Smith was the most prolific authors in the field of climate change. The articles most widely used document forms followed by reviews. The prolific journals were Climatic Change and Global Change Biology. The study also assessed the citation

patterns received by these articles and provides a comprehensive outline of the different aspects of the citations including the average, self and unique citations received.

Dutta, B., & Rath, D. S. (2013) had paper reports on a scientometric study of 834 articles on Carbon nanotube research in India spanning over the years 1999 to 2012 downloaded from Web of Science. The study analyses literature growth rates, which shows initiation of potential growth of research in this subject since 2008. It also examines collaborations with different countries, authorship pattern, document types are involved and active Indian institutions co-coordinating research in this subject have been studied. Bradford law of scattering was applied to identify the core journals and Lotka‟s law to study the authors‟ productivity pattern. In the year 2011 have published 206 (24.7%) records out of 834 publications. The maximum of records published the USA with 70 (25.8%) records. Out of 834 publications, journal articles amount to 776 accounting for 93%; It is observed that two-authored and three –authored publications (51%) are higher than the other modes of authorship.

Venkatesan, M., Gopalakrishnan, S., & Gnanasekaran, D. (2013) has presented the study the research productions on climate change were downloaded from 'Web of Science'database. The study covered 94756 records worldwide from 1999 to 2012. The distribution of publications based on the yearly output, country, language and document type of the publications were studied. Relative growth rate and doubling time of the publications was calculated. The majority of the researches have been concentrated in environmental science and ecology, and geology. About 60% of the researches carried out on climate change are sponsored by funding agencies. The highest publications published in the year 2012 with 15952 (16.83%) records. The most records contributed by USA 34551 records with 36.46%. India has got 1649 records with 1.74%. Most of the records published in English 93214 records with 98.373%. 82845 records are published by Article out of 94756 records, with 87.43%. RGR 1999 & 7.77 0.09 to 2012 0.18 & 3.76

Alex, P., & Preedip Balaji, B. (2010) has aimed to map the climate change research output from India in a five-year period 2005-2009. It examines the key factors including a number of works published on the topic of climate change science and the journals publishing this research work and their position in rankings. Climate change research in India is mapped based on papers abstracted in the ISI Science Citation Index (SCI). There are 25,081 publications

published all over the world and Indian subcontinents have published 391 papers, and there are published more than 101scholarly journals. The scope of the paper is limited to studying the growth and dynamics of Indian research output in climate change research of a five year period

Objectives

The following are the important objectives of the study:

- To analysis the year-wise publication of the journal of climate,
- To determine the degree of collaboration,
- To measure the relative growth rate and doubling time,
- To Analysis of co-authorship index,
- To analyze the Year Wise Authorship Pattern
- To analysis the time serious,
- To activity index of India.

METHODOLOGY

Scientometric details about the journal on "Journal of Climate" for data collection are reachable in a web of science database which is published by Thomson Reuters [WOS]. The keyword "Deforestation" for five years during the year 2014 - 2018 to take for the study 2787 records were retrieved in the present study. The collected data analyzes through Histcite, Bibexcel and calculated using Excel to find out the result. VOS viewer is used to generating and visualization of bibliographic networks.

DATA ANALYSIS

Table 1 Year-Wise Publication of Journal of Climate

S.No	Publication Year	Records	Percentage
1	2014	556	19.9%
2	2015	575	20.6%
3	2016	525	18.8%
4	2017	572	20.5%

5	2018	559	20.1%
Total		2787	100%

To analyses the year wise publication of the journal of climate during the period of 2014 to 2018. These are about 2787 total output on climate in the last five years. In the year 2015, the output measured is 575(20.6%); this is the highest records out of 2787 records. In the year 2016, the output measured is 525(18.8%); this is the lowest records out of 2787 records. The study includes the data covered in the web of science database from 2014 to 2018.

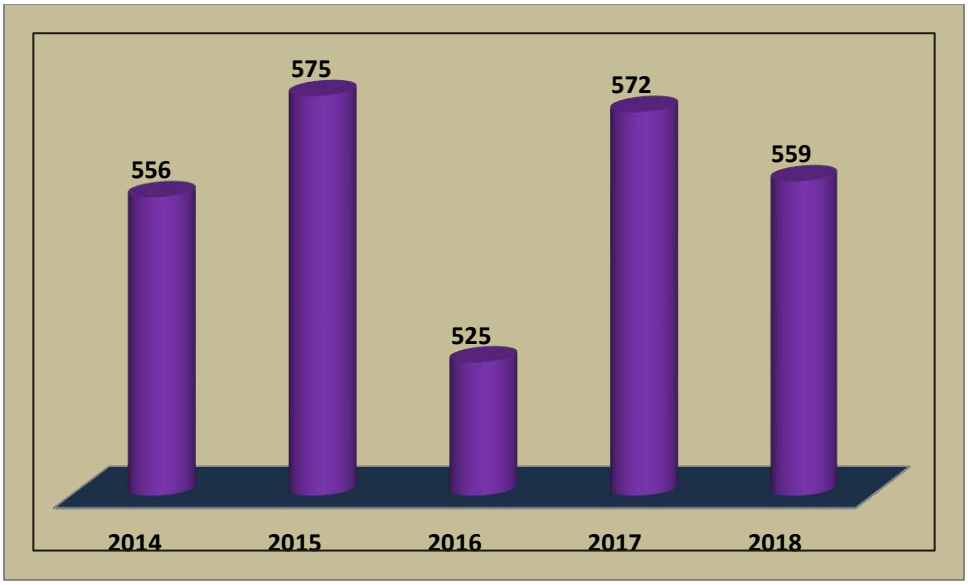


Figure 1 Year-Wise Publication

Table 2 Document Wise Distribution

S.No	Document Type	Records	Percentage
1	Article	2698	96.8%
2	Correction	38	1.4%
3	Editorial Material	26	0.9%
4	Review	22	0.8%

5	Letter	3	0.1%

This table indicates the document wise distribution of journal of climate. There are about 5 items of publications in the study. The Articles observed in 2698(96.8%) records on out of 2787 records. Followed by the form of Correction got the second position among the 5 items. It has shown a 38(1.4%) records of the study period. The other preferred forms followed by the studies are Editorial Material, Review, and Letter the period of study.



Figure 2 Document Wise Distributions

Table 3 Single author Vs Multi-Author

S.No	Authorship Pattern	Publication	Percentage
1.	Single Author	93	03%
2.	Multi-Author	2694	97%
Total		2787	100%

It is observed from the table 3 that the authorship pattern in terms of Single Authors and Multi-Authors during the period of study (2014 to2018). Out of 2787 research outputs, Multi – authors published the majority of 2694(97%) papers and single authors published the rest of 93(03%) journals.

Table 4 Degree of Collaboration

Years	Single Author (NS)	Multiple Author (NM)	Total Authors (NS+NM)	Degree of Collaboration
2014	28	528	556	0.95
2015	19	556	575	0.97
2016	16	509	525	0.97
2017	16	556	572	0.97
2018	14	545	559	0.98
Total	93	2694	2787	0.97

The table shows the details about the degree of collaboration which indicate a trend in single and multiple authors during 2014 – 2018 as shown in a Table. The degree of collaboration ranges from 0.90 to 0.92 and the average degree of collaboration is 0.90. The DC is calculated by using the formula of K.Subramaniyam, 1982:

$$DC = \frac{Nm}{Ns + Nm}$$

DC = Degree of Collaboration

NM = Number of Multi Authors

NS = Number of Single Authors

$$DC = \frac{2694}{93 + 2694} = 0.97$$

In the present study, the value of DC is 0.97.

Table 5 Relative Growth Rate and Doubling Time

Year	No. of publications	Cumulative Total of publications	W1	W2	R(a) W2-W1	Mean R(a)	Doubling Time (Dt)	Mean (Dt)
2014	556	556	6.32	-	-	0.96	-	0.51
2015	575	1131	6.35	7.03	0.68		1.02	
2016	525	1656	6.26	7.41	1.16		0.60	
2017	572	2228	6.35	7.71	1.36		0.51	
2018	559	2787	6.33	7.93	1.60		0.43	

This table shows that Relative growth rate and doubling time. The highest relative growth rate is 1.60 in the year of 2018. And the lowest relative growth rate is 0.68 in the year of 2015. The highest doubling time is 1.02 in the year of 2015 and the lowest doubling time is 0.43 in the year of 2018.

Table 6 Co-Authorship Index

S.No	1		2		3		3+		Total
	NO	CAI	NO	CAI	NO	CAI	NO	CAI	
2014	28	151	134	47	137	55	256	177	**555**
2015	19	99	149	51	139	54	268	179	**575**
2016	16	91	143	54	126	53	240	175	**525**
2017	16	84	145	50	137	53	274	184	**572**
2018	14	75	113	40	128	51	305	209	**560**
	93		1418		1254		727		**2787**

This table shows the co-authorship index during the year of 2014 to 2018. The table shown co-author index for single authors decline from 151 in the year 2014 to 75 in the year 2018, and then the CAI for the two authors is declined from 47 to 40 and three authors is declined started from 55 to 51 and above three authors is declined started from 177 to 209 during the year 2013 to 2017.

Table 7 Year Wise Authorship Pattern

Year	1	2	3	4	5	5+	Total
2014	28	134	137	96	69	91	555
2015	19	149	139	107	68	93	575
2016	16	143	126	99	55	86	525
2017	16	145	137	112	64	98	572
2018	14	113	128	126	72	107	560
Total	93	684	667	540	328	475	2787

It shows that year wise authorship pattern of the research journal of climate. It indicates that out of the 93 contributions to a single author. The two authors highest contributed in the year 2015 is 149 articles and the lowest contributed in the year 2016 is 55 articles. The above 5 authors highest contributed in the year of 2018 the output measured is107 and the lowest contributed is the year of 2016 the output is measured is 86.

Table 8 Authorship Pattern

S.No	Author	Publication	Percentage
1	Single author	93	03%
2	Two author	684	25%
3	Three author	667	24%
4	Four author	540	19%
5	Five author	328	12%

6	Above five author	475	17%
Total		2787	100%

This table shows that Authorship Pattern of the research output on the journal of climate. It indicates that out of 2787 contributions to the single author, two authors, three authors, four authors, five authors and above five authors. Two authors highest is 684(25%). The lowest single author is 93(03%). And followed by three authors, four authors, five authors and above five authors.

Table 9 Time serious analysis

Year	No. of publication	X	X^2	XY
2014	556	**-2**	**4**	**-1112**
2015	575	**-1**	**1**	**-575**
2016	525	**0**	**0**	**0**
2017	572	**1**	**1**	**572**
2018	559	**2**	**4**	**1118**
Total	2787		**10**	**03**

The calculated value of Time Serious Analysis output of Deforestation for the year 2029 is 560.4 and research output for the year 2034 is 3270. With the application of the formula, the Time serious analysis calculated from the results for the year 2029 and 2034, it is found that the Future trend of growth of research output in Deforestation research may take increasing for upcoming years. The expectation from the calculations proved there is positive Growth in the research output of the journal of climate.

Straight line equation:

$Yc= a+bX$

Since $\sum X=0$

a= ∑Y/N= 2787/5 = 557.4

b= $\sum XY/\sum X^2$ = 03/10 = 0.3

Estimated literature in 2028 is when X = 2029 – 2019 =10

= 557.4 + (0.3 x 10) = 560.4

Estimated literature in 2033 is when X = 2034 – 2019 =15

= 557.4 + (0.3 x 15) = 561.9

= 557.4 + (0.3 x 20) = 563.4

Table 10 Activity Index of India

Year	Global output	Indian output	Activity Index
2014	556	03	1.66
2015	575	04	1.28
2016	525	05	0.94
2017	572	07	0.73
2018	559	06	0.84
Total	**2787**	**25**	**100.00**

This table indicates that Activity Index of India journal of climate. The highest global output is 575 and Indian output is 04 the activity index is (1.28%) in the year of 2015. And the lowest global output is 525 and Indian output is 05 the activity index is (0.94%). It shows that the level of climates during the year of 2014 to 2018 in India.

Table 11 Country-wise Distribution

S.No	Country	Records	Percentage
1	USA	1707	61.2
2	Peoples R China	650	23.3
3	UK	308	11.1
4	Australia	182	6.5
5	Japan	164	5.9
6	Germany	150	5.4
7	Canada	137	4.9
8	France	132	4.7
9	South Korea	114	4.1
10	Norway	77	2.8

S.No	Country	Records	Percentage
11	Switzerland	69	2.5
12	Sweden	58	2.1
13	Italy	52	1.9
14	Spain	50	1.8
15	Netherlands	41	1.5
16	Taiwan	35	1.3
17	Saudi Arabia	28	1.0
18	India	25	0.9
19	Brazil	19	0.7
20	Israel	18	0.6

In this table shows that country-wise distribution of publications journal of climate, the total observed in the study is 2787 during the period. The analyses bring out the fact that the considered to be the first and it has given the producing of 1707(61.2%) records of climate and the USA is considered to the most productive country is brought out research. The considered to the most productive country is brought out research. The second rank is country Peoples R China which has brought out 650(23.3%) publications journal of climate. The third rank to the UK. It has produced the 308(11.1%) publications output.

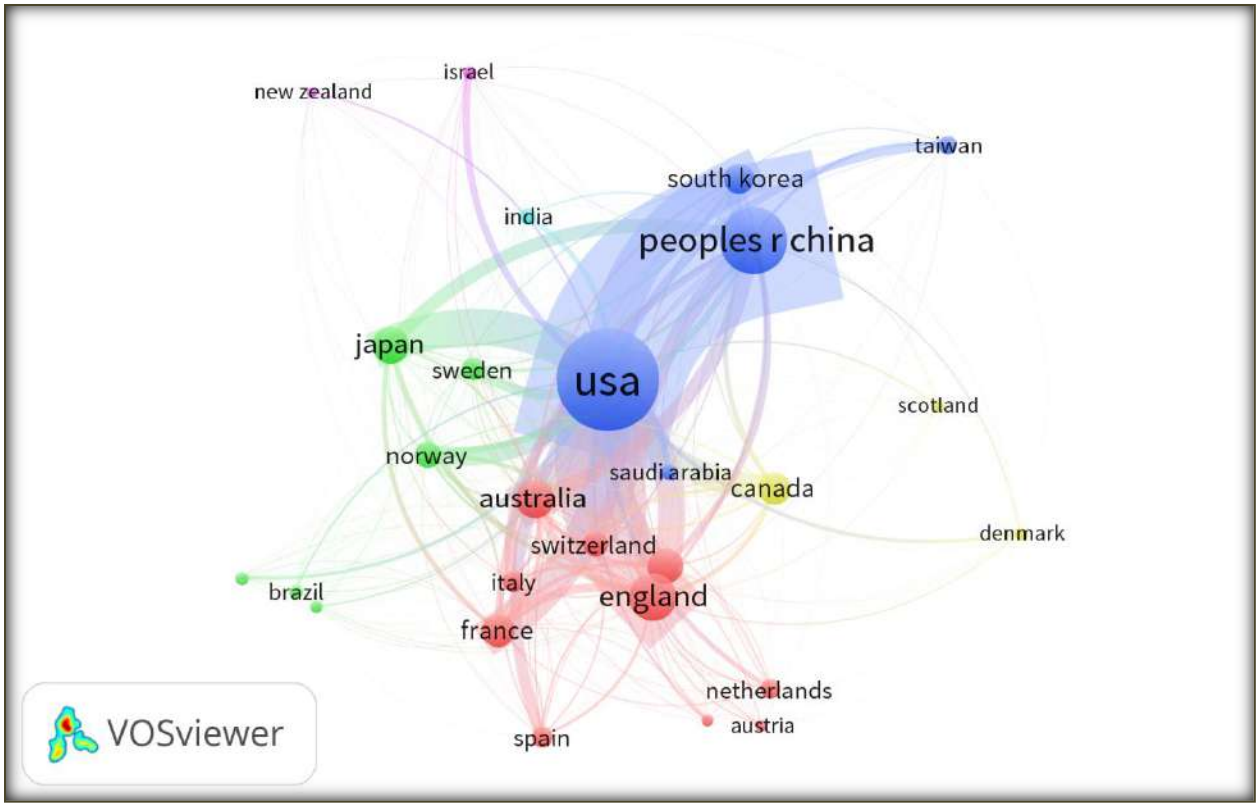


Figure 3 Visualization of citation country

Table 12 keywords wise analysis

S.No	Word	Records	Percentage
1	Climate	522	18.7
2	Variability	381	13.7
3	Tropical	340	12.2
4	Pacific	334	12.0
5	Precipitation	320	11.5

S.No	Word	Records	Percentage
6	North	305	10.9
7	Sea	305	10.9
8	Ocean	299	10.7
9	Model	267	9.6
10	Surface	238	8.5

The keywords wise analysis of the top ten keywords is using respectively. The highest time the climate keyword is using 522(18.7%) out of 2787 records. The second time keyword variability is using 381(13.7%) out of 2787 records the study period of publications. Followed by Tropical, Pacific, Pacific, Precipitation, North and Sea has third, fourth, fifth sixth and seventh position. And remaining words are having below 10 percentages.

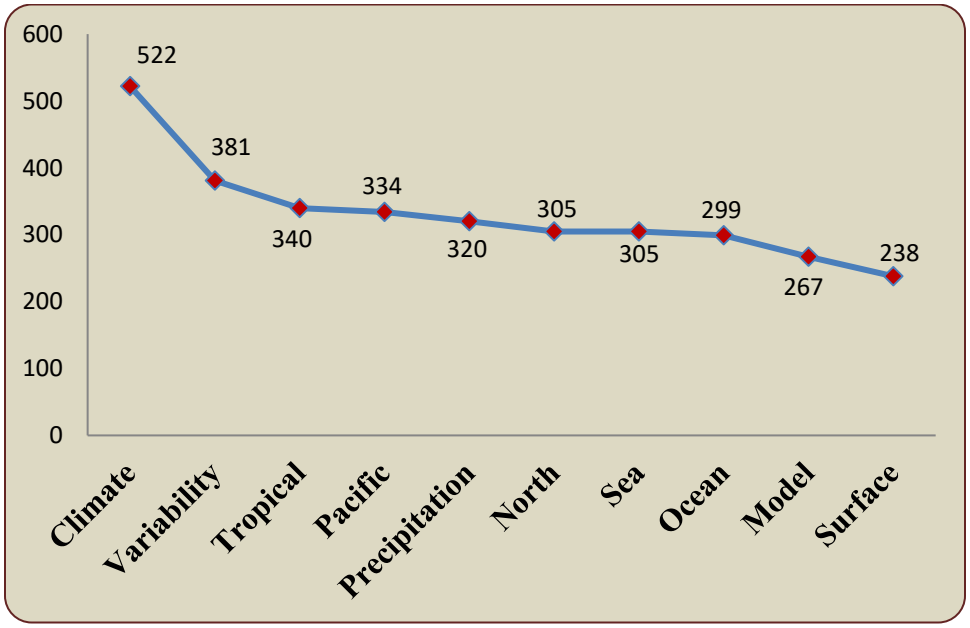


Figure 4 keywords

FINDINGS

- The most number of records published in the year of 2015. In the year of 2015 contains 575 records with an average of 20.6 percentages. The least number of records are published in the year of 2016. In the year of 2016 is containing 525 records with an average of 18.8 percentages.
- An article is a leading source with 96.8 (2698) percent of the total documents. Then Correction, editorial material, Review and letter are following second, third, fourth and fifth position (1.4%, 0.9%, 0.8%, and 0.1%).
- The normal DC rate is 0.95 to 0.98. The average degree of collaboration rate is 0.97.
- The Relative Growth Rate is increased the year (2015) to year (2018). A mean growth rate is 0.96. Doubling time is decreasing in a year to year. In the year 2015, a DT is 1.02 but in the year of 2018, a DT is 0.43. A mean Doubling time is 0.51.
- The multiple authors publishing 2694 records with an average of 97 percentages, but the single author only contributed to 93 works with an average of 3 percentages.
- The word "CLIMATE" is the most used keywords with 522 records.
- The calculated value of Time Serious Analysis output of “Journal of Climate” for the year 2029 is 560.4 and research output for the year 2034 is 561.9. It is found that the Future trend of growth of research output in “Journal of Climate” research may take increasing for upcoming years.

Conclusion

This research has highlighted quantitatively the research output on “Journal of Climate” during the years 2014-2018 found the total 2787 articles, as available in Web of Science database. As per countries distribution, USA contributed 1707 article (Rank 1), China 650 articles (Rank 2), UK 308 (Rank 3), etc. This study reveals that the categories of article distributions are remarkable in this research journal. The majority of the articles were contributed by joint authors. It is registered that Climate, Variability, and Tropical are the most proliferate keywords and contributed 522 articles, 381 articles, and 340 articles.

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USE AND IMPACT OF E-RESOURCES AMONG THE FACULTY MEMBERS AND STUDENTS AT SALEM COLLEGE OF ENGINEERING AND TECHNOLOGY FOR WOMEN, SALEM, TAMILNADU, INDIA: A STUDY

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USE AND IMPACT OF E-RESOURCES AMONG THE FACULTY MEMBERS AND STUDENTS AT SALEM COLLEGE OF ENGINEERING AND TECHNOLOGY FOR WOMEN, SALEM, TAMILNADU, INDIA: A STUDY

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Abstract

This study aims at analyzing the use and impact of e-resources among the faculty members and students at Salem college of engineering and Technology for women, in Salem. A sample of 100 questionnaires was distributed to the faculty members on first come first get basis. In the same way, 150 questionnaires were given to the students was selected by random sampling method. The well structured questionnaire was distributed among the faculty and student to collect data on the availability of use of e-resources. The findings of the study (41 %) faculty members use Internet twice a week and (13%) faculty members browse Internet daily. (37%) student respondents surf Internet once a week, just (13%) student respondents use Internet once a month. around (50 %) of the respondents use Internet at least once a week.(39 %) of faculty members and (48 %) of students are highly satisfied with the availability and use of e-resources in the college library. While (50 %) of the faculties and (28%) of the students are satisfied, (11%) of the faculty members and (24 %) of the students are not satisfied with the availability and use of e-resources in the college library. Thus, majority of the faculty members and students are happy with the e-resources available in the college library.

Keyword: E-resources, Features of E-resources, Internet services and Electronic resources, Benefits of Internet, Types of E-resources.

Introduction

Today world is changing quickly, all professional are ready to know more information about his areas in a minimum time. All the professionals need to do many things in these 24 hours only. With the changing in each field, the change in the field of libraries is very admirable. User approach to the library but don't have much time to search for article manually therefore this problem was also short out by the application of electronic technologies in libraries.

Applications of information communication technology in library have provided enough opportunities for e-resources development and disseminate.

The initiation of Information technology gave possibility of production of information resources in different non-print formats. These are commonly called electronic resources or e-Resources. They include equal information as their publish counterparts but the information is in electronic format or digital format. They can be access and repossession of information stored in them is possible with the use of computers or electronic devices. Some of the common e-Resources are electronic journals; electronic databases; e-Books, etc. Due to more than a few features of these e-Resources such as timeliness; search facilities; readily updated, remote access, etc changed the view of librarian, students and scholars in using e-resources. E-resources are gaining preference over print media. The significance of e-resources becomes more indispensable after the arrival of Internet for the common man.

What are E-resources?

The documents that are in electronic form are saved to be electronic resources. The lineup electronic resource came into usage in late 1980's when first electronic journal came into origin. It was then it was e-mailed to the subscriber and was made available through FTP and strictly in plain- text format. These e-resources include books journals, periodicals, newspaper, manuals, etc in the hyper text format. The improvement of e-resources happened to enhance the print version with access and presentation of them. They contain and organize many forms of interactive media. Including text, still photographs, drawings, animation, audio-video materials, multi-media etc. Electronic documents are all thus documented that are in electronic or digital media and are also known as electronic resource.

The e-resource is equally or better than the original without any loss of quality, thus quality sometime also leads to problem of authenticity. These papers can be distributed over the Internet, leading to access and use at anytime, from anywhere and also from any number of users at the same time.

Definition of E-resources

Electronic resources are those materials accessible in electronic format. These can be also an electronic version of publication that first appeared in slandered paper format or a document that is wholly composed for, and distributed only with, an electronic environment. These

resources may be available in the intranet or internet. Electronic resources consist of materials that are computer-controlled, including materials that require the use of a peripheral attached to a computer; the items many or may not be used in the interactive mode.

In attendance are two types of resources: data (information in the form of numbers, letters, graphics, image, and sound or a combination there of) and programs (instructions or-routines for performing certain tasks including the processing of data). Additionally, they may be combined to include electronic data and programs (e.g. online services, interactive multimedia)

- E-resources can be defined to include resources that are available via Web browsers, FTP, gopher, telnet, mailing list, e-mail or other network tools or protocols (Zhang, 2001).
- "Proposition consisting of in sequence with computer program(s) determined for interpretation and exploitation by a computer, by the use of a nonessential device directly connected to the computer, such as a CD-ROM drive, or distantly via a system, such as the Internet (AACR2). The faction includes software applications, electronic texts, bibliographic databases, institutional repositories, Web sites, e-books, collections of e-journals, etc. Electronic resources not in public available free of charge usually require licensing and authentication" (Reitz, 2005).

Features of E-resources

E-Collections are extremely useful to all institutions and individuals to get instant, relevant, comprehensive information at doorsteps. Keeping these factors in view, largely organizations are concentrating to build e-collections for their use. Various of the most important features of e-collections are listed below:

- Globalized reach
- Users can use the same e-resources @the same time@ any place
- Easily copied, stored and disseminated
- Easy to revise, manipulate and merge
- Less bulky than paper
- Speedy delivery
- Add value to services
- The e-collections save user's time

- Generate satisfaction among the users

Comparative Feature of E-resources V/S Traditional Resources

Electronic resources have different characteristic which separate them from traditional resource. Electrics on the Internet are further distinct by nature of the information on the net itself. Just with an effective system for managing all process related to electronic resource can libraries increase the level of service provided to patrons and decrease effort for library staff.

Traditional Resources	**E-resources**
Continuous presentation	Structural presentation
correspond to in secondary information service	No pointer in continuous presentation
Well co-ordinate	Not Well co-ordinate
acquiescent to information processing tools	Varied nature makes it difficult for information processing
More permanent	Volatile
Regularly textual and static image	Contain multimedia component and interactive presentation
Time log between and static image	Time log minimum
Traditional resource	Web Based Electronic resources

Internet services and Electronic resources

Internet is very powerful and is capable of offering services in both audio and visual formats, and of giving access to information from anywhere in the world at a rapid speed. The content on the Web is not only huge but also very heterogeneous.

Following are some of the services that can be provided through Internet:

- E-mail
- Bulletin boards and mailing lists
- Chat lines
- Video conferencing
- Electronic Current Awareness Services
- Online Public Access Catalogue (OPAC)
- Internet Library Loan Service (ILLS)

Benefits of Internet

- The interface is easy to use; it encompasses access to multimedia formats such as text, video, sound and graphical images.
- They provide improved access in a number of respects
- Document may be shared across all major networking platforms.
- Information is accessible regardless of the user's location.
- Workstation configured for use an Internet is also ready for Internet use if the necessary gateways are incorporated in to the network.
- User authentication system can be incorporated into browsers, so that access to information can be controlled.

Various Types of E-resources

Since we include seen to facilitate e-resources are very powerful, dynamic and essential to any organizations. Basically, we find e-resource of various types in which major are as follow:

- E-Journals
- E-Books
- E-Groups
- E-Lists
- Web ring
- Library Network
- Databases
- CD-ROM

Significance of E-resources in Libraries

These days, collection of library is not confined to substantial boundaries that require the user to visit the library. In print collections enclose become more expensive and not easily accessible to the users due to lack of time. The scientific encroachments have led to incredible changes in the process of information. In IT instance, no library can encounter the requirements of users with printed sources of information. Nowadays collections use the information as a primary source of information. The internet can be used for competent reclamation and meeting information needs. E-resources are now considered as being of great importance to all types of libraries and they are reducing a large share of library budgets. They are used in abundance. These resources have solved the problem of space.

Intellectual libraries play important role in supporting research in all subjects. Ahmad and Fatima stated that accessibility of online resources have distorted the way the services academic libraries now present to their users. It has infected the traditional practices of libraries in delivery of information to the users. Currently users can have access to a variety of information and scholarly journals online.

Review of literature

Weingart and Anderson (2000) measured the awareness of the faculty and administrators towards the electronic resources at the University of Utah. The findings showed greater need for publicity and training. The questionnaire was distributed to all faculty and administrators (856 individuals). The return rate was 49.8%. The survey contained a list of 55 databases available to the faculty and administrators. For each one database, each respondent was asked to check whether he/she was aware of the existence of the database. For each database the respondent used, he was asked to rank its ease of use. Only 54% accessed the databases remotely, the rest of the respondents accessed them from the library.

Hewitson (2002) explored the result of an investigation into the awareness and extent to which the university's academic staff use and assimilate Electronic Information Services (EISs) into their work. the research was conducted using two methods: a quantitative study involving a questionnaire mailed to a random stratified sample of 200 university staff and a qualitative study, which addressed four specific areas" the individuality of the respondents (age, gender, faculty); the perceived level of the information technology (IT) literacy of staff; the frequency of use by academic staff; the extent to which academic staff incorporate the use of EISs into students; educational license; and what the university can do to support staff better in their use of EISs.

Bonthron, Urquhart and Thomas (2003) examined the corrective differences in the use of electronic journals by academic staff and students and regard as whether library services need to differentiate between staff and students when planning maintain services for electronic journals. Findings from two research project are collected. Comprehensively study of academic staff at one UK institution, and the other a cross-sectional, longitudinal sector study (focusing more on student usage). Interview was conducted with 35 staff (in-depth study) and over 500 students (cross sectional survey).Consequences indicated that academic staff incorporates electronic journals usage into their working patterns in different ways than students and that

these differences may affect attitudes towards support services (library web pages, virtual knowledge environments) designed to promote electronic journal usage.

Sujathan and Mudhol (2008) examined the "Use of Electronic Information Sources (EIS) by the teachers/scientists, research scholars and postgraduate students in the college of fisheries, Mangalore". The objective of the study to identify the constraints faced by the respondents while using the EIS and the access the satisfaction level of the users with access to EIS in their institution. The questionnaire was administered using a simple random sampling technique. It is observed that majority of the respondents have rich experience in the use EIS, where (71.5%) have more than three years of experience. E-mail is the most frequently used e-information source followed by web sources. Among the various fisheries information source in electronic format, subject specific information websites (79%) international/regional institution websites (75.3%), e-journals (65.5%), (CD-ROM) bibliographic database (60.5%), research project sites (56.8%) and professional association websites (54.3%) are found to be used by the majority of the respondents.

Ibrahim (2008) reported findings from a survey conducted to measure the use and sensitivity of the United Arab Emirates University (UAEU) faculty members on electronic resources. Questionnaires were sent to a sample of 140 faculty members. Responses were received from 125 (89%) faculty members. study confirmed frequency of use of electronic resources was low. reason cited were lack of time because of the time needed to focus on teaching; lack of awareness to electronic resources provided by the library; unproductive communication channels and language barrier.

Chetan Sharma (2009) highlighted the preferences and significance of online resources among the teachers and research scholars. The main objective of this study is to investigate dependency of the teachers and research scholars on e-resources, the supposed impact of the e-resources on their academic efficiency and problems faced by them while using the e-resources. 67.64% of research scholars of faculty of science and 69.23% of research scholars of engineering use e-journals for research work whereas 35.29% of sciences use e-journals to update knowledge and 23.70% of engineering use these for study. Speed of availability and the ease of convenience of information cause the users to use electronic resources more frequently 49% of respondents are marginally satisfied with online services provided by the library.

Ansari and Zuberi (2010) examined the use of electronic resources and services at University of Karachi. Majority of the study population in the university (97.1%) were able to use computers autonomously. The research results have shown that majority of academic populations studies indicate a high level of satisfaction with the appearance and use of electronic resources. Findings of the University of Karachi have indicated that the academicians are satisfied with accessible electronic resources. More than three-fifths (65.7%) of the study population are quite satisfied and 31.4% are unsatisfied. This shows that nearly all are quite satisfied.

Akhtar (2010) examined the use of electronic information resources and service (EIRS) among the teachers and students of Sir Chotu Ram Institute of Engineering and Technology, Meerut (UP) India. 120 questionnaires were randomly distributed to the users (50 teachers and 70 students). A total of 100 questionnaires were returned (40 teachers and 60 students) and used for this study. Majority of users, that is, 20(50%) of the teachers and 30(50%) of the students use EIRS for study. More than 60% of users in the Engineering and Technology library are using e-journals as well as e-articles. The majority of users (45%) link through publisher websites, popular search engines and subject web pages. The information display on the computer screen and printed form of paper is found to be the most preferred forms for reading articles.

Sarada (2010) highlighted the various problems and issues involved in handling digital library and have given suggestions to improve the library services to meet the pressure of the users. The majority of the respondents (69.4%) use Internet mainly for educational purposes. Comparatively less number of respondents (34.7%) use Internet for entertainment or personal purposes. The majority of the respondents used Internet for consulting technical reports 54.3(%), e-books 42.3 (%) and e-journals 38.5 (%).The most common problems faced by the majority of the respondents while surfing Internet were slow Internet connection delaying in retrieving relevant information 69.4 (%) and difficulty in finding the relevant information 21.3 (%) The majority 70 (%) of respondents felt that the Internet is more useful, favorite, informative, easy-to-use, and less expensive information source that help them in saving their time.

Thanuskodi (2012) aimed at finding the use of e-resources by the post graduate students and research scholars of Faculty of arts in the Annamalai University. A survey was distributed among the Research scholars and Post-Graduate Students to collect desired data. A total of 200

questionnaires were distributed to the selected sample of Faculty of arts; 180 valid samples were collected. The study found that the majority of users are aware about the availability of e-resources. The result reveals that 47.78 % of respondents want to access only electronic version whereas only 32.78% users want to read the printed journals but 19.44% respondents want to use both electronic and printed version. Majority of the respondents (76.66%) use e-resources for writing papers.

Ramasamy,Padma & Helan Ranjitham (2018) The present study is undertaken to investigate the use of legal information sources and services by the undergraduate students of Government Law College, Coimbatore, Tamilnadu State, India. It is a descriptive research study which employed questionnaires to collect data from 200 students who are pursing III, IV and V year of undergraduate law courses. The findings of the study reveal that: A majority of 83 students need human rights information and 78 students need academic information. A majority of 62 (93.94%) students know and use textbooks, 50 (75.76%) know and use law books and 49 (74.24%) know and make use of Bye-Laws. Updates of court rules (33, 41.25%) and Statutes (25, 30.12%) are the sources which are not known to most number of IV year students. majority of them are aware of Internet and legal databases and they make use of such resources. The website of Supreme Court of India is widely known and used among them. A majority of them browse internet, read books/journals, ask faculty members and use mass media to access legal information. Reading books/journals, cyber café, trial and error method and instruction from library staff are the methods used by most of the students to learn to use legal information resources. More than 80% of them know and use JUDIS. Inadequate number of journals, non-availability of latest journals, difficulty in finding relevant information and erratic power supply are the major problems faced by the male students in accessing library resources. A majority of the students want the library to conduct demos of online legal sources by external experts, expect the library to provide more electronic resources and online legal databases and want the library to provide index to law reports and more current legal materials.

Objectives of the Study

- To provide gender-wise distribution of the respondents
- To list the department- wise of the respondents
- To identify the frequency of internet use by the respondents
- To provide purpose of using Internet of the respondents

- To identify the e-resources access by the respondents
- To know the varieties of E-resources used by the respondents.
- To identify the e-resources use by the respondents
- To list the impact of e-resources distribution of respondents
- To rate the level of satisfaction of the respondents on e-resources.

Research methods

(i) Research Type

The study undertaken by the researcher belongs to descriptive research study. The researcher has used sampling method in his survey study.

(ii) Nature of the Data

The data collected are primary and secondary in nature.

(iii) Sampling Frame

100 faculty members and 150 students constitute the sampling frame of the study.

(iv) Sampling technique

The sampling techniques adopted are stratified random sampling.

(v) Tool for Data Collection

Questionnaire is the tool used by the researcher for collecting required data for the investigation.

(vii) Method of data collection

The questionnaires were distributed to the faculty and student on their visit to the library. 100 questionnaires were distributed to the faculty members on first come first get basis. In the same way, 150 questionnaires were given to the students on the same principle. Out of 250 questionnaires distributed to the respondents, the researcher was able to get back only 190 duly filled-in questionnaires, i.e. 70 from faculty members and 120 from students.

The secondary data required for the study was collected from various sources of information like books, national and international journals, projects, magazines, theses and dissertations etc.

Analysis of Data

1. GENDER-WISE DISTRIBUTION OF RESPONDENTS

Table 1: Gender-wise distribution of respondents

S.No.	Gender	Faculty		Student	
		No.	%	No.	%
01	Male	34	49	-	-
02	Female	36	51	120	100
Total		**70**	**100**	**120**	**100**

Interpretation:

Table 1 shows the gender-wise distribution of respondents. Out of 70 faculty members, 34(49 %) are male and 36 (51%) are female. Of course, all the students are female engineering students.

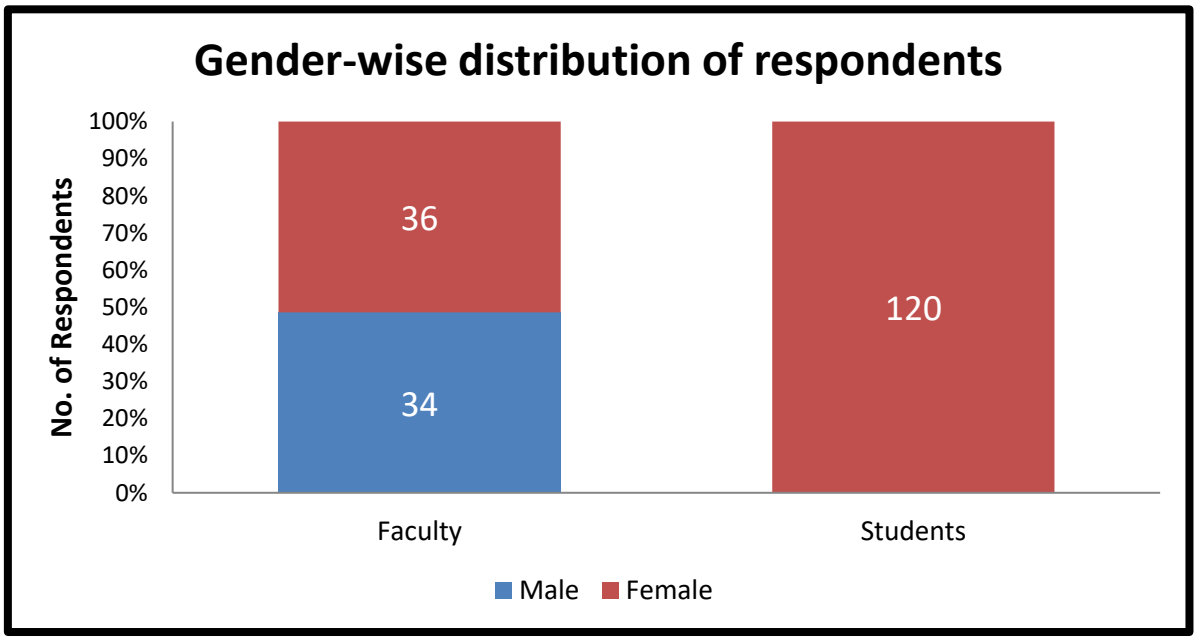


Figure 1: Gender-wise distribution of respondents

2. DEPARTMENT- WISE DISTRIBUTION OF RESPONDENTS

Table 2: Department- wise distribution of respondents

S.No	Department	Faculty		Student	
		No.	%	No.	%
01	CSE/IT	30	43	31	26
02	ECE	8	11	18	15
03	EEE	9	13	25	21
04	Mechanical	5	7	26	22
05	Civil	9	13	12	10
06	Others	9	13	08	6
Total		**70**	**100**	**120**	**100**

Interpretation:

It is inferred from Table 2 that a majority of 30 (43 %) faculty members are from the Dept. of CSE/IT and the least number of 5 (7 %) faculties are from the Dept. of Mechanical Engineering. In respect of students, the maximum number of 31 (26 %) are from the Dept. of CSE/IT and 26 (22 %) are from the Dept. of Mechanical Engineering and the minimum number of 12 (10%) students are from the Dept. of Civil Engineering.

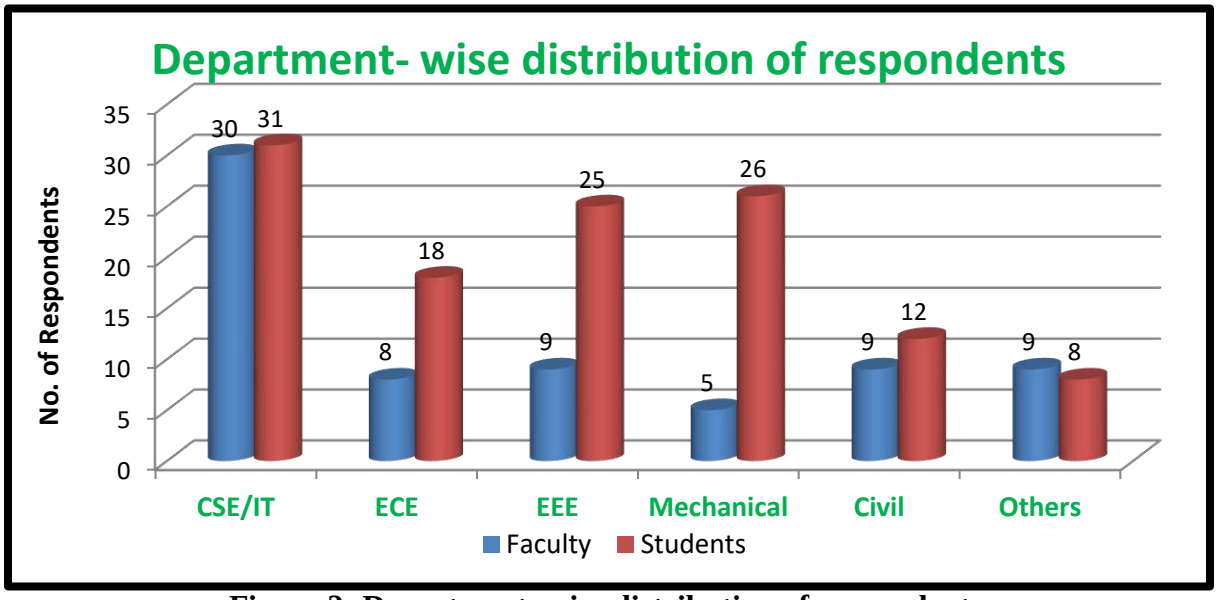


Figure 2: Department- wise distribution of respondents

3. FREQUENCY OF INTERNET USE

Table 3: Frequency of internet use

S. No.	Internet use	Faculty		Student	
		No.	%	No.	%
01	Daily	09	13	38	32
02	Twice a Week	29	41	22	18
03	Once a Week	13	19	44	37
04	Monthly	19	27	16	13
Total		**70**	**100**	**120**	**100**

Interpretation:

Table 3 makes it clear that 29 (41 %) faculty members use Internet twice a week and 9 (13%) faculty members browse Internet daily. 44 (37%) student respondents surf Internet once a week, just 16 (13%) student respondents use Internet once a month. Around 50 % of the respondents use Internet at least once a week.

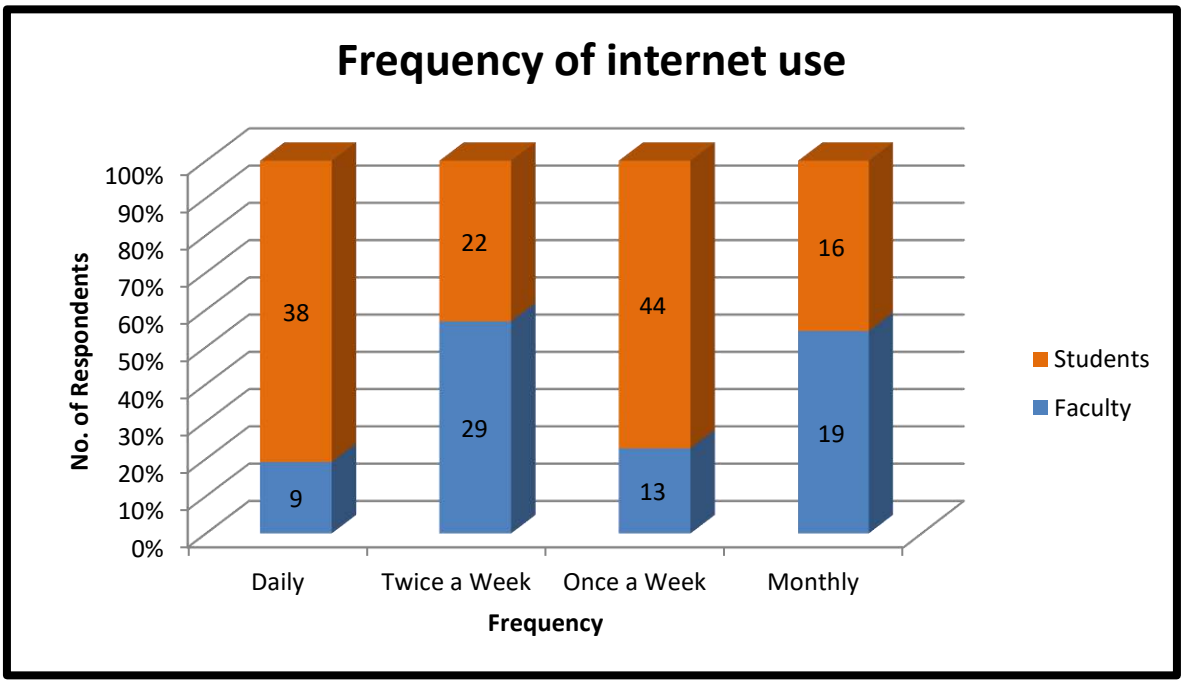


Figure 3: Frequency of internet use

4. PURPOSE OF USING INTERNET

Table 4: Purpose of using Internet

S. No.	Purpose	Faculty		Student	
		No.	%	No.	%
01	Academic	19	27	75	62
02	Personal	27	39	36	30
03	Official work	24	34	9	8
Total		**70**	**100**	**120**	**100**

Interpretation:

It is depicted in Table 4 that 19 (27%) faculty members and 75 (62%) of the students use Internet for their academic purposes. While 27 (39%) of the faculty members and 36 (30%) students use internet for their personal works, 24 (34 %) of the faculty members and 9 (8%) students browse Internet for their official work. Thus, majority of the faculty members use Internet for their personal works and the majority of the students use it for their academic works.

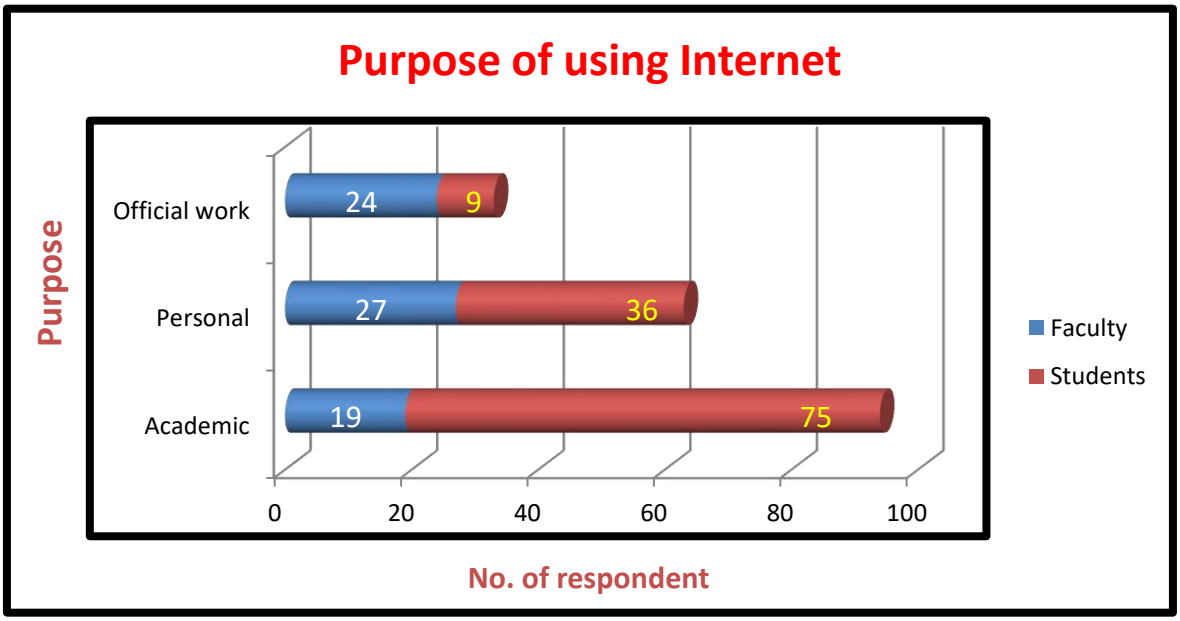


Figure: 4 Purpose of using Internet

5. E-RESOURCES ACCESS POINTS

Table 5: E-resources Access Points

S. No.	E-resources Access Points	Faculty		Student	
		No.	%	No.	%
01	Home	13	19	41	34
02	College Campus	6	9	10	8
03	Computer centre	10	14	29	24
04	Internet café	11	16	4	3
05	Department	7	10	12	10
06	Library	14	20	10	8
07	Hostel	9	12	14	13
Total		**70**	**100**	**120**	**100**

Interpretation:

It is inferred from Table 5 that 20 % (14) of the faculties and 8 % (10) of the students access e-resources in the college library. While home is the e-resource access point for 19 % (13) of the faculty members and 34 %(41) of the students, computer center is the place for accessing e-resources for 14 % (10) of the faculties and 24 % (29) of the students. The least used access point of e-resources is college campus for faculty members (9%) and internet café for the students (3 %).

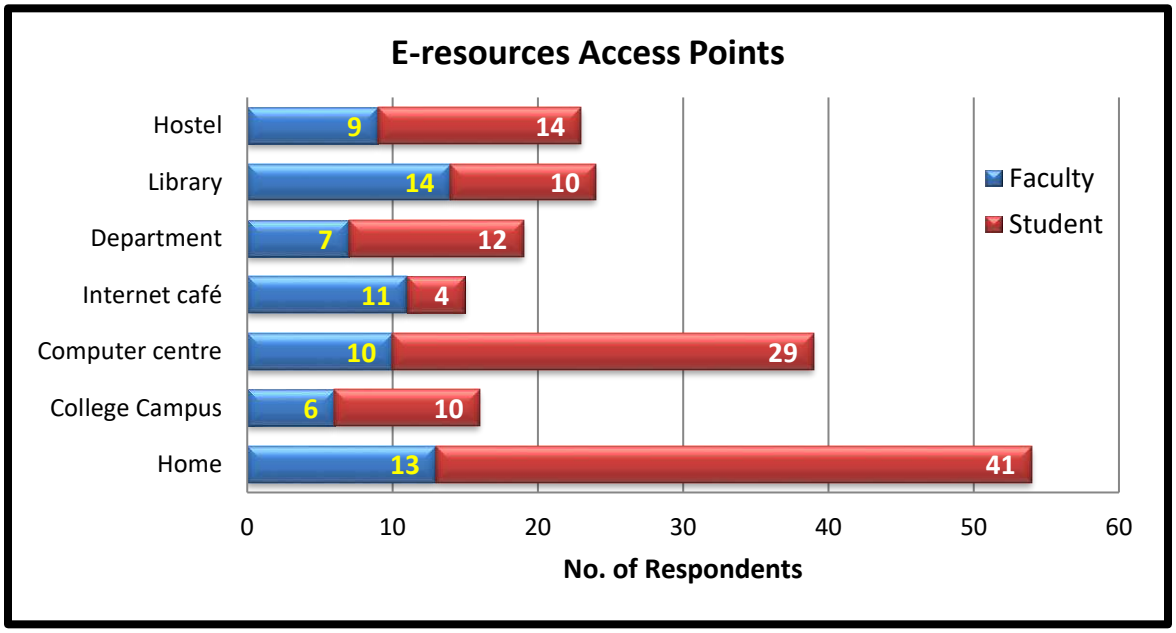


Figure 5: E-resources Access Points

6. E-RESOURCES USED

Table 6: E-resources used

S. No.	Various of E- resources	Faculty		Student	
		No.	%	No.	%
01	E-Journals	7	10	32	28
02	E-Data archives	6	9	27	23
03	E-Manuscripts	11	16	17	14
04	E-Maps	8	11	17	14
05	E-Books	9	13	9	7
06	E-Magazines	7	10	8	6
07	E-Thesis	7	10	5	4
08	E-Newspaper	3	4	1	1
09	E-Mail	10	14	3	2
10	E-Research Report	2	3	1	1
Total		70	100	120	100

Interpretation:

It is understood from Table 6 that E-manuscripts is the most used e-resource among the faculty members (16%) followed by E-mail used among 14 % (10) of the faculty members. Just 2 faculty members use e-research reports and 3 faculties use e-newspapers. With regard to the type of e-resources used by the students, 28 % (32) of the students use E-journals and 23 % (27) of them use E-data archives. While 14 % (17) of students use e-manuscripts and e-maps, just 1 student uses e-newspapers and e-research reports.

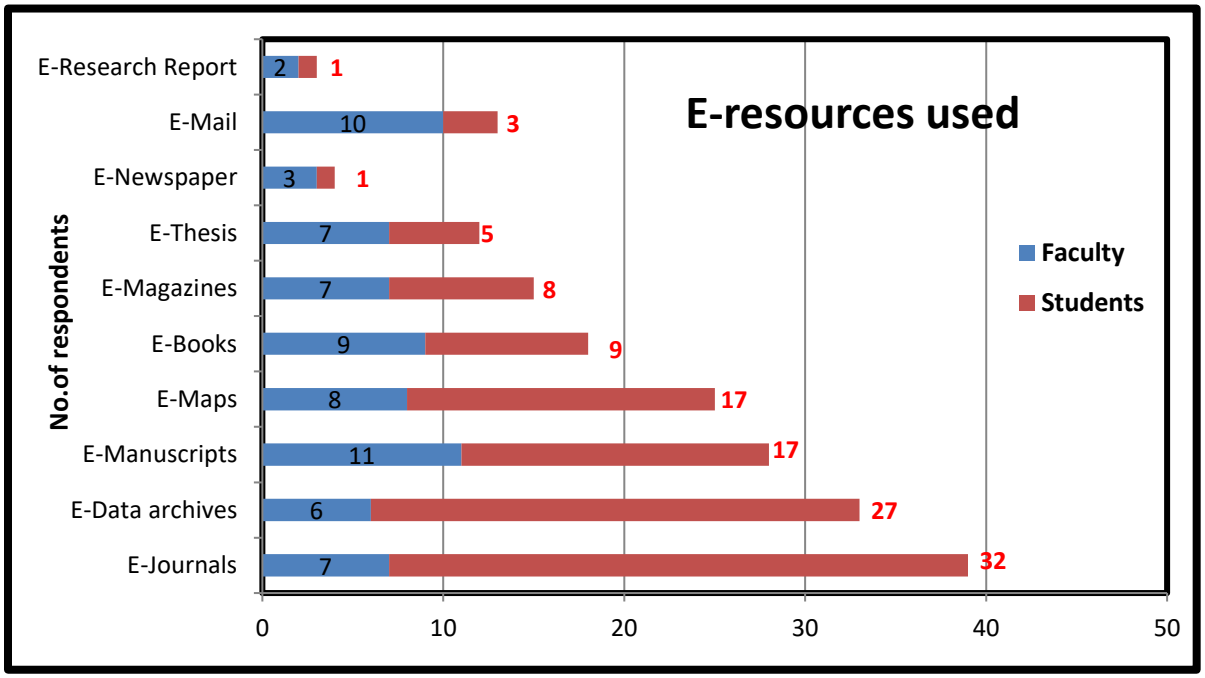


Figure 6: E-resources used

7. SOURCE OF INFORMATION ABOUT E-RESOURCES

Table 7: Source of information about e-resources

S. No.	Source of information about e-resources	Faculty		Student	
		No.	%	No.	%
01	Library webpage	7	10	15	12
02	Library Notice Board	10	14	14	11
03	Interaction with peers	9	13	13	11
04	Browsing internet	13	19	8	7
05	Librarian's guidance	11	16	27	22
06	Printed journals	12	17	11	9
07	Workshop/Seminars	8	11	32	27
Total		**70**	**100**	**120**	**100**

Interpretation:

Table 7 demonstrates that 19 % (13) of faculty members come to know about e-resources by browsing Internet and 17 % (12) of faculty members use printed journals to get the same information. While 11 % (8) of faculty members learn about e-resources in workshops and conferences, just 10 % (7) of them know it from library webpages. When it comes to student respondents, 27 % (32) of them know about e-resources through workshops and conferences, 22 % (27) of them know about them from the guidance of librarian. Just 7 % (8) of the students know about e-resources by browsing Internet. The librarian's guidance deserves applause.

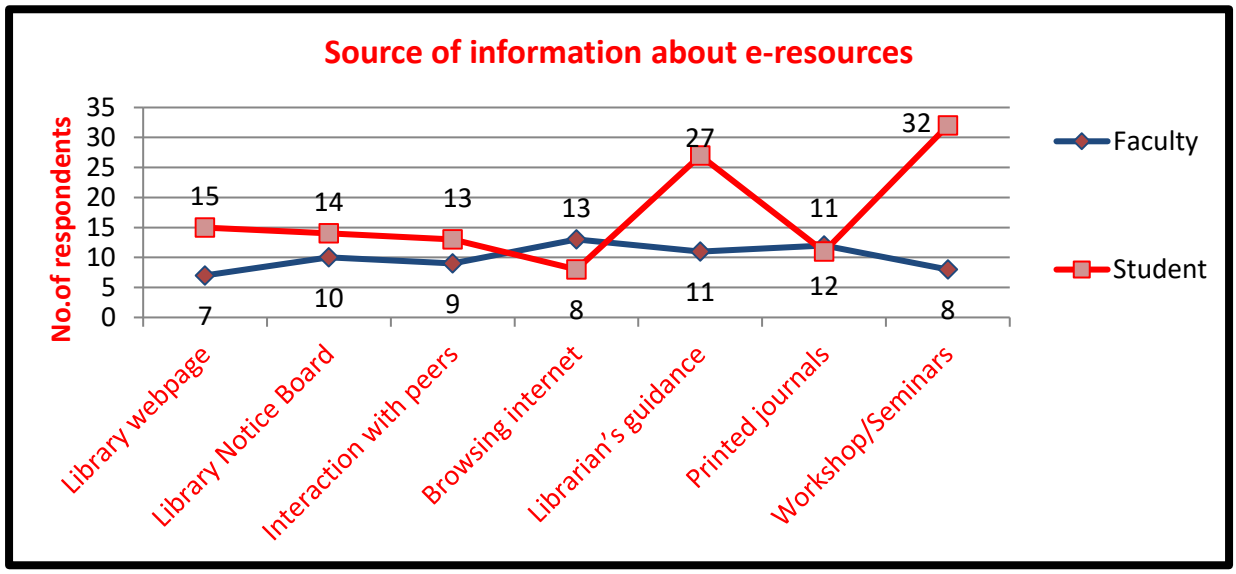


Figure 7: Source of information about e-resources

8. IMPACT OF E-RESOURCES ON TEACHING / LEARNING

Table 8: Impact of e-resources on Teaching / Learning

S. No.	Impact of e-resources on Teaching / Learning	Faculty		Student	
		No.	%	No.	%
01	Minimal	9	13	28	23
02	Moderate	32	46	32	27
03	Extensive	19	27	48	40
04	No Impact	10	14	12	10
Total		**70**	**100**	**120**	**100**

Interpretation:

It is clear cut in Table 8 that the impact of e-resources on teaching process is moderate for 46 % (32) of the faculty members and extensive for 27 % (19) of the faculty members. Only 14 % (10) of them felt that there is not impact of e-resources on their teaching. While 40 % (48) of the students opined that the impact of e-resources on their learning is extensive, 27 % (32) of them felt it to be moderate. Only 10 % (12) of the students shared that e-resources do not have any impact on their learning. .

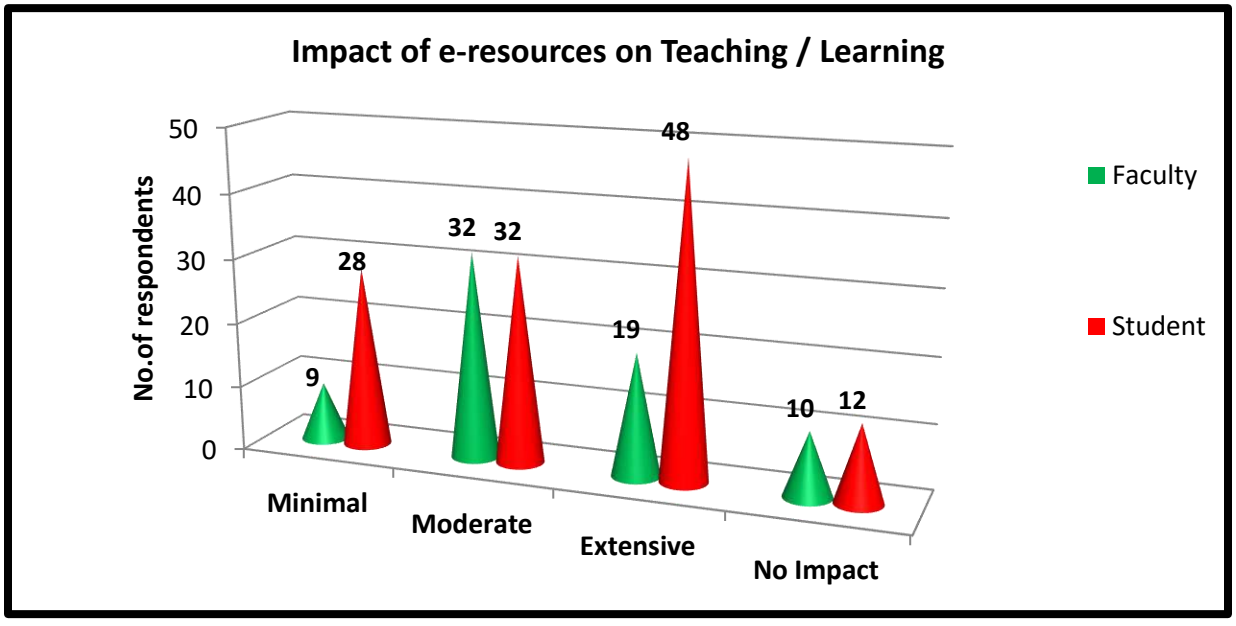


Figure 8: Impact of e-resources on Teaching / Learning

9. LEVELS OF SATISFACTION OF AVAILABILITY AND USE OF E-RESOURCES

Table 9: Level of Satisfaction of availability and use of E-Resources

S. No.	Satisfaction Level	Faculty		Student	
		No.	%	No.	%
01	Highly Satisfied	27	39	58	48
02	Satisfied	35	50	34	28
03	Not Satisfied	8	11	28	24
Total		**70**	**100**	**120**	**100**

Interpretation:

It is made transparent in Table 9 that 39 % (27) of faculty members and 48 % (58) of students are highly satisfied with the availability and use of e-resources in the college library. While 50 % (35) of the faculties and 28 % (34) of the students are satisfied, 11 % (8) of the faculty members and 24 % (28) of the students are not satisfied with the availability and use of e-resources in the college library. Thus, majority of the faculty members and students are happy with the e-resources available in the college library.

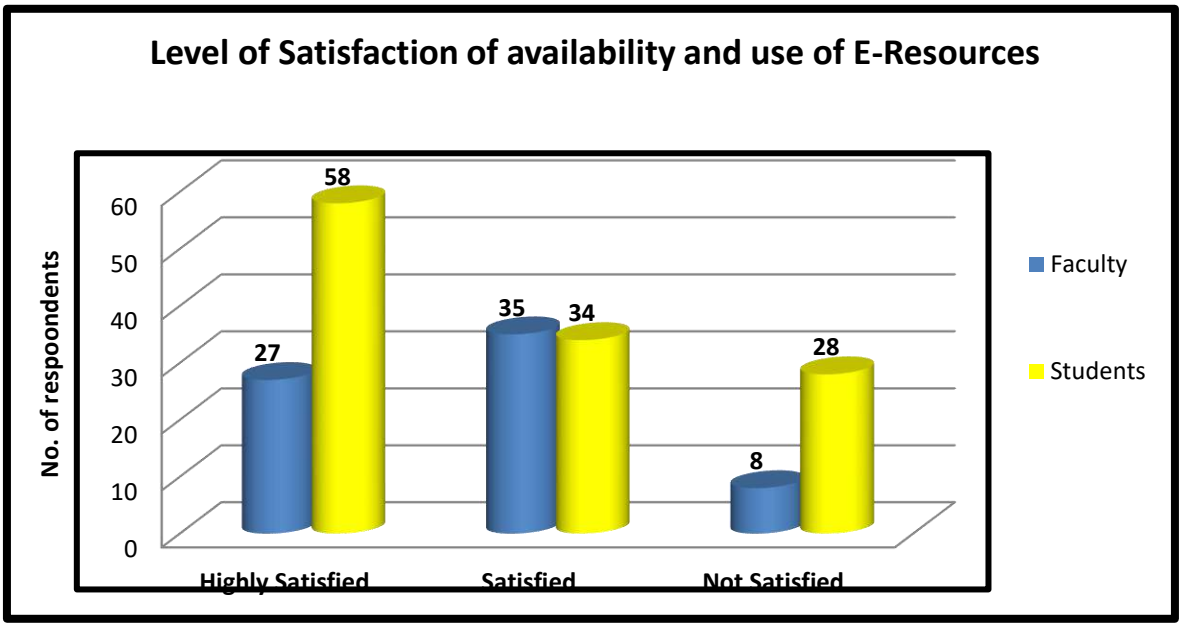


Figure 9: Level of Satisfaction of availability and use of E-Resources

Findings

- Most of the respondents are (51%) female faculty members.
- Majority of the Department- wise respondents are (43%) faculty members and (26%) student from the Dept. of CSE/IT
- Majority of the (41 %) faculty members use Internet twice a week and (37%) student use for the once week.
- Majority of the (39%) faculty members use internet for their personal work and (62%) of the students use Internet for their academic purposes.
- Majority of the respondents are (20 %) of the faculties access e-resources in the college library and (34 %) of the students respondents are access e-resources in the home.
- Most of the respondents are E-manuscripts are the most used e-resource among the faculty members (16%) and followed the students use E-journals (28 %).
- Majority of the respondents are (19 %) the faculty members about e-resources by browsing internet and student respondents are (22 %) the guidance of librarian.
- Majority of the respondents are (46 %) the faculty members teaching process is moderate and the students respondents are (40 %) the learning is extensive.
- Most of the respondents are (50 %) the faculties are satisfied and (48 %) of students are highly satisfied.

Suggestions

a. Faculty members

- Since the experience of faculty members are in different span, resources at part with their level of expectations need to be made available in the library.
- The faculty members may be given an orientation on the use of advanced search strategies and search options.
- The faculty members may be sent to some workshops / seminars / locally conducted classes to make them familiar with latest ICT tools and techniques.
- Sessions on the availability and use of e-resources should be held in the faculty improvement programmes.
- The faculty members may be motivated to use e-resources like e-theses, e-books and e-journals which are highly authentic and informative.

b.Students

- The level of books suiting the needs of both undergraduates and postgraduates students may be procured.
- More academic-purpose oriented e-resources should be added to the library collection.
- The usefulness and special features of various search engines should be introduced to the students.
- Special search engines available for science and engineering may be brought in the use of the students.
- Special user education classes on the use of various e-resources subscribed by the college library need to be carried out regularly.
- The students may be encouraged to use e-resources such as e-thesis, e-books and e-newspapers to update them.
- While the students are accessing e-resources, a library staff may be available on the spot to guide and help the users, in times of access problems.

Conclusion and areas for further research

Conclusion

The study of use and impact of e-resources among the faculty members and the students at Salem College of engineering and technology, Salem has been a fruitful journey for the research as he was able to discover the cycle of research process and cone his research competencies. The research, for sure, will give a definite introspection to the college authorities on the level of use of e-resources and the problems encountered by the users in making use of those e-resources in their teaching and learning arena. This will enable the library staff to be in a better position to understand the user needs so that they will be able to prepare necessary ground works to be prepared to face the information seeking challenges of young engineering graduates and the experienced engineering faculties. This will also help the library professionals to understand the relative importance of e-resources in line with print resources.

Areas for Further research

The present investigation may be furthered as follows, inter alia.

- A comparative study of use of e-resources among the selected engineering colleges may be done.

- A gender difference study on the use of e-resources between male and female engineering students may be planned.
- A comparative study of the differences in the awareness and use of e-resources between undergraduate engineering students and postgraduate engineering students may be carried out.
- A comparative study of use and impact of e-resources among the faculty members of few selected engineering colleges may be conducted.
- Awareness and use of e-resources among different departments of the same college may be tried out.

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Winter 2-15-2019

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User Perception of Library Services in Public Libraries in Western Tamilnadu with special reference to Salem District: a Case Study

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Abstract

Public libraries are always called 'People's University' as it provides education to all and to improve Information literacy, empowerment, and cultural heritage. Public libraries facilitate variety of services to the user community. This study has made an attempt to investigate the current trends of user perception in terms of library services and availability of resources in public libraries in western Tamilnadu particularly in District Central Public Library at Salem. This study tired to focus to evaluate regarding the gender and age wise distribution, Marital status and Educational qualifications, Occupation wise distribution, and Membership status, Residence wise distribution, Availability of library resources, Frequency of Library visit, and Time spent in Library, Purpose of visiting the Library, Information search pattern, Level of satisfaction about Journals / Magazines, and Level of satisfaction regarding Internet services, and Opinion about overall library services etc. For data analysis, a total number of 200 well designed questionnaires were selected and distributed to the user community who are coming to Salem district public library. Out of 200 samples, we received only 186 dully filled questionnaires were returned. Further, the data has been worked out with relevant statistical tools such as simple percentage and average and so on.

Keywords: User perception, user study, case study, Public Library, Central Library, Seeking behavior, Salem.

Introduction

After independence of India, Tamilnadu is the first state that enacted the Public Library Act and it came with effect at 1st April 1950 and the Act was erected to establish research and activity. Based on the suggestions by Dr. S.R.Ranganathan, the Madras Library Association established and the other state public libraries pass the public library acts modeled on the Madras Library Public Act. Tamilnadu is being established a number of public libraries and Connemara Public Library was opened for public in 1896 and it became the State Central Library with effect from 1st April 1950. Since then, there is a drastic growth and development in public libraries. Public libraries are to serve their users at any point at any time to do effectively and efficiently, and there must be quality information regarding the accuracy, currency and relevance which would meet and satisfy the user's needs. In this context, the most widely accepted definition of a public library was formulated by UNESCO in 1949 and revised in 1972 (UNESCO 2004). According to UNESCO manifesto, the definition of a public library is listed as: Public Library is financed for the most part out of public funds; It charges no fees from users and yet is open for full use by the public; It is intended as an auxiliary educational institution providing a means of self education which is endless and It houses educative and informative materials giving reliable information freely and without partiality.

A public library is a library that is accessible by the general public and is usually funded from public sources, such as taxes. It is operated by librarians and library paraprofessionals, who are also civil servants (Wikipedia, 2018). According to Nwokocha (2004), Public Library defines ''as being established to serve the generality of the residents of the community or town where it is located.'' Public library defined as ''a library provided wholly or partly from public funds, and the use of which is not restricted to any class of persons in the community but is freely available to all'' (Librarians Glossary). According to Encyclopedia of Library and Information Science, ''Public Library is a public institution, supported by taxation, one that opens its collections, facilities and services, with distinction to all students. It always strives to meet the informational, educational and recreational needs of the community by providing collection and services.'' According to Ronald Benge (1970), Public library consists of four elements. First, the public libraries are available for the loan of materials and for reference purposes to all citizens. Second, the public libraries are mainly supported from public funds either on a local or on a national basis. The third element is their services as far as the individual is concerned should be free and the fourth one is that all materials should be available as an integral part of right. Public libraries can tailor quality information services to meet the information needs of its users. Public libraries can attract users with careful marketing and planning strategies to attract the potential users (Nsieh, 1997). Public library can develop quality services to fulfill the needs of target market. Public library through careful planning strategies can attract the attention of potential users by encouraging them to use the library services for their needs (Change & Hsieh, 1996). Public libraries are crucial institutions for providing education. It is essential for adult education and improving literacy rate in any country (Akparobore, 2011). Public library can provide access to the peer-reviewed online journals and help the individuals of the society in obtaining quality information for improving education, research and knowledge. Librarians working in public

libraries can meet the new demands of the users by fulfilling their information needs in effective way (Haggstrom, 2004). Public library is a cultural library that aims at satisfying the customer's information needs (Zhong, 2007).

Profile of Salem District Public Library

The Western Tamilnadu consists of eight districts include Coimbatore, Dharmapuri, Erode, Krishnagiri, Namakkal, Nilgiris, Salem and Thiruppur. For the present study, researchers have taken only one district central library to know current trend in terms of various kinds of library resources and services. The District Public Library of Salem was established during the year 1915 which is a century year old. It has a vast collection of books, including text, reference, fiction, novels, e-resources and also it has internet access facilities. It is a knowledge hub for their patrons. The Salem District Library was started on 06.08.1953. The new building was followed the newly constructed two-storey building near the Art Gallery in the year 1981. The district center is located in the center of Salem City. Total books in this library are 140156. The most ancient texts are located in the district center. 64 branch libraries, 33 village libraries and one mobile library are located in the Salem district as per the official website of Tamilnadu public libraries (http://tnpublic libraries.gov.in).

Literature Review

A number of studies have been carried out regarding the public libraries and its sources and services by the researchers and eminent scholars and few of the recent studies have been taken into account for the present study. Velmurugan (2018) carried out a study to understand and aware about the electronic information resources among students from the department of the school of Social Sciences at Periyar University. This study was conducted to identify the information use pattern of online information resources among the student category who were doing post graduate. The findings of the study revealed that huge number of respondents (53.85%) was female. more than 51 percent of the respondents found at the age group of 21-25, and nearly 50 percent of the respondents visited the University Library every day. The majority of 48.46% of the users access the electronic resources for their study and reference purpose daily. It found that 43.84% of the users used University websites to access the relevant information and followed by 'OPAC' with 30.01%. The study analyzed the level of satisfaction and found 46.15% of the respondents were fully satisfied. One more study was investigated by Antony Arokiavathy and Baladhandayutham (2017) under the title of 'Users' Perceptions of the Role of Public Libraries in Kanniyakumari District, Tamil Nadu, India' to observe the users' perceptions regarding the role of Public Libraries in Kanniyakumari District. The other objectives were to find out the frequency of visit and know about the public library renders the 'Education' related information and to examine public library satisfies the users' needs etc. To analyze, 450 questionnaires distributed to users group and 400 filled questionnaires were returned from researchers. The results revealed that more than fifty six percent of the respondents were male and 27 percent of the users belong to the age between 21 and 30 years. It was found 54% of the users were unmarred who were participated in this study and 80% of the respondents came from rural areas. It was also noted that the frequency of library visit and found nearly 28% of the users visit the library weekly and 31.7% of the respondents availed public library services by self-interest. It is examined that 45.5% of the respondents agree that public

library renders the 'Education' related information for the user society and half of the users satisfy with library services and sources which are provided by the Kanniyakumari District Public Libraries during the study period. Similar study was conducted by Bhatti, Marwat and Khan (2015) at central public library to identify the users' perception of services quality of the central public library at Bahawalpur. This study was taken convenient sampling study of 50 respondents owing to shortage of library users in the central public library at Bahawalpur during the research period. For data analysis, quantitative research method and descriptive statistics were chosen and applied to evaluate the degree of responses and to find out the relevant results. the findings of the research showed that majority of 68% of the library users were male and the remaining were female (32%). it noticed 40 percent of the respondents use the library for their general readings and only 10% of them used for career development. respondents were asked through research group regarding the level of satisfaction with the library services as this the main goal of any library and found they were not fully satisfied.

Joy and Idown (2014) explored a study on the utilization and user satisfaction of public library services in South –West, Nigeria in the 21at century to observe how often users patronize public libraries, and services used by the respondents and why and how the users use public library services, and to know about the satisfaction level in terms of effective public library services provided to the user community. 400 well designed questionnaires administered and 350 questionnaires were returned for analysis purpose. The study showed the results that the major portion of the library users (77.71%) visit the library to access the library for examination. On the other hand, 76.9% of the users visit the library to obtain general information to update their knowledge. It observed that 57.2% of the users not satisfied with the library services whereas only 42.8% of them were found satisfied with library services. Similar study conducted by Rehman et al (2011) to know about the users perception and satisfaction with availability of reference sources and services provided by the University Libraries at Punjab. It examined that questionnaire method was used to gather data for an analysis. A sum of 1000 questionnaires distributed and 507 filled questionnaires returned at the rate of 50.70%. The research sued five point scales with the help of Statistical Package for Social Sciences (SPSS, version 16). The result showed that male respondents were high with 55 percent. 43 percent of the users visit the library daily and it showed that good trend of library visits. The study welcomed valuable suggestions from the users and they provided regarding the reference services in terms of chat reference and it was noted that the significant findings of the study. Obinyan (2011) examined under the titled 'Use of Information Resources in Four Branches of a State Public Library in Nigeria' to study about the utilization of information resources in community public libraries in Nigeria with special reference to Edo State. This study explored and the findings showed that huge numbers of respondents were students and young people who were participated in this research. Majority of respondents whose information needs were significantly for examination oriented and to update knowledge personally. Based on the findings, it was found that most of the information resources which are available in the library are not adequate and inappropriate. Hence, overcome these challenges, numbers of suggestion were given to LIS Professionals during the study.

Another study was explored by Velmurugan and Thavamani (2013) under the titled, 'Information Use Pattern of Library Resources among Under Graduate Students of Rajalakshmi Institute of Technology, Chennai, Tamil Nadu: A Case Study' to know the level of information

access of library resources and their challenges among undergraduate students at Rajalakshmi Institute of Technology, Chennai, Tamil Nadu. For data analysis, questionnaire method was used and sum of 150 questionnaires distributed and 120 filled questionnaires were returned. It was found that almost 98 percent of the students using the library for study purposes and nearly 66 percent of the students using the textbooks as a source. Maximum number of 95 % of the students was well aware about the search engines.

Objectives of the study

The main aim of this research is to study the various kinds of services and availability of resources in the Salem district public library and the other objectives are to investigate:

- Gender wise distribution
- Age wise distribution
- Marital status
- Educational qualifications
- Occupation wise distribution
- Membership status
- Residence wise distribution
- Availability of library resources
- Frequency of Library visit
- Time spent in Library
- Purpose of visiting the Library
- Information search pattern
- Level of satisfaction (Journals / Magazines etc)
- Level of satisfaction (Internet services)
- Opinion about overall library services
- Difficulties using library resources

Methodology

Population sample for data collection

In this present research for data collection random sampling and questionnaire method were chosen. A total number of 200 well designed questionnaires were selected and distributed to the user community who are coming to Salem district public library. Out of 200 samples, we received only 186 dully filled questionnaire were returned

Data analysis

To start data analysis, the collected data was recorded on data worksheet and then entered into the computer physically. Further, the data has been worked out with relevant statistical tools such as simple percentage and average and so on. The worked out data was presented in the form of tables and figures visually.

Scope and Limitations

The scope of the current study is to examine the user perception of district central library services and availability of resources among the people at Salem District. The present study covers only the user community belonging to the Salem district public library but not covered the other branch and villages libraries. The period of study was between July 2018 and December 2018.

Results and Discussion

1. Gender wise distribution

It is inferred from the below table 1 represents that the gender wise participation from Salem district library user community in the present research. The analysis indicates that the highest numbers of 121 users (65.05%) were male and the remaining 34.95 percent of the users were female. Based on the results, the male respondents are willing to participate to do this research questionnaire whereas the female uses whether they were not interested or they were not well aware about the library usage and its resources and services.

Table 1: Gender wise distribution

S. No	Gender	Frequency	Percentage
1	Male	121	65.05
2	Female	65	34.95
Total		186	100

2. Age wise distribution

Table 2 represents the analysis of age wise respondents who were participated in this research conducted at District Central Public Library in Salem. The range of age was between below 25 and above 50. The results indicate that major portion of the respondents 52 (27.96%) were under the age group between 26 and 30 and followed by 20.44 percent of the respondents were between 31 and 35 age. it is found the small amount of 4.84% (09) of the respondents were under the age group of above 50. The findings showed that almost 50% of the users were under the age group between 26 and 35 who were younger generation and they were willingly participated.

Table 2: Age wise distribution

S. No	Age	Frequency	Percentage
1	Below 25	32	17.20
2	26-30	52	27.96
3	31-35	38	20.44
4	36-40	26	13.98
5	41-45	18	9.67
6	46-50	11	5.91

7	Above 50	9	4.84
Total		186	100

3. Marital status

This research analyzed the marital status of the respondents who were participated in this present study. The results show that most of the users (59.14%) were unmarried and the remaining 76 (40.86%) respondents were found married. It was noted that unmarried uses who were eagerly participated in this research.

Table 3: Marital status of the respondents

S. No	Marital status	Frequency	Percentage
1	Married	76	40.86
2	Unmarried	110	59.14
Total		186	100

4. Educational qualifications

It is seen from the table 4 that shows the range of usage of library according the qualifications such as SSLC, Higher secondary, graduate, post graduate and above post graduate of user community. The findings of the study indicates that the huge number of (35.49%) respondents were qualified graduate and ranked first, and followed by post graduate respondents were 46 (24.73%) and got placed second who were participated in this study. further, Higher Secondary (16.67%), Upto SSLC (12.36%), and the small number of respondents were found above post Graduate (10.75%).

Table 4: Qualification wise respondents

S. No	Qualification	Frequency	Percentage
1	Upto SSLC	23	12.36
2	Higher Secondary	31	16.67
3	Graduate	66	35.49
4	Post Graduate	46	24.73
5	Above post Graduate	20	10.75
Total		186	100

5. Occupation wise distribution

The respondents' occupation was identified by the researchers such as students like SSLC, HSC, undergraduate, postgraduate, research groups such as MPhil and PhD candidates, employed like government, private, self, and unemployed comes under retired persons etc. It is inferred from the table 5 that most of the respondents i.e. 66 (35.49%) employed who were participated in this research and followed by students were in the second position (52, 27.96%) in terms of occupation. 22.58 percent of the users were research scholars and the remaining 26 respondents (13.97%) unemployed who were involved in this study.

Table 5: Occupation wise distribution

S. No	Occupation	Frequency	Percentage
1	Students	52	27.96
2	Research scholars	42	22.58
3	Employed	66	35.49
4	Unemployed	26	13.97
Total		186	100

6. Membership status

Table 6 represents that the membership status of the users who are coming to District Public Central Library during the study period. The results show that the majority of 110 (59.14%) respondents were found non-member of the library and the remaining 76 (40.86%) respondents were identified life member of the library. Based on the findings, LIS Professionals have to take initiatives to welcome user society and to become member of the library.

Table 6: Membership status

S. No	Category	Frequency	Percentage
1	Member	76	40.86
2	Non- member	110	59.14
Total		186	100

7. Residence wise distribution

Table 7 represents residence wise participants who were actively involved this study. There were two types of residence were divided such as rural and urban. It is found that majority of 118 (63.44%) respondents were from rural as they are willing to learn education as well as general knowledge. it is also found the remaining were 68 (36.56%) from urban areas.

Table 7: Residence wise distribution

S. No	Category	Frequency	Percentage
1	Rural	118	63.44
2	Urban	68	36.56
Total		186	100

8. Availability of library resources

Table 8 depicts that the availability of information resources at District Central Public Library in Salem. The Information sources in terms of newspapers, journals and magazines, novels, story books, text books, reference books, and online resources such as CD-ROM, Internet facility etc. It is examined and found that the huge number of 68 (36.56%) respondents prefer reading newspapers who were coming to library. 23.66 respondents who were preferred to read periodicals such as journals and magazines, 16.67% of the users willing to read novels and story

books to enjoy their leisure time. Books and Reference books read by the respondents 6.45% and 4.84% respectively. 11.82 percent of the users prefer to use online resources which are available in the central library.

Table 8: Availability of library resources

S. No	Resources availability	Frequency	Percentage
1	Newspapers	68	36.56
2	Journals/Magazines	44	23.66
3	Novels/Stories	31	16.67
4	Books	12	6.45
5	Reference books	9	4.84
6	e- resources	22	11.82
Total		186	100

9. Frequency of Library visit

Based on the previous studies related to this research, it is noted that most of the researches show that users were visited the library daily and some them visited weekly and few of them visited rarely. In this study table 9 indicates that major proportion of 62 (33.33%) respondents visited the district central public library weekly and followed by 49 (26.34%) users visited the library for reading daily. 19.35 percent of the users visited fortnightly and 14.53 percent of the respondents visited monthly and only few (12, 6.45%) of the respondents visited occasionally to read central public library.

Table 9: Frequency of Library visit

S. No	Library visit	Frequency	Percentage
1	Every day	49	26.34
2	Weekly	62	33.33
3	Fortnightly	36	19.35
4	Monthly	27	14.53
5	Occasionally	12	6.45
Total		186	100

10. Time spent in Library

Users were asked to represent the average time spent by them on their each visit to the library. Based on the responses received by the users were analyzed and tabulated in the below table 10. Among the 186 users, as expected that the huge number (30.12%) of respondents spent their time an hour and followed by 41 (22.04%) users spent 30-60 minutes. It is also found that only 6.45% of the visitors spent their time to use the library more than two hours.

Table 10: Time spent in Library

S. No	Time duration	Frequency	Percentage
1	Less than 15 min	18	9.67

2	16-30 min	37	19.89
3	30-60 min	41	22.04
4	An hour	56	30.12
5	More than two hours	12	6.45
6	Less than two hours	22	11.83
Total		186	100

11. Purpose of visiting the Library

Different kinds of reasons are there to visit the library as there is number of libraries are there all over the globe based on the availability of specific information resources. District libraries are providing various collections of resources such as newspapers in different languages, periodicals like journals and magazines, novels, stories, text books, reference books, dictionaries, encyclopedias, etc. therefore, visitors use the library different ways and the table 11 indicates that what purpose users are visiting the library and how they use the library effectively. Based on the analysis, majority of 37.10% of the respondents visit the library to read the newspapers and the small amount of 5.37% users visit to read for examination oriented. The same research conducted by Velmurugan and Umamaheswari (2015) and found that 75.38% of the users came to library to read books and followed by 49.23% of them were to read magazines and 41.54% for reading newspapers.

Table 11: Purpose of visiting the Library

S. No	Kinds of purposes	Frequency	Percentage
1	Study newspapers	69	37.10
2	To get general information	41	22.04
3	To borrow books	39	20.97
4	For entertainment	11	5.91
5	For research	16	8.61
6	Read for examination	10	5.37
Total		186	100

12. Information search pattern

It is a skill that searching the right information. From the previous studies, it is found that some users depend on library staff to get information whereas some others search information their own and some users take help from their friends to find relevant information what they need. It can be seen from the table 12 that most of the respondents (102, 54.84%) take help form the LIS Professionals to get relevant information. This is good trend that users rely on LIS professionals to find good information. it is interesting that 27.42 percent of the users use OPAC to find information and 8.60% of the user community take help from their friends and 6.45% of them take help from their colleagues to search and find information resources what they required. it is seen that the same study carried out by Thanuskodi (2012) and significantly found that 11.04 percent of the respondents use the library more than three hours per day.

Table. 12. Information search pattern

S. No	Search pattern	Frequency	Percentage
1	Taking help from LIS professionals	102	54.84
2	Using OPAC	51	27.42
3	Taking help form friends	16	8.60
4	Taking help form colleagues	12	6.45
5	Any others	05	2.69
Total		186	100

13. Level of satisfaction (Journals / Magazines etc)

Table 13 shows that the level of satisfaction in terms of periodicals such as journals and magazines which are provided to the user community. It is found that most of the users (96, 51.61%) felt satisfied with all types of journals and magazines and followed by 27.42% of the respondents felt highly satisfied. fourteen respondents did not say any comments and nine users felt dissatisfied with subscription of journals and magazines services.

Table.13. Level of satisfaction (Journals / Magazines etc)

S. No	Level of satisfaction	Frequency	Percentage
1	Highly satisfied	51	27.42
2	Satisfied	96	51.61
3	Less satisfied	16	8.60
4	Dissatisfied	9	4.84
5	No opinion	14	7.53
Total		186	100

14. Level of satisfaction (Internet services)

In the electronic world, we could not live without internet as the Internet is one of the basic needs. Therefore, the Internet service has been taken into account and the satisfaction level has been treated for evaluation. Table 14 indicates the level of satisfaction regarding the Internet services provided by LIS professionals from central public library at Salem. It is noted that the majority of 74 (39.78%) users showed that fairly satisfied, 25.27 percent of the participants felt good and 16.13% of the users moderately satisfied. some of the respondents (12.37%) felt poor and few of them (6.45%) had no comments about internet services.

Table.14. Level of satisfaction (Internet services)

S. No	Level of satisfaction	Frequency	Percentage
1	Good	47	25.27
2	Fair	74	39.78
3	Moderate	30	16.13
4	Poor	23	12.37

5	No comments	12	6.45
Total		186	100

15. Opinion about overall library services

Table 15 represents about the overall library services provided by the central library. the services such as circulation, book issue and return, reference service, bibliographic service, online services, reprography service, OPAC, and many more. Based on the analysis, it is examined that the huge number of 76 (40.86%) user society opinioned very good regarding the overall library services. Fifty eight (31.18%) respondents felt good and 16.67% of them felt satisfied with overall services and 6.45% of the users had no comments in terms of library services.

Table.15. Opinion about overall services

S. No	Opinion	Frequency	Percentage
1	Good	58	31.18
2	Very good	76	40.86
3	Satisfactory	31	16.67
4	Poor	9	4.84
5	No comments	12	6.45
Total		186	100

16. Difficulties using library resources

Table 16 depicts that various factors user's dissatisfaction in terms of less materials or lack of resources, lack of collection arrangements, lack of staff members, and space problem etc. The results showed that 17.21% of the users felt lack of library professionals to help the users in time and provide appropriate information. 15.59% of the users felt there was no suitable resources and lack of collection arrangements by 18 respondents. It is found that the maximum number of 98 (52.69%) users had felt none of difficulties regarding the library resources and services provided by the central public library during the research.

Table.16. Difficulties using library resources

S. No	Difficulties	Frequency	Percentage
1	Lack of sources	29	15.59
2	lack of LIS Professionals	32	17.21
3	Lack of collection arrangements	18	9.67
4	Space problem	9	4.84
5	None	98	52.69
Total		186	100

Major Findings

Based on the results, the selected major findings are listed below.

- The highest numbers of 121 users (65.05%) were male and major portion of the respondents 52 (27.96%) were under the age group between 26 and 30.
- The huge number of (35.49%) respondents was qualified graduate and ranked first.
- Most of the respondents i.e. 66 (35.49%) employed who were participated in this research and majority of 118 (63.44%) respondents were from rural.
- Huge number of 68 (36.56%) respondents preferred reading newspapers that were coming to library.
- Major proportion of 62 (33.33%) respondents visited the district central public library weekly and followed by 49 (26.34%) users visited the library for reading daily.
- The huge number (30.12%) of respondents spent their time an hour and majority of 37.10% of the respondents visit the library to read the newspapers.
- Most of the respondents (102, 54.84%) had taken help form the LIS Professionals to get relevant information.
- It is found that most of the users (96, 51.61%) felt satisfied with all types of journals and magazines.
- Majority of 74 (39.78%) users showed that fairly satisfied regarding Internet services and the huge number of 76 (40.86%) user society opinioned very good regarding the overall library services.
- It is noted that 17.21% of the users felt lack of library professionals to help the users and it is also found that the maximum number of 98 (52.69%) users had felt no difficulties regarding the library resources and services.

Conclusion

We all well have known that India has made significant growth and development in almost not only the establishment of public libraries but also in all fields. Due to the tremendous change of Information and Communication Technology, the present government focuses on the contemporary technology to serve the public. Therefore, the future of libraries is bright and fruitful for the young generation. Any district central library is the very good place to gather knowledge and to spend their precious time for the patrons. The Salem District Central Public Library deserves kudos for their relevant services disseminating appropriate information among the people who live Salem Town. It is seen that lack of awareness for users and organizing need based orientation and training programmes at national level will help to use the information

resources effectively. This research survey has been examined carefully and it is identified that good number of users spent not more than one hour to make its services improve and create a center of attention of the user community, it is also suggested that more relevant resources in different formats are to be purchased and subscribed to meet the needs of the users. Well qualified and sufficient LIS Professionals must be made and the sufficient space and strong infrastructure should be provided for Internet services. This present research can be further taken up for future research in the following areas such as Awareness about Information and Communication Technology services by the users in Salem District Public Library; User perception about the special collections in Salem District Public Library.

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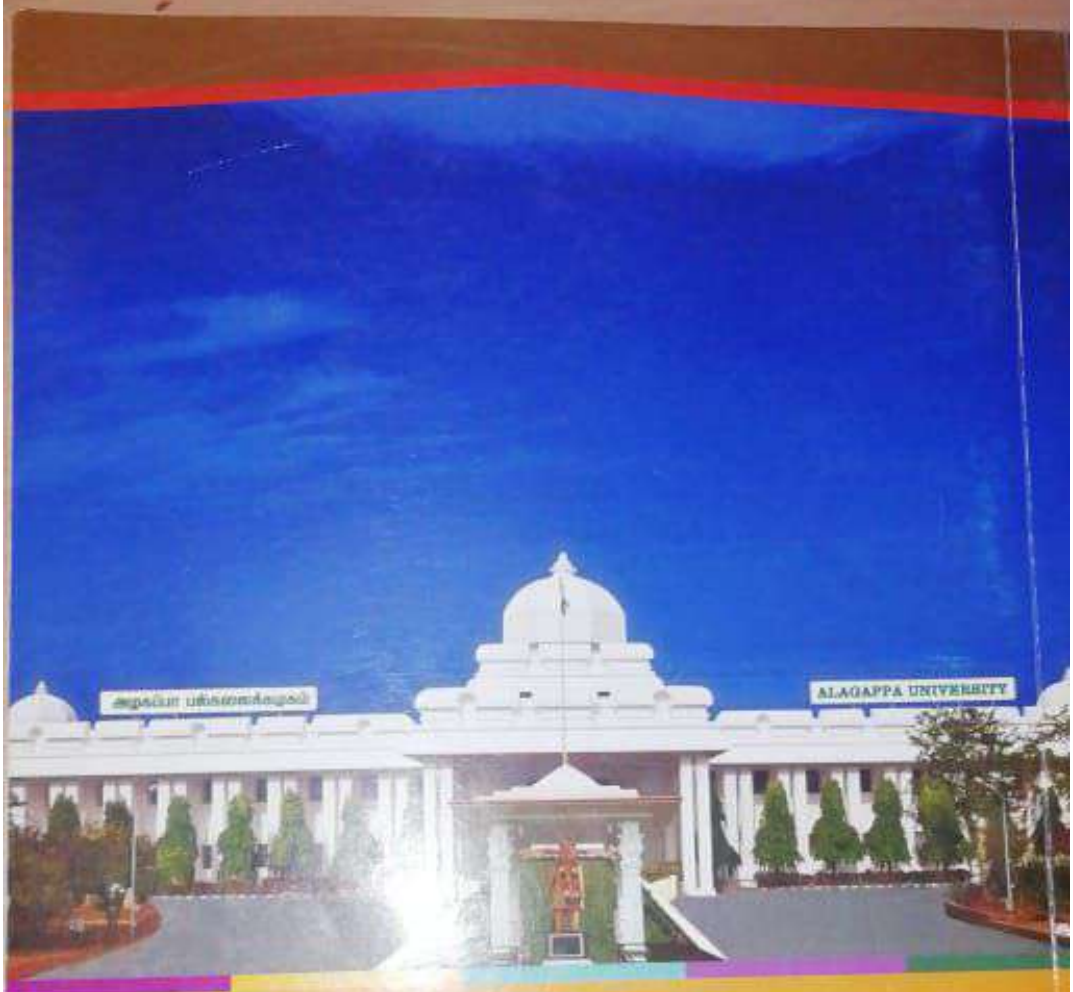
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ALAGAPPA UNIVERSITY

DEPARTMENT OF SPECIAL EDUCATION AND REHABILITATION SCIENCE

(Sponsored under RUSA 2.0 scheme)

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THE RTE ACT 2009

After a continual demand of making the education fundamental right form all concerns, the government made the 86th Amendment of the constitution of India (2002). The Right of Children to Free and Compulsory Education Act 2009 the responsibility of ensuring enrolment, attendance and completion on the government. The RTE Act tries to safeguard the rights of the students belonging to the disadvantaged groups and weaker sections, protect them from any kind of discrimination and ensure their completion of elementary education. As per Amendment in the RTE Act (2010), students with special needs have been included in the definition of students belonging to disadvantaged groups in this Act. The landmark step mentioned in this act for private unaided and specified category schools to admit at least 25% of its entry level class from, children belonging to weaker and disadvantages groups.

THE BENEFITS OF INCLUSIVE EDUCATION

- **Children develop a positive understanding of themselves and others**

When students attend classes that reflect the similarities and differences of people in the real world, they learn to appreciate diversity. Respect and understanding grow when students differing abilities and cultures play and learn together.

- **Friendships develop**

Schools are important places to develop friendship and learn social skills. Students with special needs and without special needs students learn with and from each other in inclusive classes.

- **Students learn important academic skills**

In inclusive classrooms, Students with special needs and without special needs students are expected to learn to read, write and do math. With higher expected and good instruction students with special needs learn academic skills.

- **All children learn by being together**

Because the philosophy of inclusive education is aimed at helping all students learn, everyone in the class benefits. Students learn at their own place and style within a nurturing learning environment.

- **Family visions of a typical life for their children can come true**

All parents want their students to be accepted by their peers, have friends and lead 'regular' lives. Inclusive settings can make this vision a reality for many , Students with special needs.

METHODS ON TEACHING USING FOR STUDENTS WITH SPECIAL NEEDS

A good method for teaching is based on multi-sensory approach, whether teaching students with special needs or normal students. While teaching, the teacher should bear in mind that students with special needs have lesser range and variety in some learning experiences due to their students with special needs.

Teaching subject area

Some method of teaching useful for students with special needs is listed as follows:

- **Play way method of teaching**

In this method the students is not kept in the classroom as a bookish learner. The students s introduced the lesson through a number of play activities and in the process of such play, the teacher introduces specific concepts. Students are learning through play way method experience a sense of discovery.

- **Providing concrete experiences**

While learning students pass through in three developmental stages. Firstly they need concrete experience involving three dimensional objects etc. secondary they can learn through periodical ideas. Thirdly they develop abstraction. As far as students with special needs are concerned providing concrete learning experiences becomes pertinent. A strong foundation developed through concrete experiences will help them to understand higher order experiences, including that of abstraction without major difficulties.

- **Facilitating learning by involving students with special needs in groups**

Cooperative learning approach considered to be an effective teaching-learning process in the classroom especially when the class consisting of students with special needs, group learning can be planned by involving a students with special needs in a group consisting of non-disabled students

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Library Philosophy and Practice (e-journal) | Libraries at University of Nebraska-Lincoln

September 2019

GENTRIFICATION of BIBLIOTHECA for the DIGITAL CITIZENS

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GENTRIFICATION of BIBLIOTHECA *for the DIGITAL CITIZENS*

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ABSTRACT

Bringing together the multi-folded facets of the various disciplines across the globe, the role of Libraries, the bibliotheca is transforming. The surging demand for the information in todays' digital world, has been substantially changing the role of libraries. The Libraries are altering their roles by providing enhanced & enriched set of services. The patrons of this Digital civilization and the fresh entries alongwith the extension to this collection of tools and services has also changed. Prabha, Chandra, Lynn Silipigni Connaway, Lawrence Olszewski, and Lillie Jenkins calls todays' world as "overloaded information environment".

This study on Gentrification of Bibliotheca for the Digital Citizens reflects the transformation of libraries in print-digital transition and the kinds of services citizens would like to see if they were to redesign libraries themselves. This study is a part of a research effort which explores the role that the libraries play in people's lives. Also, the study reflects how the Open Source Library Automation Softwares are affecting the users of today that is the Digital citizens. This survey was conducted to validate the findings from a data collection of 1431 Delhi locals ages ranging from 16 and above during the month of January to June, 2019. The survey was administered during the personal visits to the libraries like Delhi Public Library, Delhi University Central Library, Jawaharlal Nehru

University Library. A few personalised calls were made via landline phone and a few by calling directly telephonically, Also, through social networking websites like Facebook, LinkedIn, WhatsApp questionnaire was shared using Google forms. The questionnaire was distributed in print and electronic form both. The data was collected telephonically in both the languages English and Hindi. The margin of error for the full survey is plus or minus upto 5-7 percentage.

This present analysis that controls a variety of demographic factors such as income, educational attainment, and age shows that race and ethnicity are significant independent predictors of people's attitudes about the role of libraries in communities, about current library services, and about their likely use of the future library services the researcher has inquired upon.

Keywords – Open Source, Automation, Library, Virtual Reference Service, Digital world, Digital Services, Digital citizens, KOHA, Delhi Public Library, Delhi University Library System, Dr B R Ambedkar University Library

INTRODUCTION

Presently, we are living in the age of information where access to information is just a few click away. The information is available in digital format which can accessed from any corner of this world. The internet has made a major impact on how people find and access information, and the rising popularity of e-books is helping libraries to transform the reading habits of people in Delhi. How to use of app based services, Virtual Reference Service, Online Public Access Catalogue and also the Open Source Library Automation Softwares for the Library and Information Science Professionals. In this changing landscape, the libraries in Delhi are trying to adjust their services to these new realities while still serving the needs of patrons who continue to rely on more traditional resources. This study reports and explores the changing world of library services by looking at activities at libraries that are already in transition. The study focuses on the different kinds of services which the users would like to see if they could redesign libraries themselves. It is indeed part of a research based on the study of the Impact of Open Source Library Automation softwares on LIS Professionals. The effort has been intensively taken up in exploring the role of libraries play in people's lives and in their communities and how the use of Open Source Automation Softwares are helping libraries to build up a better and a stronger collection in comparison to the traditional one.

REVIEW OF STATUS OF LIBRARIES

During the course of time the libraries are and will always remain the SYMBOL OF LEARNING. Though there has been a swift decline in terms of print collection as compared to the electronic collection. Understanding the need of the hour, libraries are also now available 24*7. In the study given by Manoff, Marlene on "The Symbolic Meaning of Libraries in a Digital Age" is increasingly visible. The Virtual society anticipates the decline of Print knowledge. The libraries have to take into account the current perceptions. Understanding thee symbolic role, libraries need to contribute in the rapid growth of

information. With the rising fever of World Wide Web libraries need to continuously contribute to the paramount importance of the culture of knowledge dissemination. According to him libraries need to take a lead in the electronically driven culture of knowledge and take a look at a big picture.

In one of the article by Weise, Frieda titled as "Being there: the library as place" he contemplated upon certain questions :

- What is the value of the library as a place?
- What is the mission of the library as a place?
- What do users want from libraries?
- What do we, as librarians, want?
- How do we translate values, missions, and desires into a place?

He also considered libraries as cyphers of learning, libraries should be planned which can serve as:

- a physical symbol of the search for knowledge,
- a focal point for the campus and an intellectual common,
- a place for study and research,
- a place for groups engaged in collaborative work or learning,
- an access point and distribution center for print and electronic information,
- a teaching library to support trends in education, research, and service,
- a functional and pleasant workplace for staff, and
- an attractive gateway to the campus and a signature building

METHODOLOGY

The study was conducted in order to survey the experiences and expectations of library users from libraries and how the Open Source Library Automation Softwares have benefitted the libraries as well their patrons too. The survey was administered during

their personal and through online portals as well. The visits to the libraries like Delhi Public Library, Delhi University Central Library, Jawaharlal Nehru University library. A few calls were made using the landline phone and a few by calling on cell phones. Also, through social networking websites like Facebook, LinkedIn, WhatsApp questionnaire was shared using Google forms. The questionnaire was distributed in print and hard copy both. The telephonically data was collected in both the languages English and Hindi. The margin of error for the full survey is plus or minus 5-7 percentage points.

This report contains findings from a survey of 1431 Delhi locals ages 16 years and above which was conducted between January 05 and June 05, 2019.

There were several long lists of activities and services included in the survey over phone. In many cases, the researcher asked half of the respondents about one set of activities and the other half of the respondents were asked about a different set of activities. These findings are the representative of the population ages 16 years and above, but it is important to note that the margin of error rises when only a portion of respondents pays attention. However, the researcher could effectively get 1010 responses, out of which only 929 were completely filled and answered properly.

There are also findings in this report that come from an online panel canvassing of librarians who have volunteered to participate in the surveys. 188 library staff members participated in the online canvassing that took place during May 1 - 30, 2019. The results from that canvassing are reported here because it was an equal opportunity to draw out comments from patrons and for better understanding of the librarians. Based on the findings the data has been depicted in the tables followed. The study made a successful attempt to analyze the Impact of Open Source Library Automation Softwares on the TRINITY of library meaning library's resources, its staff and its users. The different libraries on which the study is based are-

DELHI PUBLIC LIBRARY

The Delhi Public Library (DPL) was established in 1951 by the then Ministry of Education, Government of India with the financial and technical assistance from the

UNESCO. The Library was inaugurated by the first Prime Minister of India Pt. Jawahar Lal Nehru on 27th October, 1951. At present, the Delhi Public Library is functioning under the administrative control of the Ministry of Culture, Government of India. The Head-quarter is located opposite Old Delhi railway station, it has since been developed into a premier public library system in the country covering the entire Metropolitan city. Delhi Public Library provides a wide range of books, journals and other reading materials in Hindi, English, Urdu, Punjabi & other Indian Languages for every one, whatever your reading taste. Library stock consists of 16 lakh books on variety of subjects including Books for competitive examinations, computer science, information technology, philosophy, religion, hinduism, social science, economics, political science, international relations, language and linguistics, science, physics, chemistry, zoology, botany, medical science, engineering, literature, fiction, history, geography etc. To manage the huge collection, the library has well trained staff for using KOHA – Open Source Library Automation Software.

The library has been expanding its services as a centre for dissemination of knowledge, information and culture. It is increasingly felt that the library should not merely serve as a centre for lending books, but should also grow as a robust organization devoted to promote intellectual pursuits and create community rapport among its readers. DPL provides the following facilities to the public.

- Lending of Books
- Reference Services
- Special Services

DPL has approximately 1,70,000 registered members are availing its services. To disseminate information which in turn helps the community to prosper the Delhi Public Library offers list of Special services to its users -

- Mobile Library Service
- Braille Library Service
- Reprographic Services
- R.C. Library Service
- Reading Room Service

- Social Education Services
- Deposit Stations
- Service to Prisoners
- Guidance and Training
- Community Library Service



Source : https://dpl.gov.in/

DELHI UNIVERSITY LIBRARY SYSTEM

With more than 37 libraries in its fold, the DULS is accomplishing its task of reaching to wider academic community. It has advanced web activity with the subscription of as good as 63 high quality electronic databases being made available through campus network to teachers, students and research scholars. In addition to this 21 more databases are also accessible through UGC-INFONET Digital Library Consortium. DULS also promotes Open Access e-resources. DULS is regularly conducting innovative Information Literacy Programs (ILP) for the benefit of students, researchers and Faculty members and also making efforts in developing tutorials to make the community proficient in the use of

WWW. The OPAC service is also being strengthened. The endeavor is to further improve all our efforts to facilitate right information to the right user at the right time.

The Present holdings of the DULS include:

- Over 14,04,000 volumes.
- Regular subscription for about 2000 journals. Approximately 4000 journals are available online through Campus-Wide Networking operational in the CSL.
- Over 13,000 Ph.D Theses. The Library brings out a volume entitled 'Doctoral Research' every year on the eve of the Annual Convocation. It gives Abstracts of Theses on which degrees are conferred at the Convocation.
- Over 13,000 M.Phil Dissertations.
- Nearly 700 manuscripts of which Sanskrit and Persian account for 480 and 153 respectively. There are a few in Arabic, Urdu and Pushto as well. The Library possesses invaluable books such as Foster's Glossary/ Vocabulary, published in 1799, the complete set of the Proceedings of the Royal Society from 1688 onwards, the Greenwich Observations from the early 19thcentury, the Catalogue of the British Museum in 250 volumes and the Catalogue of the Library of Congress in 300 volumes.

Libraries under the Delhi University Library System

(Listed in an alphabetical order)

1. Audio Book Research Centre
2. African Studies
3. Arts Library
4. Botany Department
5. Braille
6. Campus Law Library
7. Central Reference Library
8. Central Science Library
9. Chemistry Department
10. Computer Centre

11. Computer Science
12. East Asian Studies
13. Education Department
14. English Department
15. Germanic & Romance Studies
16. History Department
17. Law Centre-I
18. Law Centre-II
19. Library & Information Science
20. Linguistics Department
21. Management Studies
22. Mathematical Sciences
23. Music & Fine Arts
24. Non-Collegiate Women Education Board
25. Philosophy Department
26. Physics & Astrophysics
27. Ratan Tata Library Slavonic & Finno Ugrian Studies
28. S.P.Jain Centre of Management Social Work Department
29. South Campus South Zone Undergraduate Library
30. Women Studies and Development Centre
31. Zoology Department



Source : http://crl.du.ac.in/

JAWAHAR LAL NEHRU UNIVERSITY LIBRARY (Dr B R Ambedkar Central Library**)**

The Central Library is a Knowledge Centre which has rich resources mainly in Social Sciences, Humanities and Sciences. It is a nine-storey tower building and has a carpet area of about one lakh sq. ft. It is situated in the midst of the academic complex of the University and is the hub of all the academic activities of the University and provides comprehensive access to books, journals, reports, e-journal/online databases, e-books, electronic theses and dissertations.

Established in 1969, it incorporates the library of the prestigious Indian School of International Studies which was later merged with Jawaharlal Nehru University. The JNU Library is a depository of all Govt. publications and publications of some important International Organisations like WHO, European Union, United Nations and its allied agencies etc.

The Central Library is knowledge hub of Jawaharlal Nehru University. It provides comprehensive access to books, journals, theses and dissertations, reports, surveys covering diverse disciplines.



Source : http://lib.jnu.ac.in/library-statistics

HOW DO LIBRARY PATRONS RECEIVE TRANSFORMED LIBRARIES ?

The results of the survey indicate that many library patrons are eager to see libraries with an expansion in digital services, yet they also feel that print books remain important even in the digital age. The use of free computers and internet access now rivals book lending and reference expertise as a vital service of libraries.

- 54% say borrowing books is a "**More Significant**" service for libraries to provide.
- 60% say reference librarians are a "**More Significantly**" required in the current scenario of the libraries.
- 94% say free access to computers and the internet is a "**More Significant**" service of libraries.

TABLE 1 : PATRONS OPINION ABOUT LIBRARIES WITH AN EXPANSION IN DIGITAL SERVICES

	Level of satisfaction (%)	Significant	More Significant	Less Significant
Borrowing books	54%		✓	
Reference librarians	60%		✓	
Free access to computers	94%		✓	

THE USE OF TECHNOLOGY IN LIBRARIES

With the advent of latest technologies, the information has become indispensable for the progress of humans. Today's libraries are essentially required to be equipped with the technology o provide the best services to the users. The below given list of different technologies which attracted the users during the course of survey-

- Navigation app in the library – This application to help patrons locate material inside library buildings
- Virtual Tour of library – This technology allows the patron take a library tour virtually through World Wide Web.
- Online tutorials – The growing need of knowledge and the enormous amount of information available this facility equips the library to provide online library instruction through Internet.

- Self-check in and Self-Check Out Kiosk – A seamless facility which allows the patrons to borrow and return the borrowed materials on their own.
    - Amazon - style customized book/audio/video recommendation schemes – through this you can add or reserve the resource you are looking. The selection can be added to the wish list as well. The user can review and comment on the particular resource as well. This feature can be easily integrated through KOHA – Open Source Library Automation Software
    - Access to Kindle service – A very popular e-books device which helps to access and read the e=books on the device itself which can be borrowed from the library.

HOW DO LIBRARY PATRONS RESPOND TO THE USE OF TECHNOLOGY IN LIBRARIES?

The study indicates that a wider uses of technology at libraries will surely attract the readers such as:

- *GPS-navigation apps to help patrons locate material inside library buildings:* 34% of ages 16 years and older would "likely" use that service and another 28% say they would be "somewhat likely" to do so.
- Virtual reference services *allowing patrons to send questions and get the spontaneous reply from librarians:* 68 % of ages 16 years and older would "very likely" use an "Ask a Librarian" means Virtual reference service, and another 36% say they would be "somewhat likely" to do so.
- *Apps-based access to library materials and programs:* 35% of ages 16 years and older would "very likely" use that service and another 28% say they would be "somewhat likely" to do so.
- *Self-check in and Self-Check Out Kiosk - Automatic lending machines or kiosks located at the entry and exit point of the library from where patrons can check out books, CDs, Journals, or music:* 63% of ages 16 years and older would "very likely" use that service and another 30% say they would be "somewhat likely" to do so.

- *"Amazon"-style customized book/audio/video recommendation schemes that are based on patrons' prior library behavior:* 69% of ages 16 years and older would "very likely" use that service and another 45% say they would be "somewhat likely" to do so.

The data is presented in the following table 2.

TABLE 2 : HOW DO LIBRARY PATRONS RESPOND TO THE USE OF TECHNOLOGY IN LIBRARIES ?

Uses of technology at libraries	Very likely	Somewhat likely
GPS-navigation apps to help patrons locate material inside library buildings	34%	28%
Online research services allowing patrons to send questions and get answers from librarians	68%	36%
Apps-based access to library materials and programs	35%	28%
Automatic lending machines or kiosks located throughout the community where people can check out books, CDs, Journals, or music without having to go to the library itself	63%	30%
Amazon"-style customized book/audio/video recommendation schemes that are based on patrons' prior library behavior	69%	45%

When inquired from the library staff members in an online panel about their most popular services, the three most popular services they indicated were : Classes on e-resources, Self check in and self check out training, Classes on how to use Kindle devices, and Online "Ask a Librarian" Virtual Reference services. Many librarians said that libraries like British Council Library in Connaught Place, Delhi were already offering these resources in various forms, because of demand from their communities. However,

through the survey it was noted that us of Open Source Library automation Softwares has not only helped the libraries to control their budget flow but also supported immensely to manage the resources of library. It was examined by the researcher that Use of Open Source Library Automation Softwares benefits both the library personals and the patrons as well. It reduces the level of stress on the staff and enhances the timely response for the users.

LIBRARIES: A SOCIAL HUB

The survey of ages 16 and older also indicated that, libraries if they aim to grab a front seat should -

- *Offer a broader selection of e-books:* 57% of respondents say libraries should "definitely do" this.
- *Offer number workshops, story hours etc:* 89% of respondents say libraries should "definitely" do this.
- *Coordinate more closely with local schools:* 90% of respondents say libraries should "definitely" do this.
- *Offer free literacy programs to help young children:* 88% of respondents say libraries should "definitely do" this.
- *More comfortable space for reading, working, and relaxing:* 59% of respondents say libraries should "definitely do" this.

The above mentioned services are also most popular with the library staff members in our online panel, many of whom said that their library had either already implemented them or should "definitely" implement them in the future.

At the same time, people have different views about whether *libraries should move some printed books and stacks out of regularly accessed areas in order to free up space for tech centers, reading rooms, meeting rooms, and cultural events*: 40% of respondents said libraries should "definitely" make those changes; 39% said libraries "may be" should do that; and 36% said libraries should "definitely not" change by moving

books out of common spaces in order to free up space for tech centers, and rooms for meetings and cultural events.

HOW IMPORTANT ARE THE LIBRARIES?

The inhabitants of Delhi say libraries are important to their families and their communities, but often they do not know all the services libraries offer.

90% of respondents said libraries are important to their communities; and 76% say libraries are important to them and their families. And libraries are touch points in their communities for the vast majority of Delhi residents: 84% of respondents have been to a library or bookmobile at some point in their lives and 77% say they remember someone else in their family using libraries as they were growing up.

Still only 22% of respondents say that they know all or most of the services their libraries offer now. And 46% say they know some of what their libraries offer and 31% said they know not much or nothing at all of what their libraries offer.

CHANGES IN LIBRARY USE IN RECENT YEARS

In the past 12 months, 53% of respondents have visited a library or bookmobile based on their response given; 78% visited a library website; and 83% used a handheld device such as a smartphone or tablet computer to access a library website. 59% of respondents had at least one of those kinds of interactions with their nearest library in the past 12 months. Throughout this report we call them *"recent library users"* and some of the researcher's analysis is based on what they do at libraries and library websites.

Overall, 52% of recent library users say their pattern of library use in the past five years has not changed to any great extent. At the same time, 26% of recent library users

say their library use has increased and 22% say their use has decreased. The table below highlights the purpose of library use.

TABLE 2: PURPOSE OF VISITS TO LIBRARIES BY RECENT LIBRARY USERS

Visit to inculcate reading habits among children and grandchildren	36%
For activities, story-telling and workshop etc	45%
For E-books, E-journals etc	66%
Wide variety in selection of reading material in form	38%
Reading environment and helpful staff	20%
Referring different national dailies	12%
Regular visit as a student member of the library	45%
Use the internet and computer	33%
For the purpose of research and other reference material	66%
Borrow more books	38%
Cost efficient membership	36%

HOW PEOPLE USE LIBRARIES

Recent library users who visited a library in person in the past 12 months say that the following are the activities they do at the library:

- 53% say they visit to *browse the shelves for books or media.*
- 43% say they visit to *borrow print books.*
- 67% say they visit to *research topics that interest them.*
- 60% say they visit to *get help from a librarian.*
- Asked how often they get help from library staff in such things as answering research questions, 31% of library patrons in the past 12 months say they frequently

get help, 39% say they sometimes get help, 23% say they hardly ever get help, and 7% say they never get help.

- 49% say they visit *to sit, read, and study, or watch or listen to media.*
- 66% say they visit to *use a research database***.**
- 51% say they visit to *accompany or bring a younger person to a class, program, or event designed for children or teens.*
- 31% say they visit to *read or check out printed magazines or newspapers.*
- 23% say they visit to *attend a meeting of a group to which they belong***.**
- 21% say they visit to *attend a class, program, or lecture for adults.*
- 47% say they visit to *borrow or download an audio book.*
- Only 6% say they visit to *borrow a music CD.*

PURPOSE OF USING INTERNET IN LIBRARIES

26% of respondents say they used the computers or the WiFi connection in the library. Here's what they did on that free internet access:

- 66% of those who used the internet at a library in the past 12 months *did research for school, college or other work.*
- 63% say they *browsed the internet for fun or to pass the time.*
- 54% say they *used email.*
- 47% say they *got health information.*
- 41% say they *visited government websites or got information about government services.*
- 56% say they *looked for jobs or applied for jobs online***.**
- 65% say they *visited social networking sites***.**
- 77% say they *downloaded or watched online video.*
- 79% say they *bought a product online***.**
- 81% say they *paid bills or did online banking.*
- 62% say they *took an online class or completed an online certification program.*

Additionally, some 36% of those who had ever visited a library say the library staff had helped them in using a computer or the internet at a library.

CONCLUSION

The libraries of today have overwhelmingly accepted the Open Source Technology. Taking the advantage of the technology the libraries have transformed. This paradigm change has given a very fertile ground for the users and library staff as well. With the ease to access the Open source technology has provided adequate amount of support for the growth and expansion. The study concluded with the use of Open Source technology has not only added to the knowledge and experience of staff of the library but also the users it has exposed an uninterrupted use of electronic sources in today's digital world. According to the survey conducted during January – June, 2019 followed are the findings of the study:

- According to 874 respondents i.e. 94% library patrons say free access to computers and the internet is a "vital" service of libraries. The patrons were found to be highly satisfied with the use of Online Public Access Catalogue i.e. OPAC. Also, Amazon like option available in KOHA - Open Source Library Automation Software which gives a freedom to access to the user for his/her own account.
- 827 respondents i.e. 89% of library patrons strongly recommend the Library programme in form of different workshops, story hours, information literacy workshops, movie screening, author's meet and book talk etc should be "unquestionably" be a part of service of the library.
- Categorically 72% i.e. 669 respondents say libraries should "definitely" coordinate more closely with local schools and communities.
- 64% of 595 respondents in turn library patrons say libraries should "definitely" offer free literacy programs to help young children specially the story telling sessions.
- 90% of library patrons i.e. 837 say libraries are important to their communities too which helps in sensitizing the youth of today.
- 57% (530) of library patrons have been to a library or bookmobile at some point in their lives and 715 i.e. 77% say they remember someone else in their family used public libraries as they were growing up.

- Approximately 660 respondents in turn making it 71% of library patrons in the past 12 months say they visited the libraries to browse the shelves for books or media.

QUESTIONNAIRE FOR THE PATRONS AND STAFF WHICH FORMED A STRONG BASIS OF THE STUDY

1. How often do you use the library or its website?
   - At least once a week
   - Once every three weeks
   - Once a month
   - Once every six months
   - Once a year
2. How would you rate the following elements at the library?
   - Resources (books, audiovisuals, computer resources, etc.)
   - Facilities
   - Programmes
   - Library website
   - Internet access/Wifi
3. Which of the following do you wish the library had more of?
   - Fiction
   - Audio books
   - DVD/Cds
   - E-books
   - E-database
   - Journals

4. What are your main reasons for using the Library (check all that apply)
   - To borrow best sellers
   - To borrow other fiction
   - To borrow non-fiction books

- For reference/research
- To use the children's library
- To use the young adult area
- To borrow videos, CD's or audio tapes
- To use the copy machine
- To read magazines
- To read newspapers
- To use the Internet
- To get information for a school project
- To use government publications
- To attend story hour or children's programs
- To use the computers (non-Internet)
- To get information for home/car repairs
- To get income tax forms
- To study/work
- To access the E-database subscribed by the library
- For the purpose of research

5. Do you usually find the books and other materials that you are looking for in the library?

- Always find
- Sometimes find
- Rarely find
- Never find

6. Describe the service you received from the library staff

- Staff was helpful and pleasant
- Staff was too busy to help me
- I did not ask for help
- Staff did not have the knowledge to help me

7. Check all areas in which you would like to see technology improved

- More computers to access the collection
- More Internet access
- More CD-ROM workstations
- Improved access from home computers
- Word processing and spreadsheet capability
- More on-line databases

8. Please give us your thoughts on the following areas of service:

Availability of Internet Computers

- Excellent
- Good
- Just OK
- Poor
- Don't use

9. Since how long have you been using the library's online services?

- Less than one month
- 1-6 Months
- 7-12 Months
- 1-2 Years
- 3-4 Years
- More than 4 years

10. How frequently do you visit the library's website?

- This is my first visit
- Daily
- Several times in a week
- Several times in a month
- About once in a month

11. How important is the library as a community service ?

- Very important
- Important
- Somewhat important
- Not important

12. Which all areas do you think the library can improve ?

- More study rooms required
- More study tables required
- More study carrels required
- More meeting rooms required
- More story hour/ craft space required
- Larger Building required

13. Which of the following services would you like to see expanded in order to serve the needs of our growing community better?

- Quiet reading space
- Computer/Internet stations
- Community meeting space
- Book selection
- Children & Teen activities
- Audio-Visual material
- Virtual Reference Service
- Kindle Service
- OPAC

14. In which area you would like to see the collection improved ?

- General non-fiction
- Religion/Philosophy
- History
- Science/Technology

- Health/Medical
- General Fiction
- Mystery
- Science Fiction
- Audio/Video
- Magazines/Newspapers
- Children's materials

15. Rate the quality of current materials in relation to their usefulness, up-to-date-ness, etc.

- Poor
- Fair
- Average
- Good
- Excellent

16. With the ever growing digital content how do you want your library to transform?

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3-25-2019

SCIENTOMETRIC ANALYSIS OF DIABETES RESEARCH OUTPUT DURING THE YEAR 2014-2018: Indexed by Web of Science

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SCIENTOMETRIC ANALYSIS OF DIABETES RESEARCH OUTPUT DURING THE YEAR 2014-2018: Indexed by Web of Science

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Abstract:

To assess diabetes research productivity in India and analysis to various parameters in the view of the scientometric analytical study. Collections include (Articles, Reviews, Meeting Abstracts, Letters and book chapter), etc. published 8016 diabetes journals in 2014 – 2018 were screened with the Web of Science database (Clarivate Analytics). The study mainly focused on the Author and journal wise distribution, Year and country wise output and Institution wise collaboration are discussed in this paper. Most of the research articles published from India, between 2016 and 2017 has been published more journals. All India Institute of Medical Science has published highest journals compare with the other institutions.

Key Word: Diabetes, AIIMS, MEA, JEMDS, MDRF, Citation Network

INTRODUCTION:

We know very well, the scientometric study is the most optimistic method for identifying the quality and productivity of a particular subject or the nature of the scientific output. In this paper deeply analyzed diabetes articles indexed by a Web of science (Clarivate Analysis) database during the year from 2014 to 2018, (Five Years) only. The key term "Diabetes" is used for data collection and also additionally used the key term "India" in the location tab. As a result of 8016 articles were published during the years. Each article has published in different periods and different authors.

OVERVIEW OF DIABETES: Globally and in India

Diabetes is the most common disease of in this world population; Generally, Diabetes disease caused by genetic, ethnic and socioeconomic factors. It's not a communicable disease; it is usually inherited from the hereditary. Diabetes that occurs when the pancreas is unable to secrete the insulin or when our body does not use it properly the secreted insulin. Insulin is a hormone; it is secreted by the pancreas to help the separate the glucose from the food; the separated glucose helps to nourish our cells. When glucose production decreases, or it is not used

properly, glucose levels increase in the blood, medically known as hyperglycemia. Due to the continuous increase of glucose level in blood, many parts of the body are at risk of disrupting.

As per the WHO (World Health Organisation) report, most of the developed countries are affected by this disease. According to the International Diabetes Federation analytical report, "Worldwide 425 million adults were living with diabetes; It is expected to rise to 628 million by 2045. 1 in 2 (212 million) people with diabetes were undiagnosed; this disease has killed 4 million people, More than 21 million live births (1 in 7 births) were affected by diabetes during pregnancy". Most of the Indian people suffered from this disease. India is second place after China in this survey. In this paper focused on Indian research productivity, So, let's look at the statistics of this disease in India. 1,14,394.8 thousand of adults living with diabetes in India, 9.7% of people are affected by this disease, 61,294 thousand of people living with diabetes but they are undiagnosed. The expenditure per person is 549.4 USD. As per 2017, IDF Atlas report 8,42,994 thousand people have died related to diabetes in India.

DATA COLLECTION AND METHODOLOGY

All the needed data for research downloaded from the Web of Science database. WOS (Clarivate Analysis) is the most reliable database because of accurate data, objective, and complete resource available. It's offered completely indexed and cited all references, and also we can find author affiliations. More than 20 thousand Journals cautiously and loyally elected for the maintaining standardization, 1.4 billion cited references available from the year of 1990. The WOS platform is interlinked with WOS core collection and various citation indexing system, such as patent, special subject, and research datasets, almost included 33,000 journals.

In this study, we are using Histcite software for analyzing data and identifying the quality of authors and articles. It is very helpful and familiar software worldwide for bibliometric and Scientometric analytical studies.

REVIEW OF LITERATURE

The last decades, so many scientometrics studies have been conducted on diabetes at various periods. Some of the research authors belong to the medical field, and others belong to library science professionals.

Aniko Somogyi and Andras Schubert analyzed, "Correlation between national bibliometric and health indicators given diabetes case." They have collected the data from

PubMed database up to 2000. In this study revealing the growth rate of diabetes in the year wise and also analyzed the geographical wise distribution of diabetes-related publication. The USA has occupied first place in this rating with 1725 publications. They also discussed the Prevalence of diabetes among the countries very carefully in this study. Finally discovered the correlation between countries and their population.

Waleed M. Sweileh, Sa'ed H. Zyoud, and Samah W. Al-Jabi examine the "bibliometric analysis of diabetes mellitus research output from Middle Eastern Arab countries during the period (1996–2012)". The primary objectives of this research to identify scientific productivity, developing from Middle East Arab (MEA) countries in the field of diabetes mellitus. The Scopus database was used for data collection and act in the data source in this complete study. The analytical process is done by SPSS Program version 15 software; the Impact factor (IF) is a vital role in evaluating journals through the citation report; the citation data imported from Journal Citation Report (JCR). The 64,137 articles were downloaded from the Scopus database during the period 1996 to 2012. In this paper previewing the Author, Country, Institution wise distribution as well as analyzed the most cited papers also. As per the result of the comparative study worldwide with MEA literature growth, the MEA curve line reached the top position in 2012. The Diabetes Research and Clinical Practice journal in the first place with 63 frequency and 2.741(IF). Diabetes Care is the first data source among the top ten data source journals.

Rasolabadi M, Khaledi S, Ardalan M, and others scrutinize diabetes research in Iran. This Scientometric study is focused on the Iranian publication in related to diabetes research indexed by Scopus database; in this study limited to the end of 2014 only. The following search terms are used for data collection; the keyword "diabetes" is used for data retrieval in the rage of title, position, in addition, to mentioning the "Iran" is address position. Totally 4425 papers were published relating to diabetes research from 1968 to 2014. Per year, 96.2 % of papers published averagely and annual growth rate is 25.55%. Iran is in the place on 25th with 4425 papers and 0.72% of the global share among the top 25 countries. Iran's publication has 6.19 citations per paper; especially diabetes-related Iran's publication output increased from 1.63. The year of 1968 – 1999 gradually increased the Iranian publication output from 1.63 to 10.42. However the diabetic patients of Iranians are increasing, But the number of diabetes research

output is not sufficient. The “International Diabetes Federation suggested increased funding for research in diabetes in Iran for cost-effective diabetes prevention and treatment. In addition to universal and comprehensive services for diabetes care and treatment provided by the Iranian health care system, Iranian policymakers should invest more on diabetes research”.

ANALYSIS

Diabetes is now more common in developed countries; Research on diabetes is ongoing around the world. The limitations of this study covered up to during the year 2014 – 2018 indexed by Web of Science database. The research article gets special status with the author’s skill. So let's first examine the quality of the author and their distribution. The top ten authors only have taken into account from this table; the next author's records of these ratings, gradually it goes down, So they are not included here.

S.No	Author	Recs	% of Recs	TLCS	TGCS
1	Mohan V	182	16.71	392	4902
2	Kalra S	169	15.52	90	515
3	Kumar A	151	13.86	89	1281
4	Kumar S	108	9.91	62	1575
5	Anjana RM	90	8.28	273	1837
6	Sharma S	86	7.89	39	505
7	Gupta S	80	7.34	31	338
8	Gupta R	77	7.07	168	13861
9	Singh S	76	6.99	16	289
10	Tandon N	70	6.43	92	2862
	Total	**1089**	**100**		

Table: 1 Author wise distribution of diabetes output.

Table No:1 represents the author wise distribution in the field of diabetes. The first place occupied by Viswanathan Mohan C, from Madras diabetes research center, he has published 182 (16.71%) records with 392 TLCS and 4902 TGCS. Kalara is next to it with 169 (15.52%) records; Kumar A and R are in the next third and fourth places, they have been published almost same just with 42 records difference for each other. However, Kumar S is getting 1575 global

citation score. Kupta R, who is in eighth place with 77 (7.07) and has a second highest global citation score. Tandon N is in the last place in this table with 70 (6.42%) records.

S.No	Journal	Recs	TLCS	TGCS
1	JOURNAL OF EVOLUTION OF MEDICAL AND DENTAL SCIENCES-JEMDS	495	7	27
2	JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH	303	33	408
3	INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES AND RESEARCH	159	8	65
4	INTERNATIONAL JOURNAL OF DIABETES IN DEVELOPING COUNTRIES	156	61	150
5	DIABETES & METABOLIC SYNDROME-CLINICAL RESEARCH & REVIEWS	133	44	578
6	RESEARCH JOURNAL OF PHARMACEUTICAL BIOLOGICAL AND CHEMICAL SCI	124	2	23
7	PLOS ONE	116	0	1060
8	INTERNATIONAL JOURNAL OF SCIENTIFIC STUDY	110	5	20
9	DIABETES RESEARCH AND CLINICAL PRACTICE	101	100	615
10	JOURNAL OF THE PAKISTAN MEDICAL ASSOCIATION	98	41	114

Table:2 Journal wise distribution of diabetes research

The Journal is the spinal cord of research publications; it is a powerful medium for spreading information to worldwide. Numerous journals published every day in different places, but someone journals only reached the right person at the right time. So, every scientometric study has an analyzed journal contribution. On that way, I have analyzed here, as per the result of this analytical study most of the Indian journals contributed to this rating. Top ten journals only represented in this table; in this rating, JEMDS occupied in first place with 495 articles. JEMDS is an official publication of the "International Society of Medical and Dental Sciences" from Karnataka State in India. Journal of clinical and diagnostic research in place of second with 303 articles and 408 global citations. It is published by Dr. Hemant Jain, Paediatric Intensivist from Delhi, India; who is a famous and well-experienced person in this field. The Third place is the International Journal of Pharmaceutical Sciences and research. It is a free, open access journal worldwide. The fourth place journal special focused on diabetes in developing countries; It is published by Springer publication in association with Research Society for the Study of Diabetes in India. PLOS ONE is US-based International Journal; pictorial representation is the special

features of this journal. It is in seventh place in this rating. JPMA is the last place in this table; it is published from Pakistan every month.

S.No	Publication Year	Recs	TLCS	TGCS
1	2014	991	1112	13753
2	2015	1742	1073	14116
3	2016	1822	757	13082
4	2017	1823	393	5639
5	2018	1638	85	1187

Table:3 Year-wise distribution of Diabetes Literature Productivity

A total of 8016 Publications was published on diabetes during 2014-2018. Year-wise distribution of publications is given in Table:3. Fluctuations in the publication of diabetes literature were noticed throughout the study. At this rating, the highest number of publications, i.e., 1823 was in 2017. Followed by 2016 is second place with 1822 records. Next to that 2015 in the place of the third with 1742 records. The recent year of 2018 has in the place of fourth with 1638 records. The initial year 2014 is the last place with 991 records. The median number of publications per year was 1603.2. As per citation score, wise calculation result moves to reverse a line from 2014 to 2018.

S.No	Institution	Recs	% of 8047	TLCS	TGCS
1	All India Inst Med Sci	278	3.455	191	9534
2	Manipal Univ	163	2.026	98	662
3	Madras Diabet Res Fdn	154	1.914	325	3593
4	Bharti Hosp	147	1.827	72	444
5	Govt Med Coll	135	1.678	25	175
6	Postgrad Inst Med Educ & Res	126	1.566	187	5801
7	CSIR	114	1.417	63	1619
8	Aligarh Muslim Univ	104	1.292	146	807
9	Banaras Hindu Univ	102	1.268	52	2660
10	Univ Delhi	99	1.23	76	4227

Table:4 Institute wise distribution of diabetes research

Table No.4 represents the list of huge ten institutions to number of publications. All India Institute of Medical Science has the outstanding number of publications with 278 papers relate to diabetes; This is 3.455% of the total output of this field. AIIMS is India's leading institute in the field of medical research; and also offering high-quality medical education, more than 600 research publications are published by their faculties and researchers in a year. In the second position is the Manipal University in 163 (2.026%) publications followed by the Madras Diabetes research foundation. MDRF recognized worldwide as a premier research institute for diabetes and its complications; it is collaborating with various universities and research institutes in both International and National Level. It is followed by the Bharti Hospital and research center, Government medical colleges, CSIR and Aligarh Muslim, Banaras, Delhi Universities.

Visualization and Mapping analysis.

Science mapping is an additional procedure of scientometrics study. Through this mapping system, we can reveal the current situation and the development of literature. There are many software available in the current scenario. However, VOSviewer is the best option in my choice; It is free software formulated by Eck and Waltman. The visualization and mapping are done by VOSviewer software. It's a little bit harder to finish research as a person,

A single person cannot complete a full research work in an effective and right manner. The collaborative authorship is most powerful and represents accurate information on various aspects. In that way, more than one country conducting similar research. In this area, we are concentrate to represent the analytical report of institute co-authorship by the VOSviewer software.

The Institute Co-authorship analysis.

The institute co-authorship network is shown in Figure 1. The big nodes are representing the top most institutes of diabetes research. We can see on this map, most of the influential institutes belong to India. Specifically, Institutes like AIIMS and Manipal University, MDRF, Bharti hospitals are at the forefront. The strength of these institutions is given at the above table.

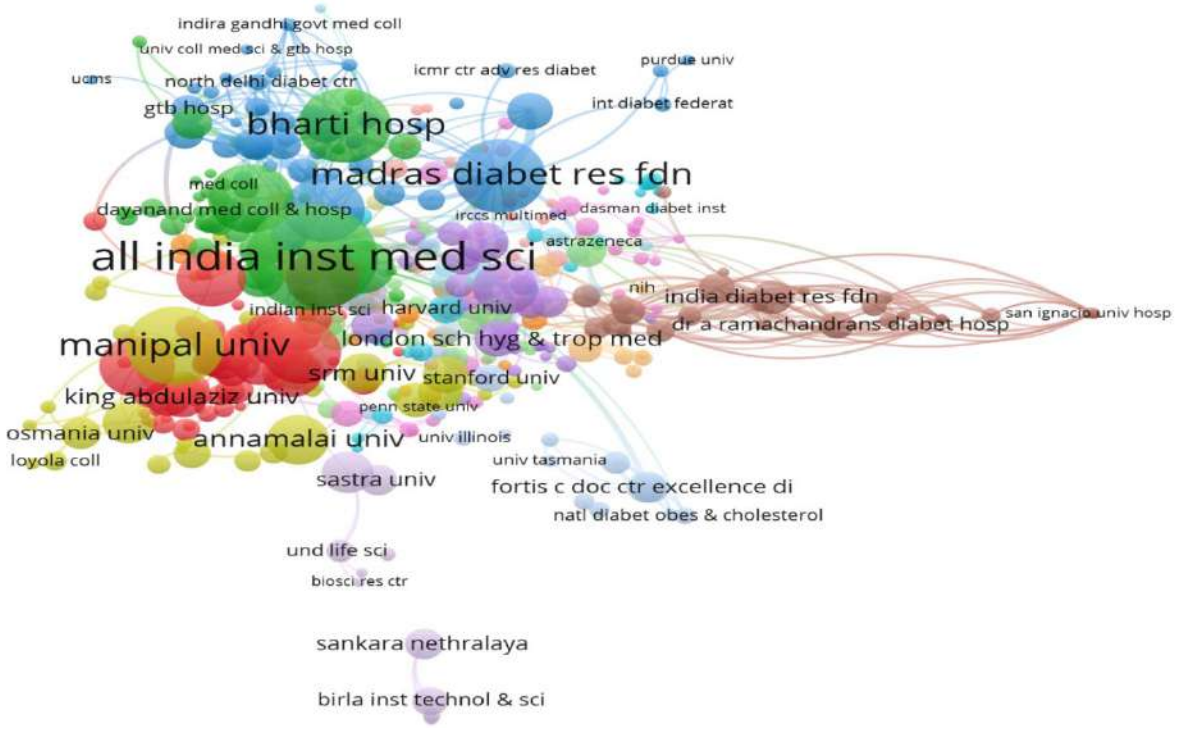


Figure 1. The institute co-authorship network of Diabetes-related publications.

The Country co-authorship network analysis

The figure No.1 is representing the country wise co-authorship network in the field of Diabetes publication. It's pointing out the relationship and communication between the countries as well as the potent countries in this subject. In this map having many colours, which shows the variegation of different path of research. The large nodes are representing the most authoritative country in this field of research. The connection between nodes revealing the association among the countries. The length between the nodes and the dimensions of the links represent the level of cooperation among countries. As we can see in Figure 1, Indian is the most influential country in the field of diabetes research. We can see in collaborative research with the United States, UK, China, and other countries through the network line.

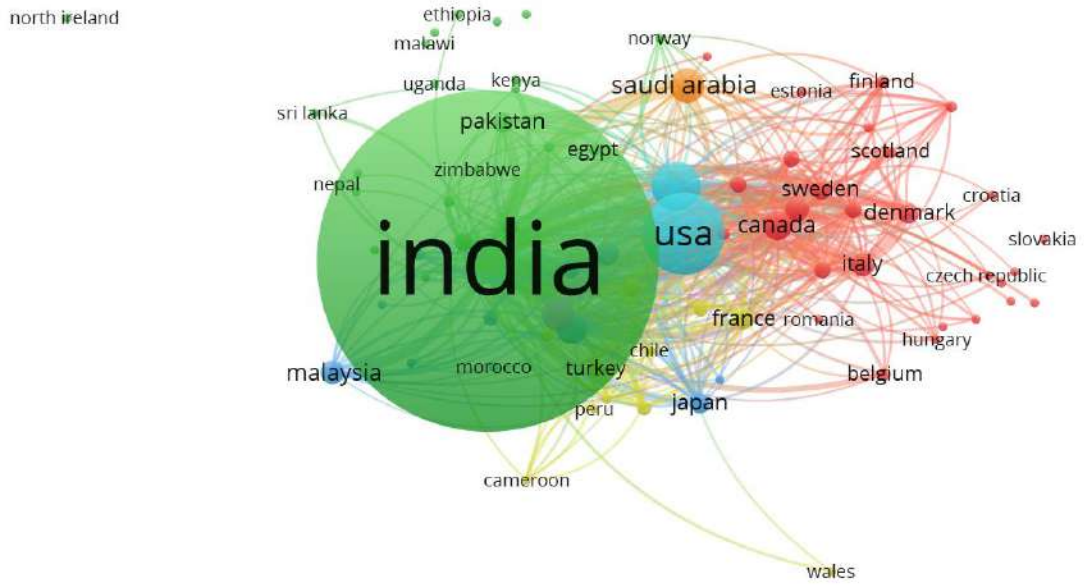


Figure 1. The country co-authorship network of Diabetes-related publications

CONCLUSION

As per the WOS database data and the support of HisteCite & VOSviewer software, we have represented the various analytical reports in terms of scientometric analytics. In this research, we have identified different kinds of fascinating facts and results relate to Diabetes-output. Let's summarize some of these here:

Diabetes-related publications, though slightly less in early 2014. However, the publications growth rate gradually increased after 2014. The highest papers are published in 2017 and 2016. In terms of institutes, the All India Medical Sciences has the highest number of publications. Herewith represents the top 10 institutes are tabulated which are belongs to India; the first seven places owned by research institutes and the last three places captured by Indian Universities. The journal, JEMDS, ranks first among the Diabetes-related journals. India has the most publications; India is the most influential country in Diabetes domain. Diabetes research has been going on over the entire world; even though India is most dominated country in this research field; and also research with other foreign countries. We, can see the relationship with other countries by visualization map. Nowadays Diabetes has risen in developed and developing

countries rapidly. Therefore, through this research to getting a solution for diabetes; This is the great expectation of the people.

Abbreviation:

Recs - Number of Records show the number of records where a given item is found.

LCS - Local Citation Score shows the count of citations to a paper within the collection.CR - Number of Cited References show the number of cited references in the paper's bibliography.

GCS - Global Citation Score shows the total number of citations to a paper in Web of Science.

LCR - Local Cited References show the number of citations in a paper's reference list to other papers within the collection.

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May 2019

Mapping of Research Productivity of Applied and Environmental Microbiology Journal: A Bibliometric Study

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MAPPING OF RESEARCH PRODUCTIVITYOF APPLIED AND ENVIRONMENTAL MICROBIOLOGY JOURNAL: A BIBLIOMETRIC STUDY DIMENSIONS.

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Abstract – This study evaluates the Applied and Environmental Microbiology (AEM). Applied and Environmental Microbiology is a biweekly peer-reviewed scientific journal published by the American Society for Microbiology. ASM's mission is to promote and advance the microbial sciences. The present bibliometrics study was 4985 scholarly research articles published in 'Applied and Environmental Microbiology Journal, during the period 2001-2005. The collected data were analyzed with the help of 'Bibexcel tool' and Hist cite. The references were collected from Mendeley and Endnote Software. The study also applied statistical tools such as Authorship pattern, Relative Growth Rate, Collaborative Index, Degree of Collaboration, Zipf Law, and Exponential Growth Rate.

Keyword - *Bibliometrics, Web of science, Bibexcel, Applied and Environmental Microbiology, Authors productivity.*

INTRODUCTION

Bibliometric is the type of explore method; it is an emerging area of research in the Library and Information Science meadow. The term "bibliometrics" is coined from two words "biblio" and "metrics". The word biblio is derived from the combination of a Latin and Greek word biblion-means a book or paper, metrics indicates the science of metre i.e. dimension.

Applied and Environmental Microbiology is a biweekly peer-reviewed scientific journal published by the American Society for Microbiology. It was conventional in 1953 as Applied Microbiology and obtain its current name in 1975. Articles older than six months are available free of cost from the website, however, the newly in print articles within six months are available to subscribers only. According to the Journal Citation Reports, the journal has a 2014 impact factor of 3.668. The journal has been rank as one of the top 100 journals

over the past 100 years in the fields of biology and medicine. The current editor-in-chief is Harold L. Drake (University of Bayreuth).

REVIEW OF LITERATURE

Rubinandhini A and Gomathi P(2015)[1] this study focuses on the journal fromthe Annals of Library and Information Studies. This study covers the total number of 324 articles studied only the one journal with five years (2005 to 2014). This paper discusses on authorship pattern, citation analysis, Publication Efficiency Index, length of articles, relative growth rate, Distribution of year wise citation analysis, degree of collaboration, country wise distribution of publications, and time series analysis of total authored papers also.

Santhakumar R and Kaliyaperumal K (2015)[2] this study focus on the growth and development of Mobile Technology research in terms of publication output as reflected in Web of Science database. During2000–2013 a total of 10,638 publications was published in the field. The average number of publications published per year was 759.86 and the highest numbers of publications 1495 were published in 2013. Output of total publications, 9037 was produced by multiple authors and 1601 by single authors. University of California System (USA) is the highly contributed institutions with 243 publications followed by University of London (UK) with 149 publications, Florida State University System (USA), National Chiao Tung University (China) with 88 publications.

Gomathi P and Rubinandhini A (2016)[3] this study evaluates the high blood pressure research output from the year 2011-2015. The data were downloaded from web of science database which was maintained by Thomson Reuters. Total number of records was 1152. The result of such studies may be very useful for the research administrators, policy makers and funding agencies. High blood pressure is a progressive disease, signs and symptoms slowly worsen over time. There is no change to do well. The collected data were analyzed with the help of 'Bibexcel tool'. The study also applied statistical tools such as Authorship pattern, Relative Growth Rate, Citation analysis.

Rubinandhini A and Gomathi P (2018)[4] this study evaluates the Applied and Environmental Microbiology Journal (AEMJ). It is a biweekly peer-reviewed logical journal published by American Society for Microbiology. It was established in 1953 as Applied Microbiology and obtained its existing name in 1975. The American Society for Microbiology is the major single life science, society, calm of over 47,000 scientists and health professionals.

ASM's mission is to promote and shift forward the microbial sciences. The present bibliometrics study was 15291 scholarly investigate articles published in 'Applied and Environmental Microbiology periodical, during the period 2001-2015. The composed data is analyzed with the lend a hand of 'Bibexcel tool'. The references were together from Mendeley. The learning also applied statistical gear such as, block wise distribution, Key word wise analysis, and Country Collaboration and BRICS country collaboration.

Alagu A and Thanuskodi S (2019)[5] the study meant to review the Digital Literacy research productivity during the era of 1992-2011.The web of science database has used to retrieve records related to digital literacy research. The bibliographic citation retrieved data are analyzed using the Histcite Software application. Based on the retrieve data, digital literacy research publication is analyzed and interpreted. The performance of the nearly everyone productivity countries, authors, journals, language-wise, Institution –wise, keyword wise and citation reference is analyzed. Relative Growth rate and doubling time have assessed. Journal of Adolescent & Adult Literacy journal placed in the primary position with 18 records.

RESEARCH METHODOLOGY AND LIMITATION OF THE STUDY

The data for the study were retrieved from wed of science database, which is a scientific and indexing service maintained by Thomson Reuters. The Applied and Environmental Microbiology Journal research output from the year 2001-2005. For this study bibliographic detail such as author, document type, collaboration, etc. was analyzed using bibexcel and Histcite. Bibexcel is a software package used for bibliometric analysis and information visualization. The collected data were analyzed with the bib excel,Mendeley and Endnote softwares, Manual, Microsoft Excel Sheet and presented in the form of tables.

OBJECTIVES OF THE STUDY

- ✓ To find out the year wise distribution of the article, and Authorship pattern of publication.
- ✓ To examine the Single author Vs Multi authors, Prolific authors.
- ✓ To identify the Collaborative Index for research output.
- ✓ To evaluate the Degree of Collaboration output in the research.
- ✓ To calculate the Exponential Growth Rate, Language wise distribution.
- ✓ To find out the key word wise distribution of articles.
- ✓ To determine the document type distribution of Applied and Environmental Microbiology Journal research.

DATA ANALYSIS AND INTERPRETATION

Table-1 Year wise distribution of articles

S.No	Publication Year	Records	Percent	TLCS	TGCS
1	2001	847	17.0	2240	56206
2	2002	890	17.9	1913	59662
3	2003	1033	20.7	1366	61563
4	2004	1009	20.2	621	55786
5	2005	1206	24.2	109	63968
Total		**4985**	**100**	**-**	**-**

Figure -1 Year wise Distribution of Articles

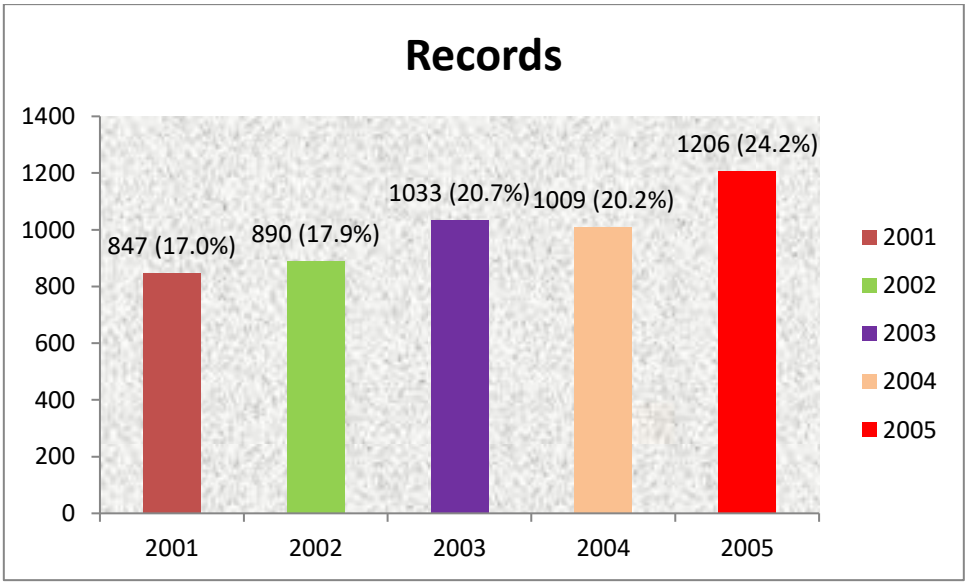


Table 1 and figure 1 shows that year wise distribution of publication of Applied and Environmental Microbiology Journal for the year of 2001 to 2005 (5 years). Total publications 4985 were published. The highest number of publications 1206 (24.2%) were published in the year 2005 followed by 2003 ie 1033 (20.7%). The 2004 were 1009 (20.2%) followed by 2002 ie 890 (17.9%). Very lowest numbers of publications were 847 (17.0%) published in the year 2001. The study reveals that the majority of the articles published in the year 2005 ie 1206 (24.2%).

Table – 2 Authorship Pattern of Publication

S. No	Authors	No. of. Publications	%
1	Single author	48	0.96
2	Two authors	631	12.67
3	Three authors	996	19.98
4	Four authors	1029	20.64
5	Five authors	885	17.75
6	Six authors	575	11.53
7	Seven authors	357	7.16
8	Eight authors	212	4.25
9	Nine authors	122	2.45
10	Ten authors	55	1.10
11	Above ten authors	75	1.50
Total		**4985**	**100**

Figure – 2 Authorship pattern of Publications

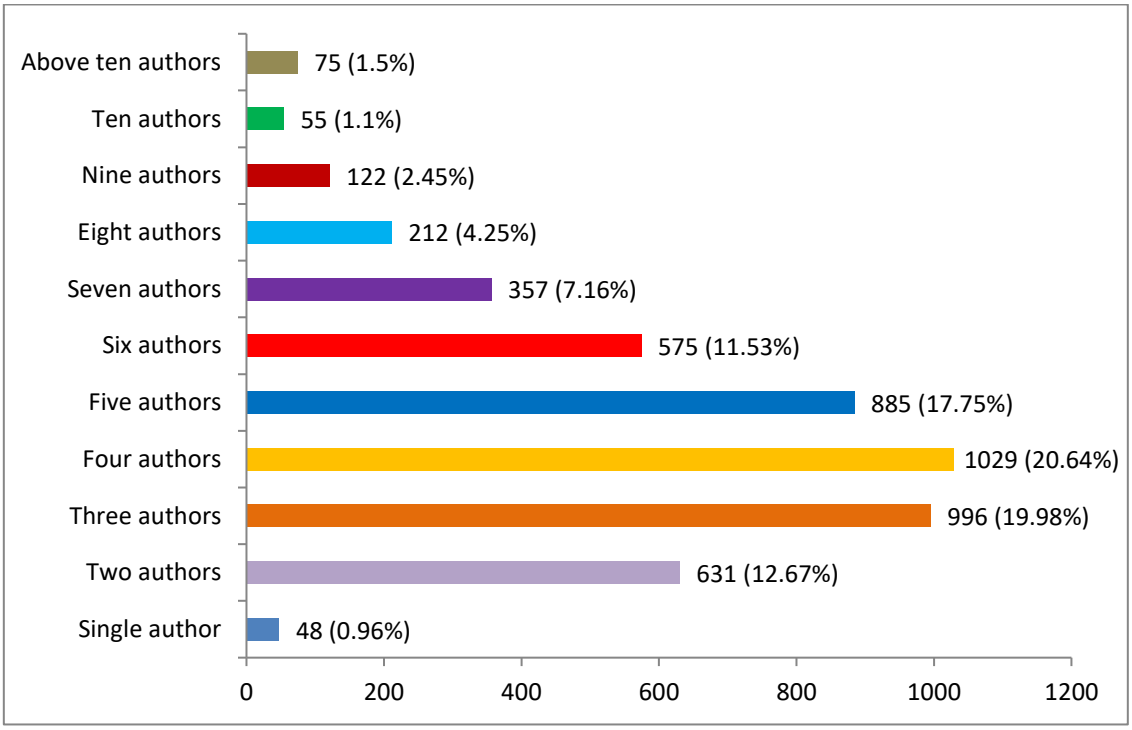


Table 2 and figure2 examine the authorship pattern of publications. Among this authorship, highest number of papers were published in the four authors 1029 (20.64%), followed by three authors 996 (19.98%). Five authors were 885 (17.75%), two authors were 631 (12.67%), six authors were 575 (11.53%), seven authors were 357 (7.16%), eight authors were 212 (4.25%), nine authors were 122 (2.45%), more than ten authors were 75 (1.5%), single authors were 48 (0.96%). This study reveals that the majority of the articles published by four authors 1029 (20.64%).

Table – 3 Single vs. Multi Authors

S. No	Authorship Pattern	Publications	%
1	Single author	48	0.96
2	Multiple Authors	4937	99.04
Total		**4985**	**100**

Figure– 3 Single vs. Multi Authors

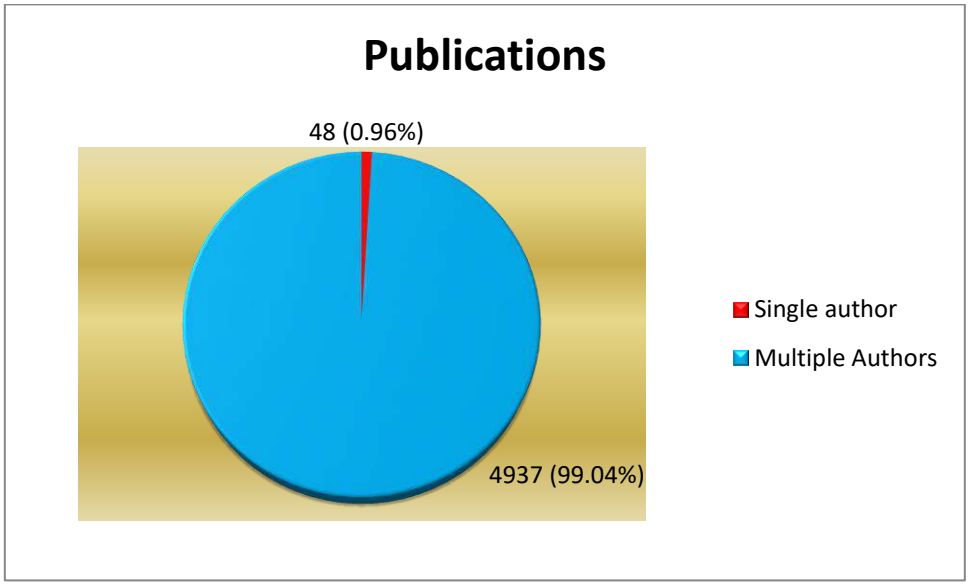


Table 3and figure 3 show that the single author Vs multiple authors of Applied and Environmental Microbiology Journal research output. For the purpose of analysis, the researchers have classified the study two phase viz., first phase Single author and next phase Multi-authors. It is clear from the following that the Single author records are 48 (0.96%) and

multiple authors were 4937 (99.04%). Finally the majority of the articles published in multiple authors in this period from 2001 to 2005.

Table – 4 Prolific author's wise distribution of articles (Top Ten)

S. No	Prolific Authors	Records	%
1	de Vos WM	33	0.98
2	Amann R	30	0.89
3	Lovley DR	26	0.77
4	Fitzgerald GF	25	0.74
5	Abee T	24	0.71
6	Steinbuchel A	21	0.62
7	Hill C	21	0.62
8	Wagner M	21	0.62
9	Tiedje JM	21	0.62
10	Swings J	19	0.56

Table – 4 shows in these analysis 501 prolific authors and 3381 records have produced with 4985 articles. It reveals that de Vos WM 33 (0.98%) is the most productive author contributing Aman R 30 (0.89%) articles followed by Lovley DR with 26 (0.77%) articles. Steinbuschel A, Hill C Wagner M, Tiedje JM were 21 (0.62%) respectively. The lowest production of prolific authors is Swing J 19 (0.56%) of records. And a total of 501 prolific authors is contributed entire research output of the period under study. This study reveals that de Vos WM is the most productive author contributing 33 (1.48%) articles.

Table – 5 Author Productivity (Productivity Per Authors)

S. No	Year	Total no of Papers	Total no of Authors	AAPP	Productivity Per Authors
1	2001	847	3689 (15.95%)	4.36	0.23
2	2002	890	4091 (17.69%)	4.60	0.22
3	2003	1033	4650 (20.11%)	4.50	0.22
4	2004	1009	4812 (20.81%)	4.77	0.21
5	2005	1206	5882 (25.44%)	4.88	0.21
Total		**4985**	**23124 (100%)**	**23.11**	**1.09**

Table 5 shows that the data related to authors productivity. The total average number of author's paper is 23.11 and the average productivity per authors is 1.09. The highest number of authors productivity 5882 (25.44%) was in 2005. The minimum number of authors productivity 3689 (15.95%) was in 2001.

Table – 6 Degree of Collaboration

Year	Single Authored Papers	Multiple Authored Papers	Total(Ns + Nm)	Degree of Collaboration Nm/Ns +Nm = C
2001	11	3678	3689	0.997
2002	10	4081	4091	0.997
2003	13	4637	4650	0.997
2004	7	4805	4812	0.998
2005	7	5875	5882	0.998
Total	**48 (0.21%)**	**23076 (99.79%)**	**23124**	**0.997**

Table 6 shows that the degree of author collaboration in the Applied and Environmental Microbiology Journal. It was calculated using Subramanian's formula. It is found that the degree of author collaboration in journal ranged from 0.997 to 0.998 during the period of 2001 to 2005. In Comparison, where C= degree of collaboration 0.997; Number of Multiple authored works 23076 (99.79%); and Number of single authored works 48 (0.21%).

Table – 7 Collaborative Index (CI)

Year	No. of. Articles	Number of Authors	Collaborative Index (CI)
2001	847	3689	4.36
2002	890	4091	4.60
2003	1033	4650	4.50
2004	1009	4812	4.77
2005	1206	5882	4.88
Total	**4985**	**23124**	**4.64**

Table 7 shows that the distribution of year wise Collaborative Index has been presented in the table. Collaborative Index has been calculated with minimum of 4.36 in 2001 and maximum of 4.88 in 2005. The average Collaborative Index is 4.64.

Table – 8 Exponential Growth rate

S. No	Year	No. of. Publication	Exponential Growth rate
1	2001	847	-
2	2002	890	1.05
3	2003	1033	1.16
4	2004	1009	0.98
5	2005	1206	1.20
Total		4985	4.39

Table 8 shows that Exponential Growth Rate of publications in Applied and Environmental Microbiology Journal during the period of 2001 to 2005 (5 years). The highest growth rate 1.20 was found during 2005 with 1206 publications. Followed by the year 1.16 was found during 2003 (1033) and 1.05 was found during 2002 (890). The lowest growth rate 0.98 was found during 2004 with 1009 publications. It is also found that the Exponential Growth Rate was found to be 4.39 and average growth rate has positive value showing the increasing trend in the Applied and Environmental Microbiology Journal research.

Table – 9 Language wise distributions

S.No	Language	Records	Percent
1	English	4985	100.0

The distribution of Applied and Environmental Microbiology Journal literature by language is shown in table 9 the scholarly communication is effected through English language only used in all the countries. The study concludes that the majority of the articles are published in English Language 4985 (100%).

Table – 10 Type of document wise distribution of Publications

S.No	Document Type	Records	Percent
1	Article	4863	97.6
2	Correction	54	1.1
3	Review	43	0.9
4	Letter	24	0.5
5	Biographical-Item	1	0.0
Total		**4985**	**100**

Table 10 reveals that the type of document wise distribution of publications. It is an accepted fact that most of the scholarly communication of scientific research is published in articles 4863 (97.6%). Followed by Correction 54 (1.1%), Review was 43 (0.9%), Letter was 24 (0.5%), and Biographical-Item was 1. Finally, most of the scholarly communication of scientific research is published in articles 4863 (97.6%).

Table – 11Arithmetic Mean

Year	2001	2002	2003	2004	2005	Total	AM
Total no. of. Articles	847	890	1033	1009	1206	4985	997.0

Table 11shows that the arithmetic mean of the Applied and Environmental Microbiology Journal according to the year of (2001 to 2005). The arithmetic mean value is 997.0 to all the year.

FINDINGS AND CONCLUSION

The publishing trend of a journal completely depends on the efficiency and outline of contributors along with the excellence of research. The AEMJ is one such supposed journal in the grassland of life sciences. The majority of the articles published in the year 2005 ie 1206 (24.2%). The majority of the articles published by four authors 1029 (20.64%). It is clear from the following majority of the articles published in multiple authors in this period from 2001 to 2005. De Vos WM is the most productive author contributing 33 (1.48%) articles. The minimum number of author productivity 3689 (15.95%) was in 2001. The study Comparison, where C= degree of collaboration 0.997; Number of Multiple authored works 23076 (99.79%); and Number of single authored works 48 (0.21%). Collaborative Index has been calculated with minimum of 4.36 in 2001 and maximum of 4.88 in 2005. The average Collaborative Index is 4.64. The study concludes that the majority of the articles are published in English Language 4985 (100%). The study concludes that the majority of the articles are published in English Language 4985 (100%). The study evaluate most of the

scholarly communication of scientific research is published in articles 4863 (97.6%). The arithmetic mean of the Applied and Environmental Microbiology Journal according to the year of (2001 to 2005). The arithmetic mean value is 997.0 to all the year.

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Scientometric Study on Immunology at National Level through Web of Science Database

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Scientometric Study on Immunology at National Level Through Web Of Science Database

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Abstract

This study reveals that research productivity of Immunology in India during the year 1993-2017 (25 years). The Web of Science (WoS) database was used in the data reclamation. The explore term used was "Immunology" and considered as a vital keyword of the topic discussed. Source and highly cited articles based on data obtained on Immunology beginning Web of Knowledge. It is found that the Country is India together contributed 397 articles during 1993-2017. The study mainly focused that year wise, Language wise publications, Document type publications, Authorship pattern, Subramaniam's degree of collaboration and H- index score for highly productive authors, Source wise distributions, Keywords wise distributions, Applicability of Zipf's law method, Page wise and Subject wise Publications was tested. This downloaded, transferred to Bibexcel, VoS viewer, and MS-Excel files for further scrutiny.

Keywords: Scientometric, Immunology, VoS viewer, Zipf law, Bibexcel tool, Co-Authorship Index,H-Index

1. Introduction

Immunity, or resistance, is a state in which a person, either naturally or by some acquired mechanism, is protected from contracting certain disease or infections. In the 15th century, cured attempts were made by the Chinese and the Turks to induce immunity. The report suggests that dried crusts derived from smallpox pustules were inhaled or inserted into the cuts in the skin. The ability to resist disease may be innate (nonspecific), or it may be acquired (specific) when the disease state is emulated in the host. Immunological processes underlying the reaction of the body to infectious agents, to tumors, to transplanted tissues and organs have been well understood and great advances have been made in the immunological techniques.

The antibodies power has a decisive role in immunity and this actuality was reinforced by Jules Border who discovered flattering remark in 1899. The stimulation of a antibodies to a particular

pathogen is known as adoptive or acquired immune response, because it is required during the life time of an individual as an adoptive response to a specific pathogen.

2. Review of Literature

Gupta, Kaur & Bala (2011) analyze the research output in diabetes during 1999-2008 on numerous parameters, as well as its growth, rank and global publications share, citation impact, the overall share of international collaborative papers, and share of major collaborative partners. They also analyze the individuality of most productive institutions, authors, and highly-cited papers. The publications output, impact and collaborative publication share of India are also compared with that of China, South Korea, and Brazil.

Vanitha A et.al (2017) this research concentrated on earthworm analysis. The records are collected from the web of science database for the period of 2007-2016. The total number of publications collected for this study was 3939. In the authorship productivity, the highest number of articles was developed by a three authors 771. The highest number of publications that is 491 was produced in the year 2016. The application Zipf law in the earthworm search, the "Soil" is a keyword used frequency of 526 times. The vermin composting used soil has a lot of nutrition than in a normal soil. And compare to the harmful pesticides, the earthworm vermin composting gives the natural breath to the soil and crops.

3. Objectives of the study

- ✓ To study the Indian research output and Relative Growth Rate of Immunology research
- ✓ To analyze the Language wise publications
- ✓ To find out the Document type publications
- ✓ To determine the Authorship pattern, Degree of Collaborations
- ✓ To investigate H- Index score for highly productive authors
- ✓ To identify the most productive Journals and Keywords wise publications
- ✓ To study the broad Subject areas and Page wise publications
- ✓ To examine the Collaborative Country wise publications
- ✓ To find out the Abstract wise distributions of immunology publications

4. Methodology

The data for this study was downloaded from the Web of Science database for the keyword "immunology". This may be considered as central keywords of the topic discussed. Therefore, the maximum retrieves may be expected by using this term. A total 397 of unique records spanning over the year 1993-2017 has been downloaded and saved. The downloaded data have been analyzed with Bibexcel, VoS viewer and MS-Excel files for further analysis.

5. Data analysis and interpretation

Table 5.1 - Year of publications

Research output on Immunology in India during the period 1993-2017 (25 years), inclusive of both years extracted from Web of Science database. The World level output of the immunology research was 34259, out of world output only Indian publications (397) were selected. Out of 397 articles, it is seen that the largest number of an article published in the year 2016 with 49 research articles (ACPP 1.69), however 35 (23.71ACPP) and 35 (21ACPP). The lowest number of article published in the year 1993 and 1994 records were 2 and the total citation was 38 (19ACPP) in the year of, total citation was 51 (25.5ACPP) in the year of 1994 respectively.

S. No	Publication period	TP	%	TC	ACPP
1	1993	2	0.50	38	19
2	1994	2	0.50	51	25.5
3	1995	4	1.00	29	7.25
4	1996	4	1.00	47	11.75
5	1997	7	1.76	125	17.85
6	1998	5	1.25	11	2.2
7	1999	6	1.51	228	38
8	2000	5	1.25	103	20.6
9	2001	3	0.75	14	4.67
10	2002	12	3.02	120	10
11	2003	6	1.51	176	29.33
12	2004	6	1.51	222	37
13	2005	5	1.25	146	29.2
14	2006	6	1.51	118	19.67
15	2007	18	4.53	297	16.5
16	2008	13	3.27	239	18.38
17	2009	24	6.04	707	29.45
18	2010	32	8.06	823	25.71
19	2011	35	8.81	810	23.14
20	2012	35	8.81	735	21
21	2013	33	8.31	520	15.76
22	2014	28	7.05	701	25.03
23	2015	29	7.30	110	3.79
24	2016	49	12.34	83	1.69

25	2017	28	7.05	9	0.32
	Total	**397**	**100**	**6462**	**452.79**

Table 5.2 - Relative Growth Rate and Doubling Time

This table shows that Relative Growth Rate of total output and also the Doubling Time for publications. It is observed that the Relative Growth Rate for all sources of output has decreased from the first Five years of 1993-1997 (0.45) last Five years 2012-2017 (0.11) respectively. The mean doubling time for the period first five years 1993-1997 (1.04), and last five years 2012-2017 (6.73) respectively. The whole study period has witnessed a a doubling time for total contribution at 22.6. In general in the Relative Growth Rate of publication output has shown a decline trend, Where as a Mean Doubling time for publication has shown increasing trend.

S. No	No. of. Articles	Cumulative Articles	Log (W1)	Log (W2)	R (a) (W2-W1)	Mean (a)	Doubling Time Dt (a)	Mean Doubling Time
1993	2	2	-	0.69	-		-	
1994	2	4	0.69	1.38	0.69		1.00	
1995	4	8	1.38	2.07	0.69	0.45	1.00	1.04
1996	4	12	2.07	2.48	0.41		1.69	
1997	7	19	2.48	2.94	0.46		1.50	
1998	5	24	2.94	3.17	0.23		3.01	
1999	6	30	3.17	3.40	0.23		3.01	
2000	5	35	3.40	3.55	0.15	0.194	4.62	4.36
2001	3	38	3.55	3.63	0.08		8.67	
2002	12	50	3.63	3.91	0.28		2.48	
2003	6	56	3.91	4.02	0.11		6.3	
2004	6	62	4.02	4.12	0.1		6.93	
2005	5	67	4.12	4.20	0.08	0.12	8.67	6.55

2006	6	73	4.20	4.29	0.09		7.7	
2007	18	91	4.29	4.51	0.22		3.15	
2008	13	104	4.51	4.64	0.13		5.33	
2009	24	128	4.64	4.85	0.21		3.3	
2010	32	160	4.85	5.07	0.22	0.18	3.15	3.92
2011	35	195	5.07	5.27	0.2		3.47	
2012	35	230	5.27	5.43	0.16		4.33	
2013	33	263	5.43	5.57	0.14		4.95	
2014	28	291	5.57	5.67	0.1		6.93	
2015	29	320	5.67	5.77	0.1	0.11	6.93	6.73
2016	49	369	5.77	5.91	0.14		4.95	
2017	28	397	5.91	5.98	0.07		9.9	
Total	**397**					**1.054**		**22.6**

Relative Growth Rate (RGR) is the measure to analyze the increase in terms of number of literature output of a particular period of time whereas Doubling Time (DT) is the period of the required for a quantity to double in size of value.

Table 5.3 - Language wise publications

It is forever helpful for the canvasser and the in sequence, scientists to know the language(s) in which objects of their area of specialty is available. The majority of the articles were published in English 396 (99.75%). The succeeding grade taken by Polish was 1 (0.25%) only.

Name of the Language	**TP**	**TC**
English	396	6462
Polish	1	0
Total	**397**	**100**
TP = Total Papers; TC = Total Citation		

Table 5.4- Document type wise distributions

The analysis of the "Immunology" is published in 10 types of document. Out of 397 references, 285 (71.78%) are from Articles, followed by Review with 71 (17.88%), Editorial Material 22 (5.54%) and so on. The remaining was produced below 10 publications.

S. No	Name of the document	TP	%	TC	ACPP	H – Index
1	Article	285	71.78	4489	15.75	34
2	Review	71	17.88	1714	24.14	20
3	Editorial Material	22	5.54	198	9	5
4	Article; Proceedings Paper	9	2.26	58	6.44	3
5	Meeting Abstract	4	1.00	3	0.75	1
6	Letter	2	0.50	0	0	0
7	Reprint	1	0.25	0	0	0
8	News Item	1	0.25	0	0	0
9	Biographical-Item	1	0.25	0	0	0
10	Editorial Material; Book Chapter	1	0.25	0	0	0
Total		**397**	**100**			
	TP = Total Paper; TC = Total Citation; ACPP = Average Citation Per paper					

Table 5.6 - Authorship pattern

Table 4 depicts that the authorship pattern of assistance by a more than seven authors 69 (17.38%). The contributions of three authors is 64 (16.12%), Five authors 56 (14.12%) and Two authors contributions is 52 (13.09%). The authorship pattern reveals a remarkable different between the number of single and multi authors. The study opined that team research is favored in Immunology research in Web of Science database.

S. No	No. of. Authors	Records	Cumulative Records	%	Cumulative %
1	Single Author	31	-	7.80	-
2	Two Authors	52	83	13.09	20.89
3	Three Authors	64	147	16.12	37.01
4	Four Authors	49	196	12.34	49.35
5	Five Authors	56	252	14.12	63.47
6	Six Authors	40	292	10.07	73.54
7	Seven Authors	36	328	9.06	82.6
8	> Seven Authors	69	397	17.38	100

Total	**397**		**100**	

Table 5.7 - Degree of Collaboration

The year –wise degree of collaboration of authors is shown in Table 5. The extent of the degree of collaboration in Immunology research has been measured with the help of the formula devised by K. Subramaniam. Thos formula has been adopted to examine the extent of research collaboration in the study.

S. No	Authorship Pattern	Records	%
1	Single Author	31	7.80
2	Multi Authors	366	92.19
Total		**397**	**100**

The formula where; DC = $\frac{Nm}{Nm+Ns}$

DC = Degree of Collaboration Nm = Number of Multi Authors Ns = Number of Single Author

$= \frac{366}{366+31}$ $= \frac{366}{391}$ = 0.92

Table 5.8 H – Index score for Highly Productive authors (Top 10)

S. No	h-index	Author	Citation sum within h-core	All citations	All articles
1	7	Saha B	368	372	8
2	6	Singh S	118	143	16
3	6	Gupta S	121	126	9
4	5	Raghava GPS	308	308	5
5	4	Mishra GC	85	85	4
6	4	Bal V	37	37	4
7	4	Aggarwal A	94	95	6
8	4	Misra R	94	94	5
9	4	Bayry J	169	169	4
10	4	George A	37	37	4

Bibexcel tool used to identify h-index of authors. 1000 authors Research Productivity on Immunology in India during the year 1993-2017. The research output is 397. With the author field, the .doc file is created. The total number of times the articles are cited is identified with the command ‘tc’ and jn1 file

is created. Select .jn1 file, type 2/3 ‘The Box’ and run Edit out files / Select columns. The result is .col file. The command, ‘Run Analyze / h-index’ produced the outcome i.e. hdx file. This can be opened in excel format. Below table 10 shows that Saha, B published 8 articles, with the h-index of 7. The researcher received 368 citations of 7 articles. But his total citation for his 8 publication is 372. The highly prolific 10 scientist’s h-index, citation counts, citation total sum of h-index are shown in table 10.

Table 5.9 - Source wise distribution (Top 20)

The source wise publications in the Immunology research during the year of 1993-2017. The most of the papers were published in the Journal of Immunology 57 (14.35%), and followed by the Journal of Immunology and Cell Biology 7 (1.76%).

S. NO	Name of the Source	Records	%
1	JOURNAL OF IMMUNOLOGY	57	14.35
2	IMMUNOLOGY AND CELL BIOLOGY	7	1.76
3	INDIAN JOURNAL OF MEDICAL RESEARCH	7	1.76
4	INDIAN JOURNAL OF ANIMAL SCIENCES	6	1.51
5	ANNALS OF ALLERGY ASTHMA & IMMUNOLOGY	6	1.51
6	RHEUMATOLOGY INTERNATIONAL	5	1.25
7	INDIAN JOURNAL OF BIOCHEMISTRY & BIOPHYSICS	5	1.25
8	FRONTIERS IN IMMUNOLOGY	5	1.25
9	HUMAN IMMUNOLOGY	5	1.25
10	VACCINE	5	1.25
11	CURRENT SCIENCE	4	1.00
12	CLINICAL AND EXPERIMENTAL RHEUMATOLOGY	3	0.76
13	JOURNAL OF LEUKOCYTE BIOLOGY	3	0.76
14	CELLULAR & MOLECULAR IMMUNOLOGY	3	0.76
15	BULLETIN OF THE WORLD HEALTH ORGANIZATION	3	0.76
16	INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES AND RESEARCH	3	0.76
17	INTERNATIONAL JOURNAL OF RHEUMATIC DISEASES	3	0.76
18	INDIAN JOURNAL OF EXPERIMENTAL BIOLOGY	3	0.76
19	JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH	3	0.76
20	MEDICAL HYPOTHESES	3	0.76

Table 5.10 - Keywords wise distributions (top 10)

Application of the Zipf law

Zipf law explains that which keyword was used number of times total keywords used to explore in the Immunology 397. The “Immunology” is a keyword used frequently of 46 (2.87%) times to the Immunology and followed that “Infection” was used to explore 33 (2.06%) times. The keyword “Disease” used in 28 (1.75%) times. It takes the ninth place only. Application of Zipf law is shown in the below table.

S. No	Keywords	Records	%
1	IMMUNOLOGY	46	2.87
2	INFECTION	33	2.06
3	DISEASE	28	1.75
4	EXPRESSION	22	1.37
5	DENDRITIC CELLS	22	1.37
6	IN-VIVO	21	1.30
7	T-CELLS	20	1.25
8	ACTIVATION	19	1.18
19	IMMUNE-RESPONSE	19	1.18
10	IMMUNE-RESPONSES	18	1.12

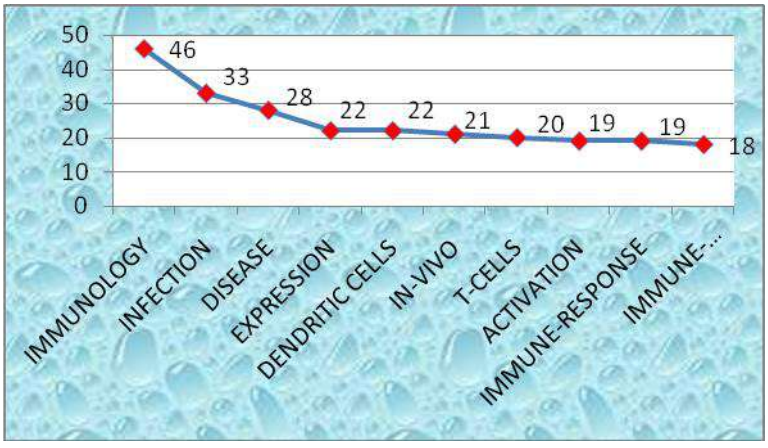


Fig 5.10.1

Table 5.11 - Cited References Top 12

Explains top 12 cited reference from India in Immunology research have received cited reference mostly used reference was Flynn JL, 2001, V19, P93, Annu Rev Immunol records were (12),

the second place of reference in Lowry OH, 1951, V193, P265, J Biol Chem (10) times and followed by the Mathur RK, 2004, V10, P540, Nat Med records were (8) respectively.

S. No	Cited References	Records	%
1	Flynn JL, 2001, V19, P93, Annu Rev Immunol	12	0.15
2	Lowry OH, 1951, V193, P265, J Biol Chem	10	0.12
3	Mathur RK, 2004, V10, P540, Nat Med	8	0.10
4	Cole ST, 1998, V393, P537, Nature	8	0.10
5	Van Crevel R, 2002, V15, P294, Clin Microbiol Rev	7	0.08
6	Kaufmann SHE, 2001, V1, P20, Nat Rev Immunol	7	0.08
7	Flynn JL, 1995, V2, P561, Immunity	6	0.07
8	Awasthi A, 2003, V197, P1037, J Exp Med	6	0.07
9	Laemmli UK, 1970, V227, P680, Nature	6	0.07
10	Haldar JP, 1983, V42, P702, Infect Immun	6	0.07
11	Sakaguchi S, 1995, V155, P1151, J Immunol	6	0.07
12	Walport MJ, 2001, V344, P1058, New Engl J Med	6	0.07

Table 5.12 - Page wise Publications

This table shows page rages ad mean page of length of papers published during the year of 1993-2017 (25 Yrs) in the central Keyword of **"Immunology"** out of 397 papers, 49 papers (11.61%) had between 396 pages in the year of 2016, 35 papers (10.79%) had between 368 pages in the year of 2012. Followed by 2011 papers are 35 (9.83%) 335 pages. The minimum number of papers published in the year of 1993, 1994 papers are 2 (0.35%) 12 pages respectively.

S. No	Publication Period	Records	Number of Pages	%
1	1993	2	12	0.35
2	1994	2	12	0.35
3	1995	4	33	0.97
4	1996	4	26	0.76
5	1997	7	45	1.35
6	1998	5	13	20.93
7	1999	6	40	10.17
8	2000	5	30	0.88
9	2001	3	24	0.70
10	2002	12	79	2.32

11	2003	6	23	0.67
12	2004	6	50	1.46
13	2005	5	46	1.35
14	2006	6	34	0.99
15	2007	18	137	4.02
16	2008	13	126	3.69
17	2009	24	209	6.13
18	2010	32	339	9.94
19	2011	35	335	9.83
20	2012	35	368	10.79
21	2013	33	256	7.51
22	2014	28	273	8.01
23	2015	29	248	7.27
24	2016	49	396	11.61
25	2017	28	254	7.45
Total		**397**	**3408**	**100**

Table 5.13- Subject wise Publications Top 20

Among the Subject wise distribution in India publications from "Immunology" publications take in top 20 subjects only. The largest share in the subject was Immunology 91 (22.92%), followed by the Science & Technology – Other Topics 14 (3.52%) and Allergy Immunology 13 (3.27%), Rheumatology 13 (3.27%) and Agriculture 10 (2.51%).

S. No	Subject wise top 20	Records	%
1	Immunology	91	22.92
2	Science & Technology - Other Topics	14	3.52
3	Allergy; Immunology	13	3.27
4	Rheumatology	13	3.27
5	Agriculture	10	2.51
6	Pharmacology & Pharmacy	9	2.26
7	General & Internal Medicine	8	2.01
8	Cell Biology; Immunology	8	2.01
9	Ophthalmology	8	2.01
10	Immunology; General & Internal Medicine; Research & Experimental Medicine	7	1.76

11	Oncology	7	1.76
12	Biochemistry & Molecular Biology; Biophysics	7	1.76
13	Life Sciences & Biomedicine - Other Topics	6	1.51
14	Microbiology	6	1.51
15	Dermatology	5	1.25
16	Veterinary Sciences	5	1.25
17	Immunology; Research & Experimental Medicine	5	1.25
18	Pediatrics	5	1.25
19	Public, Environmental & Occupational Health	5	1.25
20	Research & Experimental Medicine	5	1.25

Table 5.14 - Country collaboration top 30

This study of joint country research increasing. Here this Immunology investigates in the year of 1993-2017 (25 Yrs). And 104 countries involved in collaborative research, India has highly collaborated with USA in the number of (66) times and UK (19) times. India has done a collaborated research in Germany (17), France (13), and Spain (10) Switzerland (8). This study was paper taken in collaboration with other country. The top 30 collaborative Countries are given below;

S. No	Name of the Country		Records
1	India	USA	66
2	India	UK	19
3	Germany	India	17
4	India	Japan	13
5	France	India	13
6	UK	USA	11
7	India	Spain	10
8	Germany	USA	9
9	France	UK	8
10	India	Switzerland	8
11	France	USA	8
12	Australia	India	7
13	Brazil	India	7
14	Germany	UK	7
15	Spain	USA	7
16	India	Italy	7

17	Japan	USA	7
18	Italy	USA	6
19	Australia	USA	6
20	Brazil	USA	6
21	Canada	India	6
22	France	Spain	6
23	Spain	UK	6
24	India	Peoples R China	6
25	Peoples R China	UK	5
26	Denmark	USA	5
27	Denmark	UK	5
28	France	Germany	5
29	France	Italy	5
30	Switzerland	UK	5

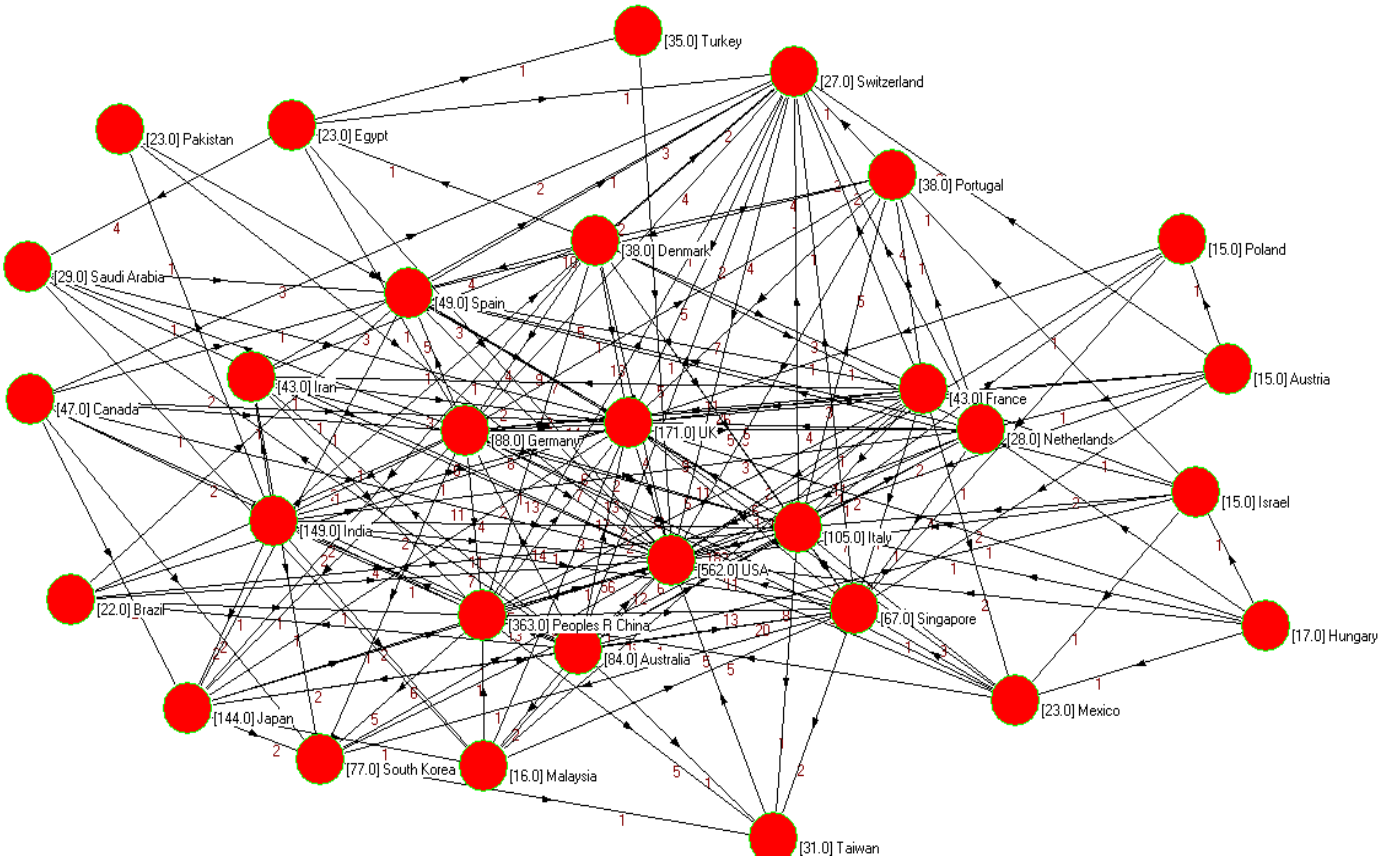


Fig 5.14.2

In the above the picture (or) chart, the decidedly contributed countries in the refer to the Immunology research on USA, UK, Germany, Japan, France, Spain are shows in large number of cited and lowest charity of countries are Brazil, Denmark, Canada, Australia, Portugal are shows in tiny circles

Table 5.15 - Abstract wise

This picture shows that the abstract analysis of this study from Immunology research. This study divided into four clustering in VOS Viewer visualizations. On the basis cluster color of Red, 2 cluster color of Green, 3 cluster color of Yellow and last cluster of Blue. The maximum number of abstract words occupying the word of **"response"** and the bare minimum number of times using the word of abstract in this study was **"hiv"**.

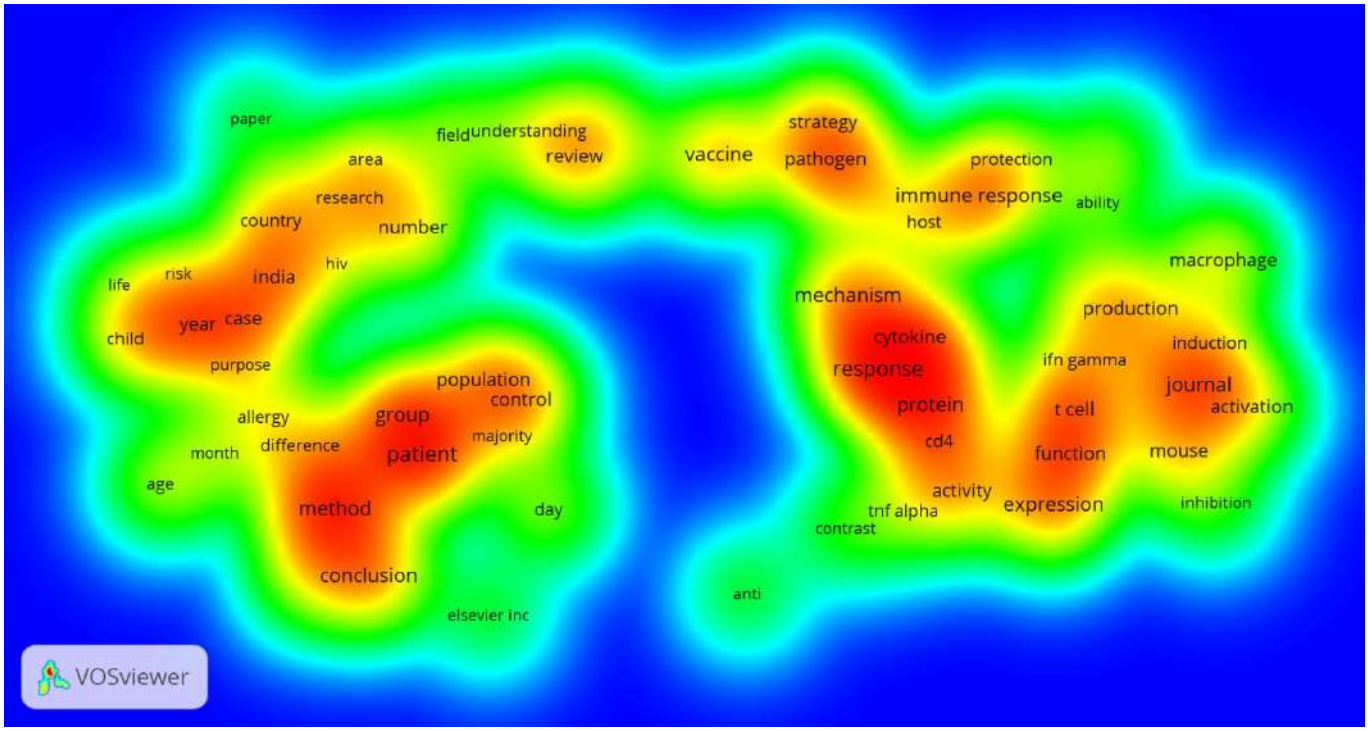


Fig 5.15.3

Findings

- ✓ The maximum number of papers published in 2016 (49) and minimum in 1993, 1994 (2)
- ✓ The Average Publication Per Black of 79
- ✓ The most of the papers published English language 396 and the total Citation core was in this language 6462 respectively
- ✓ The Maximum number of papers published in Article were 285, the total Citation was 4489 and the Index score was 34 respectively
- ✓ The highest number of research papers contributed by multiple authors during the study period

- ✓ The H – Index Score foe highly productive authors in top 10. The maximum H – Index score for highly productive author in **Saha, B (H-Index 7**), Citation h- core 368**,** and followed by the author was **Singh S (H- Index 6)** Citation h- core 118
- ✓ The degree of collaboration was 0.92
- ✓ This study was used keywords are **"Immunology"** 46 times
- ✓ The maximum subject, covering in this study was Immunology

Conclusion

One of the possible confines of this study was its spotlight on the keywords was "Immunology" research in India within the moment in time span of (25Yrs) 1993-2017. This study was conducted using data from the Web of Knowledge database. During this time a total of 49 papers were published 2013 being the years, which result in the maximum number of publications. The whole study period records the mean relative growth rate of 0.954 and means doubling time for publications at the aggregate level has been designed as 22.6 in the total years. Single authored work is less than that of the multiple authored contributions. The Degree of Collaboration (using Subramanian's formula) indicates that there exists a high degree of collaboration. The articles were most of the published in the English language records were 396 (99.75%) respectively. The immunology emerged as being the most common keyword with a recurrence rate of 46 (2.87%). In the 104 countries involved in collaborative research, India has highly collaborated with USA in the number of (66) times and UK (19) times. India has done a collaborated research in Germany (17), France (13), and Spain (10) Switzerland (8).

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AWARENESS AND USAGE OF SEARCH ENGINES AMONG THE STUDENTS SRI RAMAKRISHNA COLLEGE OF ARTS AND SCIENCE COIMBATORE: A STUDY

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AWARENESS AND USAGE OF SEARCH ENGINES AMONG THE STUDENTS SRI RAMAKRISHNA COLLEGE OF ARTS AND SCIENCE COIMBATORE: A STUDY

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Abstract

The study awareness and used of search engines by students Sri Ramakrishna college of arts and science Coimbatore. Total 300 questionnaires were distributed randomly students of SRCAS Coimbatore. The investigator could collect questionnaires from only 259 out of 300 respondents. This constitutes 86.33 per cent (259/300) of the total answer. Mostly 66% of the respondents are usage Google search engine for their principle.39% of the respondents are usage the search engine mostly for judgment thesis works. The trainers need particular awareness of the university establishment. Particular training program should be designed for them.

Keywords: search engine, internet, and program.

1. Introduction

Search engines have develop into an essential part of our in status situation. Increasingly they are replacing the position of libraries in facilitate information finding and access. Google has become identical with investigate. Recent data specify that Google has become the search border of choice for many faculty and students to lecture to their information requirements, far beyond their employ of library catalogs or additional online citation database. A worldwide survey (OCLC, 2005) reports that 89 percent of in order searches undertaken by college students begin with a search engine and Google is the crushing favorite (68 percent).

The reason of this research is to investigate the search engine experience of students and faculty as they look for information to hold their education, teaching, and research. The study offers a holistic viewpoint by investigative use behaviors inside the situation of supported processes and probable outcomes inside an educational location. Picture on many data congregation methods, we combine qualitative and quantitative information to exemplify the located and objective ambitious nature of information gathering and utilization procedure.

1.1. Definition

Vangie Beal defines Search engines are program that search documents for particular keywords and precedes a list of the documents wherever the keywords be found. A search engine is actually a universal group of programs; however, the term is often used to specially explain systems like Google, Bing and Yahoo! Search that enable users to search for documents on the World Wide Web.

2. Review of Literature

Pius Tom Umoren (2016) - This study examined library Search Engines and Gateways for effective legal education, implication for the University of Calabar Law Library. The sample

Population consisted of levels three and four students who are registered in the Law Library. A structured questionnaire was employed for collection of data. The study was designed to determine the extent of availability and utilization of library search engines for information access and retrieval for effective acquisition of legal knowledge in 10 core law courses. The study revealed that the major problems that militated against availability and use of the search engines in the Faculty of Law Library included lack of regular subscription for access and erratic power supply.**Ashwini Nag &Khaiser Nikam (2016)-** This paper discusses the possible usage of the (IoT). In particular, we consider cloud computing, magic mirror and pressure pad sensor using wireless sensor network (WSN). Considering these, we proposed an approach to improve library facilities and providing patron friendly system. This system is a step towards a smart library.**Kirana kumaret al. (2016)**- In this paper, information search strategies and search techniques, importance of search preparation and the application of search techniques are discussed.Nowadays availability of Information over the internet is massive. To make maximum use of these information and to avoid disturbance while pointing the relevant information, the user should have search skills that include being familiar with search techniques. The use of search techniques and strategies aims at helping the user retrieve relevant and required quality information. **Peerzada Mohammad Iqbal & Abdul Majid Baba(2016)-** The paper evaluates a forecasting study on four search engines viz., Google, Bing, Yahoo, and Baidu in order to generate projected data to on collection of data series, using result fluctuation on simple keyword “Dublincore” in the field of Library and Information Science. Data was collected on daily basis for about 100 Days to generate 50 days of projected data using time series analysis, and latter by trend projecting method which reveal that Bing shows a positive secular trend while Google, Yahoo! and Baidu show a downward or negative secular trend.**Natarajan &Bezawit (2016) -**The aim of this study was to analyze the ethical usage of internet facility of information science jimma university ethical advantage of students had gained through the usage of internet facilities and to find out the websites were using computer lab. Most of the students are using search engine like Google, ask, yahoo. It is found that internet facilities have profound effects on ethics of internet usage further like improving learning skills. **Akparobore Daniel & Palmer Judith (2015) -**The study investigated the awareness, use and impediments of search engines by undergraduate students in Delta State University, Abraka. A descriptive study design was used for the study. The population comprised of the students in the Faculty of Social Sciences in Delta State University. The sample of the study was 154. Three research questions guided the study and two hypotheses tested at 0.05 level of significant. One instrument titled search engine use questionnaire (SEUQ) was used for data collection. Percentages and mean rating were

used to answer research questions. ANOVA was used to test hypotheses. The major findings of the study include: Undergraduate students awareness of search engines was low in Delta State University, the test for hypotheses showed that there was a significant difference from the respondents awareness of search engines according to their departments; Google was the most frequently used search engine by the undergraduate students in Faculty of Social Sciences. The finding also revealed that information overload was the greatest challenge the undergraduate students encountered. Based on the findings, the implication of the study revealed more practical aspects of search engines to be employed to promote greater awareness needed to improve the use of search engines.

Divya & Pillai (2015) -Investigate the use of internet tools and services by the research scholars of the University of Kerala. The studies revealed that majority of the respondents are under age group of 26-30. Mainly use of internet for e-journal access and research purpose and most of the time they are using internet for organizing and maintenance of information using Google, yahoo and AltaVista search engines.

3. Aim and Objectives of the study

The study of the cover students of from all level of students

- To identify the accessibility of search engine
- To analyze the use pattern of search engine
- To get the opinion about search engine
- To know the frequency of the visit to online sources
- To know the purpose of using search engine
- To identify the popular search engine

3.1 Methodology

This study is a significant study in which the sample was chosen by means of random Sampling. A survey was used as a method of collecting the data. The data analysis is descriptive in nature. A structured questionnaire designed to collect the data from the Arts & Science College students in Coimbatore. Questions were designed to analysis perception on willing towards depositing the usage of search engine in the areas of support, convenience, humane meaning helpful impact of self-archiving, specialized gratitude, Pre-print culture, Authority of other actors, Conservation, Publishers' policies prohibiting self-archiving, Support (Extra time & Endeavor) and Economic incentive. 259 samples were collected from students.

4. Analysis and Interpretation

Table No: 1

Distribution of the respondents by gender

Sl. No	Gender	No of Respondents	Percentage
1.	Male	139	53.7
2.	Female	120	46.3
	Total	**259**	**100**

The table no 1 shows the gender wise distribution of the respondents. It is incidental that majorities (53.7%) of the respondents were male and 46.3% of the respondents were female.

Chart1

Distribution of the respondents by gender

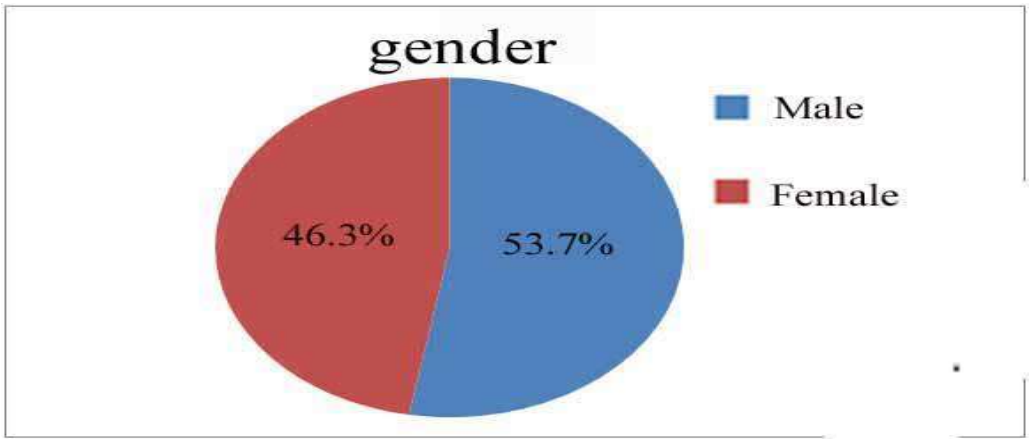


Table No: 2

Distribution of the respondents by Age

Sl. No	Age	No of Respondents	Percentage
1	17-20 Years	124	47.9
2	21-24 Years	135	52.1
	Total	**259**	**100**

The table no 2 shows the distribution of the respondents by age. It is clear from the table those majorities (52.1 %) of the respondents were in the age group o f 21-24. Around 47.9% of the respondents were in the age group of 17-20.

Table No: 3

Distribution of the respondents by courses

Sl. No	courses	No of Respondents	Percentage
1	UG	114	44.0
2	PG	96	37.1
3	MPHIL	39	15.1
4	PHD	10	3.9
	Total	**259**	**100**

The table no 3 shows the distribution of the respondents by the courses. it is clear that 44% of the respondents are doing UG, 37% of the respondents are doing PG degree, 15% respondents are doing M.Phil and balance 4% of the respondents are Ph.D research scholars

Chart: 2

Distribution of the respondents by courses

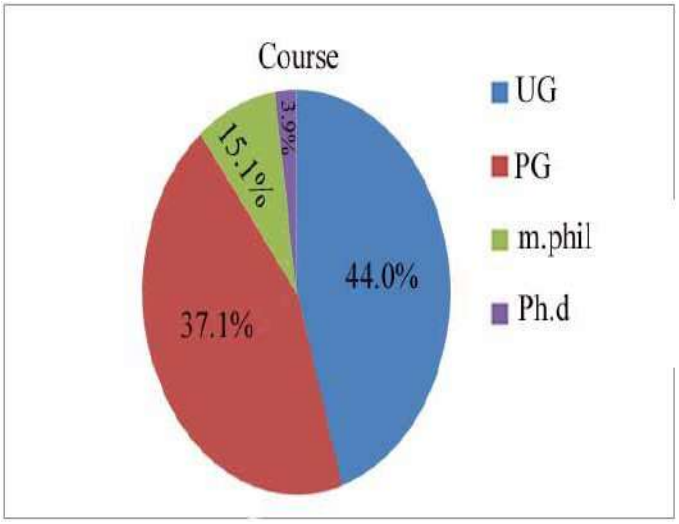


Table No: 4

Usage of search engine

Sl. No	Usage of search engine	No of Respondents	Percentage
1	Google	171	66.0
2	Yahoo	79	30.5
3	Ask .com	9	4.1
	Total	**259**	**100**

The table no 4 shows It is clear from the above table that 66% of the respondents are using Google search engine, 30% of the respondents are using yahoo search engine and balance 4% are using ask.com search engine.

Table No: 5

Experience in Handling search Engine

Sl. No	Experience In Handling Search Engine	No of Respondents	Percentage
1	Above 3 Years	66	25.5
2	1-2 Years	88	34.0
3	Less than 1 year	27	10.4
4	Less than 6 months	36	13.9
5	Less than 1 months	42	16.2
	Total	**259**	**100.0**

The table no 5 shows It is clear from the above table that 25% of the respondents are having above 3 years experience in using search engine, 34% are having 1-2 years experience in using search engine, 10% % of the respondents are having less than 1 years experience in using search engine, 14% respondents are having less than 6 months experience in using search engine and balance 16% respondents are having less than 1 month experience only.

Table No: 6

Quality of Search Engine

Sl. No	Quality of search engine	No of Respondents	Percentage
1	Very good	104	40.2
2	Good	95	36.7
3	Moderate	39	15.1
4	Poor	17	6.6
5	Very Poor	4	1.5
	Total	**259**	**100.0**

The table no 6 shows It is clear from the above table that 40% of the respondents are stating that their search engine quality was very good. And 36.7% of the respondents said that the quality of their search engine was good to use, 15% of the respondents said that moderate, and 7 % of the respondents state that their search engine quality was poor and finally balance 2 % of the respondents stated that their search engine quality was very poor.

Table 7

Main Usage of Search Engine

Sl. No	Main usage of search engine	No of Respondents	Percentage
1	Finding thesis	102	39.4
2	Finding conference	83	32.0
3	Finding Reports	52	20.1
4	Using community of science	17	6.6
5	Using discussion list	5	1.9
	Total	**259**	**100.0**

The table no 7 From the above table that 39% of the respondents are using search engine for their thesis purpose, 32% of the respondents are using search engine for finding conferences details and 20% of the respondents are used to find the report details. 6.6% of the respondents are using

for community of science and 2% of the respondents are using search engine for preparing discussion list.

2. Cross Tabulation

Table 2.1

Age with gender

Sl. No	Age		Gender		Total
			Male	Female	
1	17-20 Years	Count	66	58	124
		% within	47.5%	48.3%	47.9%
2	21-24 years	Count	73	62	135
		% within	52.5%	51.7%	52.1%
	Total	**Count**	**139**	**120**	**259**
		% within	**100.0%**	**100.0%**	**100.0%**

It is clear from above table that 47% of the male respondents are coming under 17-20 years age category and 52.5% respondents are coming under 21-24 years age category. And 48% of the female respondents are coming under 17-20 years age category and 51.7% female respondents are coming under 21-24 years age category.

Table 2.2

Age with Course

Sl. No	Age		Course				Total
			UG	PG	M.phil	Ph.d	
1	17-20 years	Count	59	43	18	4	124
		% within	51.8%	44.8%	46.2%	40.0%	47.9%
2	21-24 years	Count	55	53	21	6	135
		% within	48.2%	55.2%	53.8%	60.0%	52.1%
	Total	**Count**	**114**	**96**	**39**	**10**	**259**
		% within	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

It is clear from above table that 52% of the respondents doing UG degree coming under 17-20 years age category and 48% UG degree respondents are coming under 21-24 years age category. 45% of the respondents doing PG degree coming under 17-20 years age category and 55% PG degree respondents are coming under 21-24 years age category. And 46% of the respondents doing M. Phil degree coming under 17-20 years age category and 54% M.Phil degree respondents are coming under 21-24 years age category. Finally 40% of the respondents doing Ph.D degree coming under 17-20 years age category and 60% Ph.D degree respondents are coming under 21-24 years age category.

Table 2.3

Age with usage of Search Engine

Sl. No	Age		Usage of search engine			Total
			Google	Yahoo	Ask.com	
1	17-20 years	Count	86	30	7	123
		% within	50.3%	38.0%	87.5%	47.7%
2	21-24 years	Count	85	49	1	135
		% within	49.7%	62.0%	12.5%	52.3%
	Total	Count	171	79	8	258
		% within	100.0%	100.0%	100.0%	100.0%

It is clear from above table that 50% of the respondents are using Google search engine and they are coming under 17-20 years age group and 50% respondents are coming under 21-24 years group. By using yahoo as search engine there38% respondents are coming under 17-20 years and balance 62% respondents are coming under 21—24 years age group. By using ask.com as search engine there 88% respondents are coming under 17-20 years and balance 12% respondents are coming under 21—24 years age group.

Table 2.4

Age with Search Engine Experience

S.No	age		Search Engine Experience					Total
			Above 3 years	1-2 years	Less than 1 year	Less than 6 months	Less than 1 month	
1	17-20 years	Count	29	44	15	13	23	124
		% within	43.9%	50.0%	55.6%	36.1%	54.8%	47.9%
2	21-24 years	Count	37	44	12	23	19	135
		% within	56.1%	50.0%	44.4%	63.9%	45.2%	52.1%
	Total	Count	66	88	27	36	42	259
		% within	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

From above table that in above 3 years experience category there are 44% of the respondents are 17-20 years and 56% of the respondents are under 21-24 years age category. And 1-2 years experience category there are 50% of the respondents are 17-20 years and 50% of the respondents are under 21-24 years age category, less than 1 year experience category there are 56% of the respondents are 17-20 years and 44% of the respondents are under 21-24 years age category. And less than six month experience category there are 36% of the respondents are 17-20 years and 64% of the respondents are under 21-24 years age category, less than 1 month experience category there are 55% of the respondents are 17-20 years and 45% of the respondents are under 21-24 years age category.

Table 2.5

Gender with Search Engine Main Usage

S.No	Gender		Search Engine Main Usage					Total
			Finding thesis	Finding conference	Finding reports	Using community of science	Using discussion list	Finding thesis
1	Male	Count	47	47	32	9	4	139
		% within	46.1%	56.6%	61.5%	52.9%	80.0%	53.7%
2	Female	Count	55	36	20	8	1	120
		% within	53.9%	43.4%	38.5%	47.1%	20.0%	46.3%
	Total	Count	102	83	52	17	5	259
		% within	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

From above table search engine main usage are specified. In that for finding thesis from the internet 46% are male and 54% are female. And for finding conferences from the internet 57% are male and 43% are female. Then for finding reports from the internet62% are male and38% are female. And for community sciences from the internet 53% are male and 47% are female. Finally for using discussion list from the internet 80% are male and 20% are female category.

3. CHI SQUARE ANALYSIS

H_0: There is no significant relationship between age of the respondents and total usage of search engine.

H_1: There is a significant relationship between age of the respondents and total usage of search engine.

TABLE 3.1

Age of the Respondents and Total Usage of Search Engine

Particulars	Calculated valve	DF	Table value	Significance
Age with Total Search Engine Usage	0.467	1	3.84	Not significant

It is clear from the above table that the calculated chi-square value is less than the table value. So the null hypothesis was accepted. Hence there is no significant relationship between age of the respondents and total usage of the respondents.

H_0: There is no significant relationship between gender of the respondents and total usage of search engine.

H_1: There is a significant relationship between gender of the respondents and total usage of search engine.

TABLE 3.2

Gender of the Respondents and Total Usage of Search Engine

Particulars	Calculated valve	DF	Table value	Significance
Gender with Total Search Engine Usage	1.394	1	3.84	Not significant

It is clear from the above table that the calculated chi-square value is less than the table value. So the null hypothesis was accepted. Hence there is no significant relationship between gender of the respondents and total usage of the respondents.

H_0: There is no significant relationship between course of the respondents and total usage of search engine.

H_1: There is a significant relationship between course of the respondents and total usage of search engine.

TABLE 3.3

Course of the Respondents and Total Usage of Search Engine

Particulars	Calculated valve	DF	Table value	Significance
Course with Total Search Engine Usage	109.07	3	7.81	Significant

It is clear from the above table that the calculated chi-square value is higher than the table value. So the null hypothesis was rejected. Hence there is a significant relationship between course of the respondents and total usage of the respondents.

H_0: There is no significant relationship between search engine type of the respondents and total usage of search engine.

H_1: There is a significant relationship between search engine type of the respondents and total usage of search engine.

TABLE 3.4

SEARCH ENGINE TYPE OF THE RESPONDENTS AND TOTAL USAGE OF SEARCH ENGINE

Particulars	Calculated valve	DF	Table value	Significance
Search Engine Type with Total Search Engine Usage	155.33	2	5.99	Significant

It is clear from the above table that the calculated chi-square value is higher than the table value. So the null hypothesis was rejected. Hence there is a significant relationship between search engine type of the respondents and total usage of the respondents.

FINDINGS:

- More than 52% of the respondents are coming under 21-24 years category.
- 54% of the respondents are male category
- Probably 44% of the respondents are doing their UG degree from the college.
- Mostly 66% of the respondents are usage Google search engine for their purpose.
- 34% of the respondents are having 1-2 years experience on using search engine.
- 40% of the respondents stating that quality of their search engine were very good.
- 39% of the respondents are using the search engine mainly for finding thesis works.
- Age, gender of the respondents are does not have any significant relationship between total usage of search engine.
- Search engine type, Search engine quality are having significant relationship with total usage of search engine.
- Search engine using time, search engine experience, and search engine main purpose are having significant relationship with total usage of search engine.

CONCLUSION

Search engine use among college Students the survey clearly shows that students are making use of the Internet for course related reading and research needs. And some students are

using for attributed to entertainment. Ease of work and time saving are the reasons of Internet use among university students. It is worth pointing out that students are less likely to go and seek help from the library staff, support staff, or attend Internet training classes. The colleges should arrange training programs to orientate the students and teachers to the hidden potential of this technology. Modules on basic and advanced searching techniques should be included in the curricula of all departments. Teachers and staff can encourage Internet usage among students. The trainers need special attention of the university authorities. Specialized training program should be planned for them. Academic cooperation should also be promoted through the sharing of educational resources among colleges.

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Winter 1-8-2019

Perspective of The Search Engines Among The Faculty Members of Autonomous Colleges of Coimbatore: A Study

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SIVASUBRAMANIAN, G and Gomathi, Dr.P., "Perspective of The Search Engines Among The Faculty Members of Autonomous Colleges of Coimbatore: A Study" (2019). *Library Philosophy and Practice (e-journal)*. 2218.
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PERSPECTIVE OF THE SEARCH ENGINES AMONG THE FACULTY MEMBERS OF AUTONOMOUS COLLEGES OF COIMBATORE: A STUDY

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ABSTRACT

Search engines have become an integral part of our information environment. Increasingly they are replacing the role of libraries in facilitating information discovery and access. Search engine use is an embedded task that is determined by individuals' specific work contexts and needs. The present study attempted to analysis the perspective of the search engines among the faculty members of autonomous colleges in the Coimbatore. The study had the objective of analysis the level of computer and internet proficiency of the faculty members, purpose of using the search engines and evaluation of the search engines. The study highlighted the relationship of the designation and their proficiency of computer and internet search skill and proved that difference between using the search engines by their age.

Keywords: Search Engines, Faculty Members, Autonomous Colleges, Coimbatore

INTRODUCTION

People exercise the web to find information on almost everything from commonplace information, such as city council bus timetable to long-term vacation places and flight information. Internet of things has become part and parcel of our day-to-day life. However, many questions linger over the minds of many people. In today's world of information-driven society, many studies are exploring usefulness and ease of use of the technology. There is urgent need to better understand factors that influence users' perception of web search engine performance and their perceived intention to reuse the system. Measuring users' perception about their web search experience would provide useful information for many purposes, such as evaluating the success of retrieving information from web search engines; other information systems; building personalized web search user interface. A large number of studies have been conducted to identify factors influencing adoption and use of new information technology, and web sites design and usability. It is believed that investigating the factors that influence user acceptance of search engines and adoption in different contexts continues to be a focal interest in IS and information science research. However, these studies have emphasized on factors that influence user acceptance of technology or systems.

Limited studies have explored how user's contextual factors such as prior knowledge affects their perceived level of satisfaction and perceived intension to reuse the systems. Limited studies have also conducted on usefulness and ease of use of web sites and search engines. It

would help information systems and search engines designers to improve the system performance and build optimized search engines. It is also expected that IS, human-computer interactions, IS and information science researchers will benefit from this study to better understand users' interaction with the search engines and explore further research identifying other factors that affect user perception and success of using the systems. This will, in turn, provide insights into designing next-generation user interface to bridge the semantic gap between the system and its perspective users.

What is Search Engine?

Search engine define as "a program that searches documents for specified keywords and returns a list of the documents where the keywords were found". Typically, a search engine works by sending out a spider to fetch as many documents as possible. Another program, called an indexer, then reads these documents and creates an index based on the words contained in each document. Each search engine uses a proprietary algorithm to create its indices such that, ideally, only meaningful results are returned for each query.

REVIEW OF LITERATURE

Kurt, Adile Aşkım (2018) examined students' online information searching strategies, their cognitive absorption levels and the information pollution levels on the Internet based on different variables and to determine the correlation between these variables. It was also found in the study that there were low levels of positive correlations between the students' level of cognitive absorption and encountering information pollution on the Internet and online information searching strategies. Another finding was that male students' average score for online information searching strategies was higher than that of the female students.

Salehi, Sara (2018) examined students' information access while using Web search, through twenty-eight one-on-one study sessions. First, most participating students declared that they use Google search engine as their primary or only information-seeking tool. Second, about 60% of the clicked result links during the study sessions were located in pages more than second of the search results without personalization influencing the relevance of the top-ranked search results. These differences presented a missed information opportunity, an opportunity bias, for students.

Allam, Ahmed (2014) demonstrated the influence of selection and sorting/ranking criteria operating in search engines on users' knowledge, beliefs, and attitudes of websites about vaccination. Search engines delivering websites containing credible and evidence-based medical information impact positively Internet users seeking health information. Users are affected beneficially or detrimentally but are unaware, suggesting they are not consciously perceptive of indicators that steer them toward the credible sources or away from the dangerous ones. In this sense, the online health information seeker is flying blind.

Eke, Helen Nneka (2014) revealed that most of the students were using the Internet to search for materials for writing term papers, projects and other assignments in other to enhance their academic work. The study equally revealed that, the Internet search strategies employed by

the students includes: use of search engines, sourcing information from the university library database and key word searching. Frequent power outage, slow Internet connections, and lack of training in basic Internet skills were found to be the major problems encountered by LIS students while using the Internet for research.

Kinley, Khamsum (2014) examined how users' perceived level of prior knowledge and experience influence their perceived level of satisfaction of using the web search engines, and how their perceived level of satisfaction affects their perceived intention to reuse the system. The study highlighted the relationship between users' prior level of experience and their perceived level of satisfaction in using the web search engines, and their perceived level of satisfaction in using the systems and their perceived intention to reuse the systems.

Jadhav, Rahul J. (2014) aimed to study the significant role of search engine to make the higher education innovative and easily accessible to the students, faculty and researchers. For collecting data and information varied programs are developed and the uses of search engine proved to be the most significant tool for gathering information and knowledge. Search engine is one of the most widely used methods for navigating of cyberspace.

Jato, Michael (2013) examined students' use of search engines for information retrieval on the web in Adeyemi College of Education, Ondo. The study recommend that students should be enlightened on the importance of online resource for their academic success to propel them to use search engines often; and to use a lot of search engines from over 200 search engines available on the net to retrieve vital information. The librarians should embark on a serious publicity via the use of media such as flyers, notice board, face book, bulletins, seminars etc to attract students' patronage to the virtual library.

Lopatovska, Irene (2012) identified search engine features that users find valuable, such as perception of convenience, independence and privacy, as well as specific functionality such as keyword searching, auto complete feature. The study suggested that seekers operate within digital and traditional information fields and do not easily switch between the fields without major disruption to their habitual pattern.

Tsai, Meng-Jung (2012) investigated the role of search context played in university students' online information searching strategies. The study indicated that university students' online search strategies utilized for searching daily life information were significantly better than those utilized for learning activities, especially in behavioural and meta cognitive strategies. There may be an effect of the interaction between search context and gender on students' online searching strategies. Based on the above, suggestions are provided for future design and implementation of online information searching activities.

Du, J. T (2011) investigated how academic users search for information on their real-life research tasks. This article presents the findings of the first of two studies. Eleven PhD students' searching behaviors on personal research topics were observed as they interacted with information retrieval (IR) systems. The analysis of search logs uncovered the characteristics of research tasks and the corresponding search strategies.

Nikolopoulou, Kleopatra (2011) investigated the undergraduate students' information search practices. The results showed that the Web was the primary information system searched in order to find information for university assignments, while the level of database searching was very low.

Jansen, Bernard J (2009) investigated the effect of search engine brand on the evaluation of searching performance. The study highlighted that branding affects overall Web search at four stages such as search engine selection, search engine results page evaluation, individual link evaluation and evaluation of the landing page. The study discussed the implications for search engine marketing and the design of empirical studies measuring search engine performance.

Malik, Amara (2009) explored different aspects of web search behavior of university students, in terms of user's background and experience with web, purpose of use, searching skills, query formulation, frequency of use, favorite search engine, etc. The study stated that the use of web for academic tasks, preference of Google, reformulation of query, use of basic and advance search features, browsing of first ten hits and problem of slow speed.

Rieger, O. Y. (2009) examined the use of Web search engines by faculty and students to support learning, teaching, and research and investigated the satisfaction levels with search outcomes and trust in search engines in supporting specific tasks. It is highlighted that even though there were variations in search engine use among the faculty, graduate and undergraduate students surveyed, there was convergence in means of overall satisfaction with the outcomes of their searches and trust in search engines in supporting their studies and research.

Reichert, Monique (2005) showed the students generally preferred to use the keyword instead of the semantic search function, independently from the judgment on the accuracy of the results yielded by the respective search engine. The results suggested that the pertinence of the results as judged by the students strongly depends on the familiarity of the users with both the formulation of questions and the domain of interest. Also the semantic search engine needs to be improved in order to extract more semantic information.

STATEMENT OF THE PROBLEM

The present study is an attempt to explore the perspective of the search engines among the faculty members of autonomous colleges in Coimbatore district. The usefulness of a search engine depends on the relevance of the result set it gives back. While there may be millions of web pages that include a particular word or phrase, some pages may be more relevant, popular, or authoritative than others. Most search engines employ methods to rank the results to provide the "best" results first. How a search engine decides which pages are the best matches, and what order the results should be shown in, varies widely from one engine to another. Hence the study attempted to study the perspective of the search engines among the faculty members of autonomous college.

OBJECTIVES

1. To study the level of proficiency in computer and internet searching skill
2. To analysis the search techniques used and preferred file formats
3. To spotlight on purpose of using the search engines
4. To analysis the criteria towards evaluation of the search engines and ranked the using search engines.

METHODOLOGY

The present study is descriptive and analytical in nature. The study has made use of both primary and secondary data. Questionnaire used to collect the data. For the study the researcher distributed and collected data from 165 participated from various autonomous colleges in Coimbatore district. After collecting the data, SPSS used to analyze the data. The results were presented in tables with percentage. Some of the data were analyzed with mean and standard deviation values. Using the chi-square and regression, the study hypothesis was proved.

Table 1

Social Demographic Profile

	Variable	**No of Respondents**	**Percentage**
Gender	Male	97	58.79
	Female	68	41.21
	Total	**165**	**100**
Age	Below 30	23	13.94
	30 - 35	28	16.97
	36 - 40	40	24.24
	41 - 45	42	25.45
	45 - 50	20	12.12
	Above 51	12	7.27
	Total	**165**	**100**
Nativity	Rural	94	56.97
	Urban	42	25.45
	Semi Urban	29	17.58
	Total	**165**	**100**
Designation	Professor	36	21.82
	Associate Professor	47	28.48
	Assistant Professor	82	49.70
	Total	**165**	**100**
Department	Science	54	32.73
	Arts	56	33.94
	Humanities	29	17.58
	Languages	26	15.76
	Total	**165**	100

The table 1 shows the social demographic profile of the respondents. Among the gender group, it is noticed that 59.8% of the respondents were male and 41.2% of the respondents were female. Among the age group, it is inferred that 25.4% of the respondents were in the age of 41-45 and 24.2% of the respondents were in the age of 36-40. 17% of the respondents were in the age of 30-35 and 14% of the respondents were below 30 years aged. 12.12% of the respondents were in the age of 45-50 and 7.3% of the respondents were aged above 51 years. Among the nativity, it is clear that majorities (57%) of the respondents were from rural area, 25.5% of the respondents were from urban area and 17.6% of the respondents were from semi-urban area. Among the designation, it is noticed that 50% of the respondents were Assistant professors and 28.5% of the respondents were Associate professors and 22% of the respondents were professors. Among the department distribution, it is noticed that 34% of the respondents were reported from Arts and 33% of the respondents were reported from Science department. Around 16% of the respondents responded from humanities and 16% of the respondents were reported from languages department.

Table 2
Level of proficiency in Computer and Internet searching

Proficiency Level	**Computer**		**Internet**	
	N	%	N	%
Expert	120	72.73	113	68.48
Intermediate	43	26.06	46	27.88
Novice	2	1.21	6	3.64
Total	165	100	165	100

The table 2 shows the level of proficiency in computer and internet searching by the respondents. It understood that 72.7% of the respondents were experts in computer and 68.5% of the respondents were experts in internet searching skill. Around 26.06 % of the respondents were intermediate in computer and 27.9% of the respondents were intermediate in internet searching skills.

Table 3
Chi-Square between designation and their proficiency on computer and internet searching skill

	Computer Skill			Internet Searching Skill		
	Value	df	Asymp. Sig. (2-sided)	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.916[a]	2	.000	16.832[a]	2	.000
Likelihood Ratio	18.307	2	.000	17.507	2	.000
Linear-by-Linear Association	9.715	1	.002	8.315	1	.004
N of Valid Cases	165			165		

The table 3 discussed the relationship between the designation of the respondents and their proficiency on computer and internet searching skill. From the table, it is inferred that the significant values are between 0.002 and 0.004 which is lesser than 0.05 at the significance level of 95%. Therefore the null hypothesis is rejected. The hypothesis proved that "***There is a significant relationship between the*** **designation of the respondents and their proficiency on computer and internet searching skill."**

Table 4

Mode of using the search engines

Sl. No	Place		Always	Sometimes	Rarely	Total	WAM	Rank
1	Laptop	N	79	52	34	165	2.27	2
		%	47.88	31.52	20.61	100		
2	Departmental Lab	N	55	80	30	165	2.15	4
		%	33.33	48.48	18.18	100		
3	Main Library	N	72	62	31	165	2.25	3
		%	43.64	37.58	18.79	100		
4	Smart Phone	N	87	65	13	165	2.45	1
		%	52.73	39.39	7.88	100		

Table 4 shows the mode of using the search engines. It inferred that 47.9% of the respondents were always and 31.5% of the respondents were sometimes using the laptop for searching. 33.3% of the respondents were always using and 48.5% of the respondents were sometimes using the department lab for searching. 43.6% of the respondents were always using and 37.6% of the respondents were sometimes using the main library for searching. It is highlighted that 52.7% of the respondents were always using and 39.4% of the respondents were sometimes using the smart phone for searching.

It is understand that majorities of the respondents were using the smart phone and laptop for searching.

Table 5

Search Tools and Techniques

Sl. No	Search Technique		Always	Sometimes	Rarely	Total	WAM	Rank
1	Basic Search	N	79	60	26	165	2.32	3
		%	47.88	36.36	15.76	100		
2	Advanced Search	N	81	59	25	165	2.34	2
		%	49.09	35.76	15.15	100		
3	Phrase Search	N	83	62	20	165	2.38	1
		%	50.30	37.58	12.12	100		
4	Field Search	N	67	60	38	165	2.18	4
		%	40.61	36.36	23.03	100		

Table 5 shows the search techniques adopted by the respondents while using the search engines. it is observed that 47.8% of the respondents were always using and 36.4% of the respondents were sometimes using the basic search techniques. 49.1% of the respondents were always using and 35.7% of the respondents were sometimes using the advanced search. 50.3% of the respondents were always using and 37.6% of the respondents were sometimes using the phrase search. 40.6% of the respondents were always using and 36.4% of the respondents were sometimes using the field search.

Among the search techniques, most of the respondents were frequently using the phrase search and advance search techniques.

Table 6
Preferred format form Search Engine

Sl. No	Format		Always	Sometimes	Rarely	Total	WAM	Rank
1	Word	N	87	45	33	165	2.33	2
		%	52.73	27.27	20.00	100		
2	Full-text HTML	N	70	59	36	165	2.21	3
		%	42.42	35.76	21.82	100		
3	PPT	N	65	65	35	165	2.18	4
		%	39.39	39.39	21.21	100		
4	PDF	N	87	65	13	165	2.45	1
		%	52.73	39.39	7.88	100		

Table 6 shows the expected file format from the search engines results. It noticed that 52.7% of the respondents were always and 27.3% of the respondents were sometimes expecting the word files from the search results. 42.4% of the respondents were always and 35.8% of the respondents were sometimes expecting the full text HTML format from their search results. 39.4% of the respondents were always and another 39.4% of the respondents were sometimes expecting the PPT results from the searching. 52.7% of the respondents were always and 39.4% of the respondents were sometimes expecting the PDF as their result of search.

Among the file formats, more numbers respondents were expecting the PDF and word file format from their search results.

Table 7
Purpose of using the Search Engines

Sl. No	Purpose		Always	Sometimes	Never	Total	WAM	Rank
1	Prepare Class notes	N	82	58	26	166	2.35	2
		%	49.70	35.15	15.76	100.61		
2	Research Work	N	81	59	25	165	2.34	3
		%	49.09	35.76	15.15	100		
3	Reference works	N	83	62	20	165	2.38	1
		%	50.30	37.58	12.12	100		
4	Entertainment	N	78	52	35	165	2.26	4
		%	47.27	31.52	21.21	100		
5	Shopping	N	67	60	38	165	2.18	6
		%	40.61	36.36	23.03	100		
6	Other Personal work	N	75	55	35	165	2.24	5
		%	45.45	33.33	21.21	100		

Table 7 shows the various purpose of using the search engines. it is noticed that 49.7% of the respondents were always using and 35% of the respondents were sometimes using the search engines for preparing class notes. 49.1% of the respondents were always and 35.8% of the respondents were sometimes using the search engines for research work. 50.3% of the respondents were always and 37.6% of the respondents were sometimes using the search engines for reference works. It is noticed that 47.3% of the respondents were always using and 51.5% of the respondents were sometimes using the search engines for entertainment purposes. 40.6% of the respondents were always using and 36.4% of the respondents were sometimes using the search engines for shopping purpose. 45.5% of the respondents were always using and 33.3% of the respondents were sometimes using the search engines for other personal works.

Among the academic purposes, more numbers of respondents were using the search engines for reference works and preparing for class notes. Among the personal purposes, more number of the respondents was using the search engines for entertainment and other personal works.

Table 8

Regression between age and purpose of using the search engines

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.387[a]	.150	.120	.732

a. Predictors: (Constant), Prepare Class notes, Research Work, Reference works, Entertainment, Shopping, Other Personal work

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.888	4	2.722	5.073	.001[a]
	Residual	61.704	161	.537		
	Total	72.592	165			

a. Predictors: (Constant), Prepare Class notes, Research Work, Reference works, Entertainment, Shopping, Other Personal work

b. Dependent Variable: age

The table 8 demonstrated the regression test results between age and their purpose of using the search engines. From the table, it is inferred that the significant values are between 0.001 which is lesser than 0.05 at the significance level of 95%. Therefore the null hypothesis is rejected. The hypothesis proved "***There is a significant difference between*** **the age and their purpose of using the search engines"**

Table 9

Evolution of the Search Engines

Sl. No	**Techniques**		**Always**	**Sometimes**	**Never**	**Total**	**Mean**	**Rank**
1	Core Technology	N	79	43	43	165	2.22	6
		%	47.88	26.06	26.06	100		
2	Scalability	N	53	79	33	165	2.12	8
		%	32.12	47.88	20.00	100		
3	Connectors	N	75	55	35	165	2.24	5
		%	45.45	33.33	21.21	100		
4	Content Processing	N	65	57	43	165	2.13	7
		%	39.39	34.55	26.06	100		

5	Indexing	N	90	35	40	165	2.30	3
		%	54.55	21.21	24.24	100		
6	Query Functionality	N	85	50	30	165	2.33	1
		%	51.52	30.30	18.18	100		
7	Search Relevancy	N	75	65	25	165	2.30	3
		%	45.45	39.39	15.15	100		
8	Security	N	74	63	28	165	2.28	4
		%	44.85	38.18	16.97	100		
9	User Interface	N	83	52	30	165	2.32	2
		%	50.30	31.52	18.18	100		
10	Administration, Monitoring, and Maintenance	N	55	73	37	165	2.11	9
		%	33.33	44.24	22.42	100		

Table 9 explains about the opinion about the evolution of the search engines. It is clear that 47.9% of the respondents were always expecting and 26.1% of the respondents were sometimes expecting the core technology support from the search engines. 32.1% of the respondents were always expecting and 47.9% of the respondents were sometimes expecting the scalability from the search engines. 45.5% of the respondents were always expecting and 33.3% of the respondents were sometimes expecting the connectors of the search engines. It observed that 39.4% of the respondents were always mentioned and 34.5% of the respondents were sometimes mentioned about the content processing from the search engines. 54.5% of the respondents were always discussed and 21.2% of the respondents were sometimes discussed about the indexing of the search engines.

It is noticed that 51.5% of the respondents were always expecting and 30.3% of the respondents were sometimes expecting the query functionality from the search engines. 45.5% of the respondents were always expecting and 39.4% of the respondents were sometimes expecting the search relevancy from the search engines. 44.8% of the respondents were always expecting and 38.2% of the respondents were sometimes expecting the security from the search engines. 50.3% of the respondents were always and 31.5% of the respondents were sometimes expecting the user interface. 33.3% of the respondents were always expecting and 44.2% of the respondents were sometimes expecting the administration, monitoring and maintenance of the search engines.

Based on the respondents opinion, the evaluation of the search engines might done based on the Query Functionality, User Interface, Search Relevancy, Indexing, Security and Connectors

Table 10

Preferred the Search Engines

Sl. No	Name	Mean	Std Div	Rank
1	Google	2.02	1.078	1
2	Bing	2.35	1.155	2

3	Ask.com	2.79	1.178	5
4	Baidu	2.61	1.184	3
5	Yahoo!	2.69	1.286	4
6	Altavista	2.82	1.075	7
7	Aol.com	2.81	1.26	6
8	Web Crawler	3.11	1.266	8

Based on the above evaluation criteria, the above table shows the ranking of the top most search engines used by the respondents. It is observed that Google (M:2.02, SD: 1.078) ranked first, Bing(M:2.35, SD:1.155) ranked second, Baidu (M:2.61, SD: 1.184) ranked third, Yahoo! (M: 2.69, SD:1.286) ranked fourth and Ask.com (M:2.79, SD: 1.178) ranked fifth. Aol.com(M: 2.81, SD: 1.26) ranked sixth, Altavista (M: 2.82, SD: 1.075) ranked seventh and Web Crawler (M: 3.11, SD: 1.266) ranked eighth.

Findings

- The study indicated that 59.8% of the respondents were male and 25.4% of the respondents were in the age of 41-45
- The study mentioned that 57% of the respondents were from rural area and 50% of the respondents were Assistant professors.
- It is noticed that 34% of the respondents were reported from Arts and 33% of the respondents were reported from Science department.
- The study found that 72.7% of the respondents were experts in computer and 68.5% of the respondents were experts in internet searching skill.
- The study highlighted that there is a significant relationship between the designation of the respondents and their proficiency on computer and internet searching skill
- The study stated that most of the respondents were using the smart phone and laptop for searching.
- The study stated that most of the respondents were frequently using the phrase search and advance search techniques. Lesser number of respondents was using the basic search.
- The study highlighted that more numbers respondents were expecting the PDF and word file format from their search results. Lesser number of respondents was preferred PPT and full text HTML format.
- More numbers of respondents were using the search engines for reference works and preparing for class notes.
- The study highlighted that There is a significant difference between the age and their purpose of using the search engines"
- Most of the respondents were using the search engines for entertainment and other personal works.
- Majorities of the respondents stated that Query Functionality, User Interface, Search Relevancy, Indexing, Security and Connectors were the evaluation factors of the search engines.

- ❖ It is observed that most of the respondents were using the Google, Bing, Baidu and Yahoo! Moderate level of preference given to Ask.com, Aol.com, Lesser people only using the Altavista and Web Crawler ranked eighth.

CONCLUSION

Search-engines are among the most used resources on the internet. At present hosts over eight billion items and returns answers to queries in a fraction of a second, thus realizing some of the most incredible predictions envisioned by the pioneers of the world wide web. Further internet search engines are considered the biggest source of information and find an important place in libraries as quickest means to access information at any time. But it requires the help of search engines for the effective and optimum use. However, search engine is an aid to find pin-pointed information to save time of the users. This study revealed perception of the search engines of the faculty members on autonomous colleges and information that will be solution to formulating effective search in higher education. This study also revealed that majority of the respondents search for professional and personal information from the search engines. The study highlighted the expectation of the user how a search engines want to prove the results to the academic professionals.

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Summer 7-9-2019

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A STUDY ON READING HABITS AMONG HIGHER SECONDARY SCHOOL STUDENTS IN SALEM, TAMIL NADU INDIA

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ABSTRACT

The study on reading habits among higher secondary school students is a paper thought to access the use of library service and reading habits of higher secondary school students the findings from the table are differentiated into various categories and the table shows that the most of the students are very much enjoyable in reading books with fervor. therefore the study concluded that the reading habits of secondary school students should be given rapt attention because of the imminent danger of losing reading habits in the era of information & communication technology .the study recommends that there must be a fixed time for reading a variety of reading material that will appeal to students and that adopting different methods to arouse the interest of students could enhance their reading habit.

Keywords: Habits, Paper, School, Technology, ICT, Reading

1. INTRODUCTION

Besides learning, reading strategies, readers learn good reading habits. These behaviors should come naturally, just like eating every day. If students understand why it is important to implement this list, they're more likely to take on these challenges eagerly. So, I teach the list at the beginning of the year. To help, I teach lessons to address good reading behaviors and explain why and how they will help the students. However, I can't force readers to use them. I can make sure we check in periodically with one another to see how work on the habits is going. The check-ins reminds readers that using the habits will improve their ability to succeed in school. In addition, they love to hear suggestions from their friends.

2. REVIEW OF REALATED LITERATURE

Bal, M. (2018) This investigation planned to decide the in-school and out-of-school perusing and composing encounters of center school understudies. This examination utilized phenomenology from subjective research techniques. Each of the 12 members (8 female, 4 male) were center school grade 6 understudies. Different information gathering strategies were utilized: an overview and a semi-organized meeting about the utilization of Wattpad, a semi-organized meeting about the Turkish language subject, a semi-organized meeting about the connection between in-school and out-of-school perusing and composing encounters, a journal of the

understudies' Wattpad perusing list, a journal of the understudies' Wattpad composing list, and the writings composed by the understudies on Wattpad. Information gathering kept going four months. The information gathered from the review survey were investigated illustratively. The information from the semi-organized meetings and journals were investigated utilizing content examination. The outcomes showed that the greater part of the members had a negative view of in-school perusing. Comparable ends were drawn from the outcomes in-school composing in light of the fact that the majority of the members felt confined and under strain amid the in-school composing process. Wattpad was viewed as a scene where members can communicate serenely. The members shared positive encounters portrayed by ability, decent variety, importance, and stimulation. On the other hand, in-school perusing evoked negative encounters, for example, feeling obliged, exhausted, and confined, and seeing the action as futile. Out-of-school composing encounters were resolved to advance interior inspiration, to create self-articulation of one's tension and pleasure alike, and to create computerized composing abilities in out-of-school composing encounters. Generally speaking, no relationship was found between in-school and out-of-school perusing and composing encounters.

Molotja, T. W., and Themane, M. (2018). The significance of getting kids off to a decent begin in perusing can't be exaggerated. Effective scholastic execution at essential and auxiliary school level is mostly subject to the capacity to peruse. It is trusted that great students are the individuals who are capable in perusing. In any case, numerous students are attempting to peruse and, in this way, battle to scholastically prevail in different subjects. The issue of not having the capacity to peruse rises above contrarily on students' scholarly accomplishments. This investigation proposes a system towards rousing students in growing better perusing propensities through the dissemination of perusing sacks. The blended technique approach was embraced in directing this examination. Students' perusing procedures were first distinguished by controlling a review on perusing methodologies. Around 14 understudy instructors volunteered in appropriating the surveys at their separate schools amid their showing practice sessions. The surveys were disseminated to 155 students who willfully took an interest in the examination. Information were investigated utilizing the Statistical Package for Social Sciences (SPSS) programming for spellbinding insights. The outcomes demonstrated that a large portion of the students utilize worldwide perusing procedures, with the least using the critical thinking methodologies and the help perusing systems. The scientists suggest the use of perusing packs as a methodology to inspire students to grow great perusing propensities, which will at that point lead to the utilization of each of the three techniques, specifically, the issue perusing systems.

Ydin, G., and Ayranci, B. B. (2018). This investigation four central language aptitudes collaborate with one another. Creating perusing aptitudes will likewise create tuning in, talking, and composing abilities. Perusing appreciation, utilizing what is comprehended on new subjects and adapting new words amid perusing can impact listening understanding just as oral and kept in touch with self-articulation. General grievances of educators and guardians in regards to center school understudies are that the understudies don't peruse enough. Expanding love for perusing in center school understudies must be conceivable by deciding the interests and needs of those understudies and directing the understudies towards those requirements and interests. At the

point when the writing was explored, there were no useful examines in regards to the perusing inclinations of center school understudies. In such manner, this examination was important to add to the writing. The reason for this investigation was to decide the perusing inclinations of center school understudies. The example of this examination was made dependent on subjective contextual analysis and under the extent of this investigation, 25 members were chosen for each class level including fifth, sixth, seventh, and eighth grade understudies. Information was gathered with the semi-organized meeting method. Information was themed by two specialists utilizing content investigation. Comparable answers were changed over into numerical information and displayed as tables. Models from understudy articulations were given to help the tables. The consequences of the examination showed that a greater part of understudies favored perusing on printed assets, chose books as type, read writings with at least 300 pages, and favored experience as subject. Also, understudies communicated that obscure words in perusing writings ought to be low, they deliberately go through 1-2 hours of the day perusing, and favored quiet perusing

Kavi, R. K., Tackie, S. N., & Bugyei, K. A. (2015) This examination concentrated on researching perusing for delight among Junior secondary school understudies. The exploration strategy embraced for the examination was the contextual analysis approach. An absolute number of 93 respondents containing 87 Students, 5 Teachers and 1 Headteacher took an interest in the examination. Surveys were controlled to request data from the respondents, while a meeting plan was utilized for the Teachers and Headteacher of the school. The discoveries proposed that greater part of the respondents don't peruse for delight, they just participate in perusing basically to pass their examinations and less for their self-improvement, fun, or to be all around educated. It was additionally discovered that the complete time spent on perusing day by day by a large portion of the respondents was between 1-2 hours. The examination discoveries likewise demonstrated that dominant part of the respondents considers TV seeing as a genuine downside to their commitment in relaxation perusing. A portion of the proposals that the examination offered for advancing perusing for joy among understudies were that the schools need to actualize perusing advancement programs that will make perusing an ordeal that is effectively searched out by understudies. The scientist likewise proposed that a practical school library ought to be set up inside the essential instructive framework; that ought to be all around furnished with the important assets to serve the perusing needs of the youngsters. The school library ought to make a favorable situation for perusing that can make the kids feel comfortable to take part in perusing for joy exercises.

3. OBJECTIVES OF THE STUDY

- To find out the gender wise higher secondary school students.
- To find out group of study into the HSS students.
- To find out medium of study of the HSS students.
- To know the nativity of the HSS students.
- To identify the place of reading to the HSS students.

- To know the time spent by students on the read for reading.
- To evaluate the frequency of reading by the HSS students.
- To find out choice of reading to the HSS students.
- To determine the main purpose of reading by the HSS students.
- To identify the preferred reading language to the students.
- To examine the types of materials by the students.
- To find out the library collection.
- To find suggestions for improving reading habits.
- To find the factors hindering by the students.
- To identify the inculcating of reading habits.

4. HYPOTHESIS

The following educational statements were postulated for this study

- There will be a significant relationship exists between academic achievement and study habit of the higher secondary school students.
- There will be significant difference exists between high and low academic achieving higher secondary school students on study habits.
- There is no significant difference in the reading habits secondary school students in Salem.
- There is no significant difference in the reading habits of male and female students in secondary schools in Salem Local government schools.
- There is no significant difference in the academic performance of male students in the higher secondary schools and female students in higher Secondary Schools.

5. METHODOLOGY

Salem higher secondary schools are selected for the purpose of the present study. The researcher proposed to select 400 respondents from a questionnaire method. However, actual reply was received from 380 respondents. The sampling of the study is based on purposive simple random sampling. The researcher has employed a well structured questionnaire for collecting the data from the respondents of higher secondary schools. The researcher distributed a questionnaire to the students of higher secondary schools in Salem. The questionnaire has been prepared in such a way that the respondents could easily understand them. The collected data are

classified and tabulated according to the objectives and hypothesis stated. First, the data were recorded on data sheets and then fed into the computer personally. They are worked out with the help of Excel package. The general data interpretation is made with the help of percentages and averages. The study is confined to the higher secondary school students of the schools in Salem, regarding the pattern of reading habits.

6. DATA ANALYSIS AND INTERPRETATIONS

Table – 6.1 Distributions of Source Data

Name of the Schools	Total No. of. Students	Questionnaire Distributed	Questionnaire Returned	Percentage
Government (ADW) Higher Secondary School, Salem.	202	100	92	24.21
Government Higher Secondary School, Salem.	240	100	95	25
SSRM Higher Secondary School, Salem.	600	100	97	25.53
Fatima Girls Higher Secondary School, Omalur, Salem	455	100	96	25.56
Total	1497	400	380	100

The table 6.1 shows that out of 400 questionnaires distributed and collected, finally 380 are received back. Hence the total rate of response is 95 % of the analysis shows that in the above Schools.

Table 6.2 Gender wise distribution of respondents

Gender	No. of. Response	Percentage
Male	198	52.10
Female	182	47.89
Total	**380**	**100**

Table 6.2 shows that, the higher secondary school students in Salem the majority of 198 (52.10%) respondents belong to male and 182 (47.89%) respondents belong to female out of total respondents.

Table 6.3 Secondary school student standard level

Class	No. of. Respondents	Percentage
XI	182	47.89
XII	198	52.10
Total	**380**	**100**

Table 6.3 shows that secondary school student standard level. The majority of the respondents are198(52.10%) were XII standard and 182(47.89) students were XI standard.

Table 6.4 Group wise distribution wise respondents

Name of Groups	No. of. Respondents	Percentage
Math's Biology	88	23.15
Math's Computer	5	1.31
Computer Science	11	2.89
Pure Science	88	23.15
Arts	92	24.21
Statistics	4	1.05
Commerce & Accountancy	93	24.47
Total	**380**	**100**

Figure 6.4.1 Name of the Group by the Subjects

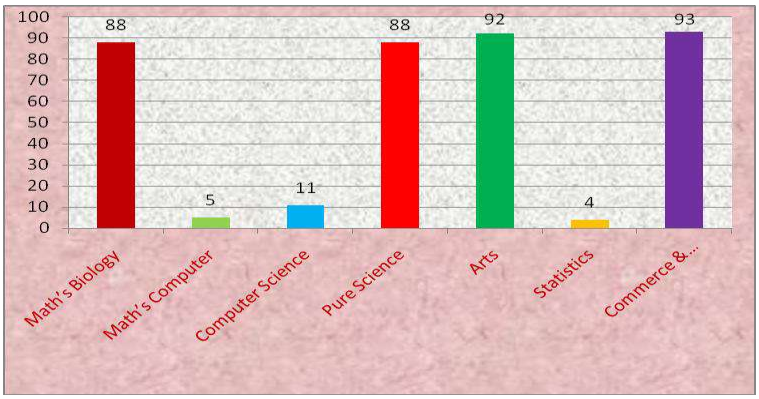


Table 6.4.1 shows that, there are seven groups – Mathematics, Biology, Math's computer, Computer Science, Pure Science, Arts, Statistics, Commerce & Accountancy. The highest rate is given by the group of Commerce & Accountancy, Arts, and Math's Biology. It also shows that, there are only a few students in the statistics and Math's computer. Out of the 380 respondents, majority of their commerce & accountancy.

Table 6.5 Medium of Study

Medium	No. of. Respondents	Percentage
Tamil	157	41.31
English	223	58.42
Total	**380**	**100**

Table 6.5 shows that the 58.42% students are English medium and 41.31% students are Tamil medium.

Table 6.6 Native of the Students

Native of the Students	No. of. Respondents	Percentage
Rural	152	40
Urban	175	46.05
Semi Urban	53	13.94
Total	**380**	**100**

Table 6.6 shows that the native of the students. Most of the students coming from urban area 175 (46.05%), followed by 152 (40%) of the students coming from rural area and 53(13.94%) minimum number of students coming from semi urban.

Figure 6.6 Native of the Students

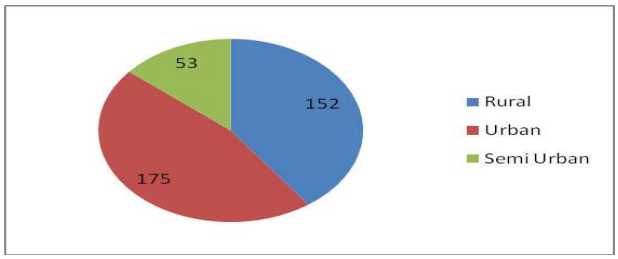


Table 6.7 Frequency of Reading habits

Frequency	No. of. Respondents	Percentage
Every day	152	39.47
Some Time	167	44.73
Rarely	60	15.78
Total	**380**	**100**

Figure 6.7Frequency of Reading

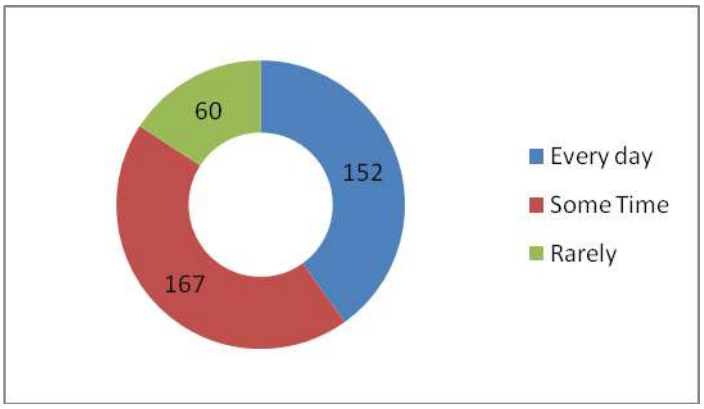


Table 6.7 and 6.7.1 describes that the frequency of reading habits. Majority of the respondents are reading habits in sometimes 167(44.73%) followed by everyday 152(39.47%) and rarely 60 (15.78%) reading habit of the student is very less.

Table 6.8 Times Spent on Reading

Reading Time	No. of. Respondents	Percentage
Less than 1 hour	215	56.57
1-3 hours	116	30.52
4-6 hours	49	12.89
Total	**380**	**100**

Table 6.8 indicates the time used to read book & other reading materials. 215(56.57%) of the respondents spent less than 1 hour for reading, 116(30.52%) respondents spent 1-3 hours for reading and 49(12.89%) respondents spent 3-6 hours for reading.

Table 6.9 Place of Reading

Reading Place	No. of. Respondents	Percentage
School Library	84	22.10
Public Library	79	20.78
Home	217	57.10
Total	**380**	**100**

The above Table 6.9 shows that 217(57.10%) most of the students were read at home, 84(22.10%) respondents reading in school library, were as 79(20.78%) students were read at public library.

Figure 6.9.1 Place of Reading

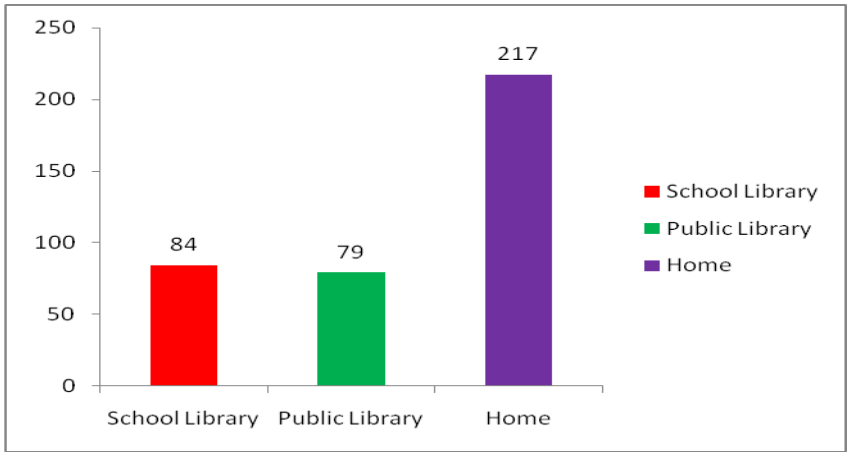


Table 6.10 Enjoyment in Reading

Enjoyment	No. of. Respondents	Percentage
Very much	320	84.2
Enjoyable	30	7.89
Only when it is my choice	30	7.89
Total	**380**	**100**

Table 6.10 shows that the enjoyment of reading habits. 320(84.21%) of th students only when it is our choice, 30(7.89%) of the students very much enjoyed reading, 30(7.89%) of the respondents enjoyed their reading.

Table 6.11 Choice of Reading material

Choice of Reading	No. of. Respondents	Percentage
Print Book	266	70
Magazine	48	12.63
News Paper	66	17.36
Total	**380**	**100**

Table 6.11shows that the choice of reading material. Regarding the familiarity with information sources, it was found that majority of the respondents are familiar with print book 266 (70%), followed by newspapers 66 (17.36%) and magazines48 (12.63%) are being familiar by least numbers of respondents respectively.

Figure 6.11.1 Choice of Reading material

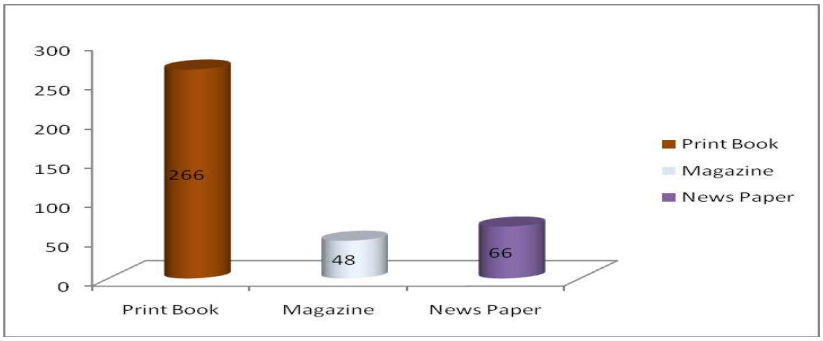


Table 6.12 Inculcating of the Reading Habits

Inculcating Reading Habit	No. of Respondents	Percentage
Teacher	137	36.05
Friends / Parents	142	37.36
Self	101	26.57
Total	**380**	**100**

Figure 6.12.1 Inculcating of the Reading Habits

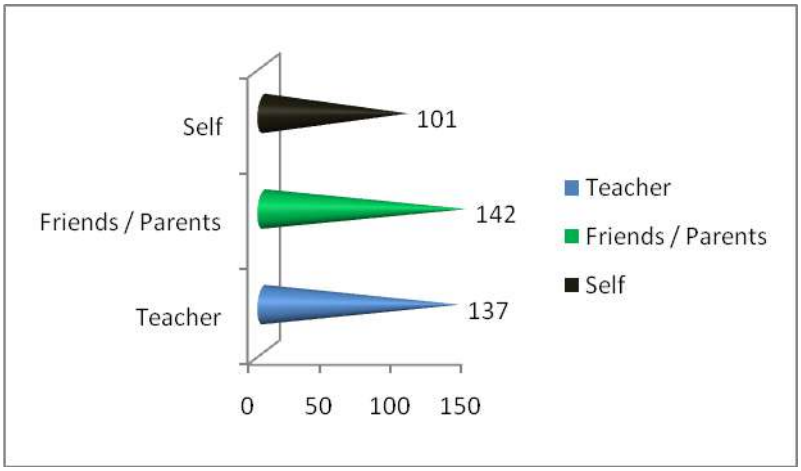


Table 6.12 and 6.12.1 shows that the inculcating of the reading habits. majority of 142(37.36%) of the respondents have received friends/parents from the inculcating of the reading habits, followed by 137 (36.05%) received from teachers, Another 101 (26.57%) respondents from self study.

Table 6.13 Purpose of Reading

Purpose of Reading	No. of. Respondents	Percentage
To purpose of the Examination	290	76.31
To Gain Knowledge	60	15.79
For Relaxing	30	7.89
Total	**380**	**100**

Table 6.13 explains that students are reading books not only to set up for exams or acquire knowledge but also a number of additional reasons. The largest number of respondents is interested reading to prepare for the examination 290 (76.31%) respondents of reading habits in purpose of the Education and 60 (15.79%) to gain the new knowledge. 30 (7.89%) for relaxation for the reading purpose.

Figure 6.13.1 Purpose of Reading

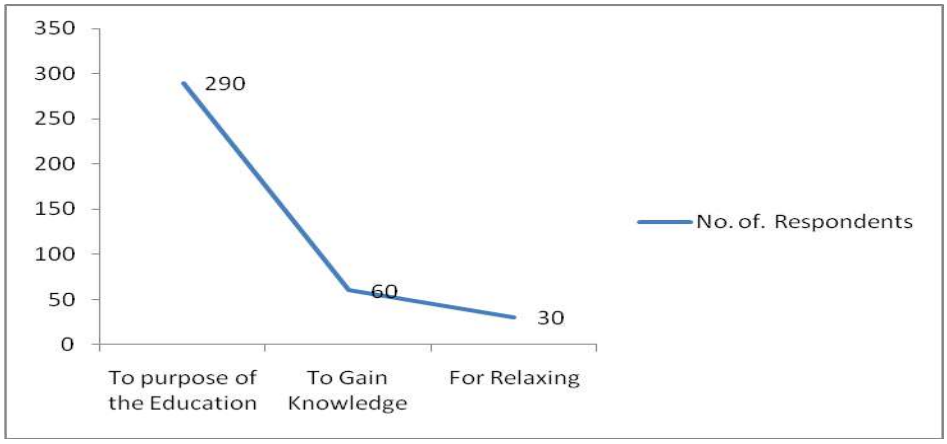


Table 6.14 Languages of Reading

Language	No. of. Respondents	Percentage
Tamil	154	40.52%
English	226	59.49%
Total	**380**	**100**

Table 6.14.1 shows that the language wise usage of reading habits. 59.47% of students were used as Tamil language in study, were as 40.52% as used in English languages.

Figure 6.14.1 Language of Reading

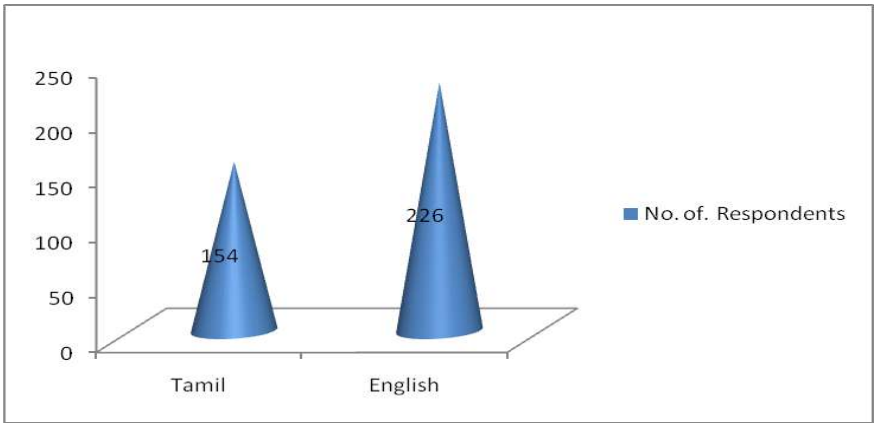


Table 6.15 Factors hindering students from reading for pleasure

Factors hindering from reading pleasure	No. of. Respondents	Percentage
Too much homework given by the teacher	104	27.36
Watching Television	136	35.78
Playing Computer Games	140	36.84
Total	380	100

Table 6.15 presents a list of activities the respondents do at their reading pleasure. Dominating on the playing computer games 104 (36.84%), followed by the Watching television 136 (35.78%). other reading pleasure too much of home work given by the teacher. It is natural for young people to be engaged in various kinds of activities besides studying.

Table 6.16 Grade for Library Collections

Library collections	No. of. Respondents	Percentage
Excellent	95	25.00
Good	188	49.47
Average	97	25.53
Total	**380**	**100**

There is need the Library Collections. The tables 6.16 reveal that, 188 (49.47%) respondents stated that the library collection is average, followed by 97 (25.52%) Good rated the same as excellent and 95 (25%)

Table 6.17 Improving Reading Habits

Suggestions	No. of. Respondents	Percentage
Mailing reading compulsory in the academic curriculum	122	32.10
Provide more access to reading materials	138	36.31
Encouragement by teacher, family and friends	120	31.57
Total	**80**	**100**

Table 6.17 and figure 6.17.1 shows that, majority of 138(36.31%) respondents were providing more access to reading materials. And 122(32.10%) respondents were mailing reading compulsory in academic curriculum and less number of respondents were encouragement by teacher, family and friends.

7. FINDINGS AND CONCLUSIONS

SUGESSION

- The librarian should introduce an innovative programme that will increase the reading habits of the students.
- The school authority should take necessary steps to enhance the ambience of the library.
- The library working hours should be increased so that the students may feel free to utilize the leisure hour in a useful manner.
- It suggested that librarian should encourage the students to spend more hours for reading.

CONCLUSION

This study shows the nature of study habit of higher secondary students in Salem district, particularly of local higher secondary school students. Further this study reveals the differences in influence by the demographics of the students. To sustain and to increase good study habits, special concern is to be extended among the students' home work management and classroom study also. Students should be instructed to Plan a schedule of balanced learning activities. Reading is a passion of the great personalities of all times since many years. This helped to preserve, poster and transmit knowledge through generations. Reading habit thus influences in promoting one's personal development in particular and societal progress in general. Regular and systematic reading sharpens the intellect, refines the emotions, elevates tastes and provides prospective for our living. In other words it prepares a person for effective participation in the social, religious, cultural and political life. Reading fires the imagination of the person by adding new sight to eyes and new wisdom to mind, reading loads the mind with new software.

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USE AND USAGE OF ONLINE RESOURCES AND SERVICES IN THE LIBRARY PROFESSONAL :AN OVERVIEW

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Abstract

The initiation of information technology has opportunity of manufacture of information resources in different non-print formats. These are usually called online resources or e-resources. They contain same information as their produce counterparts but the information is in electronic format or digital format. In this article highlights the e-resources available in the library professional. All the professionals require doing many things during these 24 hours only. With the changing in every earth the change in the field of libraries is very estimable. User come to the library but don't contain a great deal time to look for for document manually therefore this problem was also short out by the submission of electronic technologies in libraries. Applications of information communication technology in library have provided enough opportunities for online resources development and disseminate.

Keyword: Online resources, Features of Online resources, Needs for Online resources, Types of Online Resources,

Introduction

Now world is changing quickly all professional are eager to know more information concerning his areas in a minimum time. All the professionals need to do many things in these 24 hours simply. During the changing in every pasture the change in the field of libraries is very admirable. User come to the library but don't have much time to search for document manually

therefore this problem was also short out by the application of electronic technologies in libraries. Applications of information communication technology in library contain provided enough opportunities for online-resources development and disseminate it in the manner that their users proffered.

Information and Communication Technology has a most important collision on materials for research. It is changing the shape both of primary resources such as texts, images and data, and secondary resources similar to catalogues and bibliographies. at the present digital resources and services encompass become the most popular tools for educational activities. Through advancement of technology the libraries are touching towards digital resources with services, evaluation of library performances moreover services for users are becoming increasingly more important in important the choices in addition to the strategies of the digital resources.

Online resources

- ✓ CD-ROM
- ✓ Web Resources
- ✓ Electronic Books
- ✓ Electronic journals
- ✓ E-Zine
- ✓ Electronic reporters

Use of Online Resources

Online resources are so important inside the context of the potential library systems that they warrant special attention. Arrival of the computer has complete possible the formation of many new types of documents. Generally these referred to as electronic documents. Such documents way out only inside a computer scheme in digital format. Document of this kind be formed by audio with or visual display technologies. Incentive for deficient to use electronic document system form many advantages:

- ❖ Online documents can embed many more communication modalities than is possible with conservative documents article based document.
- ❖ They container easily be distorted and processed by computer.

- Ease through which they are capable of is transferred starting one location to another by resources of declaration networks.
- These can implant multiple clothes through a knowledge quantity, which can be modified to congregate the need of particulate types of user proceeds or end user type.

Types of Online Resources

- E-Books
- E-Journals
- E-Lists
- E-Groups
- Web ring
- Library structure
- Databases
- Library Websites
- FAQs
- Web OPACs

Needs for Online Resources

- simple access
- Abstracting with indexing services
- Information detonation
- increase
- Changes in user natives
- significant foundation of Information
- predictable to deliver a intellectual value

Features of Online Resources

- Simply imitative stored with disseminated
- Natural to revise manipulate along with merge
- Less massive than document
- Quick delivery
- Insert value to services
- E-collections keep user's time

- create satisfaction between the users

Use of Online resources in libraries Professional

- Online documents can implant many more message modalities than be possible with straight documents paper based article.
- They preserve easily be transformed with process by computer.
- Simplicity by which they able to be transferred from single location to another by means of communication networks.
- These can insert multiple threads through a knowledge quantity which can be modified to congregate the need of particulate types of user proceeds or end user typecast.

Internet Services and Online Resources

Internet is very powerful and is incapable of offering services in together audio and visual formats with of giving access to information from someplace in the world at a quick speed. The content on the network is not only enormous but also very varied.

Following are some of the services that can be provided during Internet:

- **E-mail**: Internet is not merely a foundation of information but it is too a means of communication. Consequently users can use this discussion to send and receive messages. Public libraries serve as a display place for continuing education, i.e. lifelong knowledge. In such case it will become essential to establish a link between the teachers and fellow students
- **Bulletin boards with mailing lists:** This examine can be used by the public libraries to circulate different type of information to its users. Similar to new service introduced by the library, latest news, information on programs on career guidance, prospectus, job opportunity etc.
- **Chat lines:** converse appearance can be helpful sources of information while people with mutual lawful interest can interact with own another and exchange ideas.
- **Video conferencing:** The technology that allows users in dissimilar locations to hold face-face meetings without having to shift to a single location. This technology is predominantly convenient for business users in different cities or still different countries because it saves the time expenditure plus aggravate associated with business

travel. Users for video conferencing comprise investment routine meetings, negotiating business deals and interviewing job candidates.

- **Online Current Awareness Services:** Current Awareness Service (CAS) has become very necessary for the users essentially research scholars. They can look for use net news, reprints in addition to the table of satisfied of journals, etc. Through the Internet with Intranet research scholars take up the newest development and technologies in their countryside of research.
- **Online Public Access Catalogue (OPAC):** lots of academic research and extra libraries include mounted their Online Public Access Catalogue (OPAC) resting on the Internet. Through the help of the Internet it is probable to access catalogues of libraries during the world. Instance of OPACs are Web OPAC of the Library of Congress.
- **Internet Library Loan Service (ILLS):** Using the Internet and user know how to basically right to use online catalogues of thousands of libraries along with reserved the document available in the other libraries e-mail have become quick and cheap mode of communication for libraries to send or take delivery of inter-library loan. Libraries can at the present share the resources among themselves successfully by Inter library Loan management tools.
- **Table of Content Services:** the majority of the publishers of e-journals give table of content services to users on the Internet. During this examine library can provide a list of applicable articles on an exacting topic in the approaching issues of journals to its users using only exposed and Internet.

Benefits of Internet

- The boundary is easy to use it encompasses access to multimedia formats such as book, video, noise and graphical images.
- They make available improved access in a numeral of respects.
- Article may be shared across all main networking platforms.
- Information is available despite of the user's site.
- Computer unit configured for make use of an Internet is also ready for Internet use if the essential gateways are included in to the network.
- User corroboration structure can be integrated keen resting on browsers so that access to information can be controlled.

Benefits of the Internet to Library Users

Use of internet as a means of supporting a more holistic and complex move toward to library professional.

- Removing constraints of time with position dependence on conventional resources for learning.
- Providing possessions for lifetime reading which is previously commonly available in the workplace and motivation become increasingly so in people include homes.
- Provision of a ability which allow students and educators to publish their projects, writing and curriculum materials in a way that is both similar to along with different from traditional methods.
- Providing support for collaborative operational which different researchers believes toward be particularly important for the intelligence experience.

Advantages of Online resources:

- Speed - Articles/issues emerge online before written version is available.
- Interactive - quick rotate time means articles can be read commented by the readers, amended quickly and greater feedback thru the web.
- Links - Hypertext format should be demoralized and links to related articles, information on other web sites, stable URLs for person articles and email alerts when latest issue loaded.
- Added Value - Advantages taken on the web is to insert value by using simulation, virtual reality and interactive arithmetical charts.
- Inexpensive - savings can be made over printing costs, distribution costs and additional costs by new features.
- Flexibility - E-journals evolved quickly. They are not attached to a format, printer, and delivery network

Disadvantages of Online resources:

- Complexity reading computer screens
- Restrictions of computer monitor
- Learning information into the screen
- Frequently not incorporated here indexing and abstracting services

- Investigate engines ignores PDF files
- Design that a large part of e-journal use
- Archiving
- If records is substantial storage can be saved

Significance of Online Resources in Libraries

Currently compilation of library is not confined to physical limitations that require the user to visit the library. Printed collections contain become more expensive and not easily accessible to the users outstanding to lack of time. The technological encroachments comprise led to wonderful changes in the process of information. In IT era, rejection library can meet the supplies of users by means of printed sources of information. Today people use the information as a most important source of information. The internet can be used for capable retrieval and meeting information needs. Online resources are today measured as being of great importance to every type of libraries and they are reducing a large share of library budgets. They are used in great quantity. Online resources have changed the way the services intellectual libraries now make available to their users. It has changed the traditional practices of libraries in deliverance of information to the users. Now users can have access to a selection of information and learned journals online.

Conclusion

Online resources include turn out to be a sparkling benefit intended for the library professionals as well as records users in this google era. The assortment of Online resources available the number of commence available to access these Online resources. The availability of supposed quality databases next to smaller rates via consortia arrangements, establishment of UGC INFONET, ICT centres in various universities and colleges. The effortlessness of use the nature of interactivity of e-resources and all such factors have made the library users to be present at their ease within getting required information for pursuing their research. The online resource is regularly or improved than the original without any loss of quality. Consequently quality sometime also leads to problem of dependability. These papers can be distributed over the Internet most important to access and use at anytime.

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Materials Today: Proceedings

Volume 8, 2019, Pages 464-469

2018 International Conference on Materials for Energy and Environment, ICMEE 2018; Chennai, Tamil Nadu; India; 22 February 2018 through 23 February 2018; Code 147947

Optical and mechanical studies on L-Methioninium picrate NLO single crystal(Conference Paper)

Ramesh, G., Venkatesan, A., Inmozhi, C., Raja Saravanan, M.E., Uthrakumar, R.

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Abstract

Single crystals of L-Methioninium picrate (LMP) were obtained by evaporation of aqueous solution containing equimolar quantities of each component. L-Methioninium picrate crystallizes in the monoclinic system space group $P2_1$. A single-crystal X-ray diffraction study has been carried out to confirm the identity of the crystal. Optical absorption studies on these samples reveal the minimum absorption region to be well suited for NLO applications. The mechanical strength of the grown crystal has been studied using Vicker's microhardness tester. Low dielectric loss shows that the grown crystal contains lesser defects authenticating the suitability of the crystal towards device applications. © 2019 Elsevier Ltd. All rights reserved.

SciVal Topic Prominence

Topic: Laser Damage | Economic Threshold | Optical Materials

Prominence percentile: 97.062

Author keywords

Microhardness | Nonlinear Optical Materials | Single Crystal, Growth from Solutions

ISSN: 22147853
Source Type: Conference Proceeding
Original language: English

DOI: 10.1016/j.matpr.2019.02.137
Document Type: Conference Paper
Volume Editors: Raj V.,Shyla J. M.,Kumar A. V.
Publisher: Elsevier Ltd

Uthrakumar, R.; Department of Physics, Govt. Arts College (Autonomous), Salem, India;

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Materials Today: Proceedings

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2018 International Conference on Materials for Energy and Environment, ICMEE 2018; Chennai, Tamil Nadu; India; 22 February 2018 through 23 February 2018; Code 147947

Growth and characterization of an organic non linear Optical single crystal: BisPicolonium Tartrate(Conference Paper)

Viju, G., Chandrasekar, M., Sundhari, D., Sivakumar, S., Raja Saravanan, M.E., Uthrakumar, R., Inmozhi, C.

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View additional affiliations

Abstract

BisPicolonium tartrate (BPT) is an organic nonlinear optical crystal has been synthesized and grown by slow evaporation technique. Single crystal X-ray diffraction study reveals that the crystal belongs to triclinic system. Powder X-ray diffraction was recorded and the peaks were indexed. The functional groups present in the crystal were interpreted by FTIR spectral analysis. Optical absorption spectrum shows that the crystal is transparent in the entire visible region. The study of dielectric constant and dielectric loss for the grown crystal were carried out. The relative SHG efficiency of the material was investigated. © 2019 Elsevier Ltd. All rights reserved.

SciVal Topic Prominence

Topic: Laser Damage | Economic Threshold | Optical Materials

Prominence percentile: 97.062

Author keywords

DFT FT-IR GZS KDP SHG TGA/DTA

ISSN: 22147853
Source Type: Conference Proceeding
Original language: English

DOI: 10.1016/j.matpr.2019.02.134
Document Type: Conference Paper
Volume Editors: Raj V.,Shyla J. M.,Kumar A. V.
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Inmozhi, C.; Department of Physics, Govt. Arts College for Women, Salem, India;

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Materials Today: Proceedings

Volume 36, 2019, Pages 126-129

2018 NANOSMATAFRICA 2018; CapeTown; South Africa; 19 November 2018 through 23 November 2018; Code 166930

Studies on unidirectional grown L-proline lithium bromide an NLO material for optoelectronic applications(Conference Paper)

Ramesh, G., Uthrakumar, R., Raja Saravanan, M.E., Kumar, M., Gobi, G., Inmozhi, C., Kaviyarasu, K.

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Abstract

Bulk single crystal of L-Proline lithium bromide (LPLB) was successfully grown from aqueous solution by Sankaranarayanan-Ramasamy (SR) unidirectional growth method with dimensions of 10mm diameter and 50mm length. Single crystal X-ray diffraction studies has been carried out to confirm the crystalinity of the material. The optical absorption window and the cutoff wavelength of the LPLB have been identified by UV-vis-NIR studies. Dielectric studies have been carried out for the grown crystal. The mechanical asset of the grown crystal has been studied using Vicker's microhardness tester and the results were discussed in detail. © 2019 Elsevier Ltd. All rights reserved.

SciVal Topic Prominence

Topic: Laser Damage | Economic Threshold | Optical Materials

Prominence percentile: 97.062

Author keywords

Growth from solutions | Mechanical properties | Optical absorption | X-ray diffraction

Funding details

Funding sponsor	Funding number	Acronym
University Grants Commission	MRP-6817/16	UGC

1

The author (Dr. C. Inmozhi) gratefully acknowledge research funding from University Grant Commission (UGC), Government of India. For the award of Minor Research Project (MRP) Grant No. F. MRP-6817/16(UGC-SERO), UGC-SERO, Hyderabad, India for his constant support, help and encouragement.

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DOI: 10.1016/j.matpr.2020.02.059
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Publisher: Elsevier Ltd

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Materials Today: Proceedings

Volume 36, 2019, Pages 228-231

2018 NANOSMATAFRICA 2018; CapeTown; South Africa; 19 November 2018 through 23 November 2018; Code 166930

Preparation and characterization studies of pure and Li+doped ZnO nanoparticles for optoelectronic applications(Conference Paper)

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Abstract

In this present work, the synthesis of pure and Li doped zinc oxide nanoparticles by hydrothermal method using zinc nitrate and sodium hydroxide synthesized and has been reported. CTAB added in nanoparticles preparation, where CTAB used as the size reducing reagent, is one of the most essential properties for the nanoparticle's preparation and its characterisation. The synthesized zinc oxide nanoparticles were characterized by X-ray diffraction (XRD), Fourier Transform Infrared (FTIR) Spectroscopy and UV Visible Spectroscopy (UV-vis) were reported in detail. © 2019 Elsevier Ltd. All rights reserved.

SciVal Topic Prominence

Topic: Photocatalytic Activity | Cerium Nitrate | Wurtzite

Prominence percentile: 88.697

Author keywords

FTIR | Hydrothermal method | UV-vis | XRD | ZnO NPs

ISSN: 22147853
Source Type: Conference Proceeding
Original language: English
DOI: 10.1016/j.matpr.2020.03.228
Document Type: Conference Paper
Volume Editors: Maaza M.,Ali N.
Publisher: Elsevier Ltd

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RELX

IMPACT: International Journal of Research in Humanities, Arts and Literature (IMPACT: IJRHAL)
ISSN (P): 2347-4564; ISSN (E): 2321-8878
Vol. 7, Issue 1, Jan 2019, 307-314
© Impact Journals

STUDENT TEACHER'S UTILITY ON E-RESOURCES OF INDIAN NATIONAL LEADERS

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Received: 11 Jan 2019 **Accepted:** 17 Jan 2019 **Published:** 28 Jan 2019

ABSTRACT

Electronic resources are easily accessible thru' computer networks and it solves storage problems and controls the flood of information. Now-adays all the teacher education print sources are being digitized. Electronic information sources can be seen as the most recent development in information technology and are among the most powerful tools for teacher education. The main aim of the study is, to find out the utilization of electronic resources on Indian National Leaders by the student teachers and the investigators collected one twenty-five samples as random sampling method of Namakkal District of Tamil Nadu State. And they found out that their utilization is more. Compare with males, females are better utilized in Social Science teaching.

KEYWORDS: *E-Resources, Indian National Leaders*

INTRODUCTION

E-resources should be readily accessible to all teacher educators and teacher trainees. Before the development of computer and internet technology, printed version of resources like books, journals, dictionaries, encyclopedias is played a significant role in teaching and learning process. But these printed versions are not easily accessible to all and are also expensive in nature. In this computer era, the number of e-books and e-journals are available in a free of cost manner and it has become inevitable and hence it is very much needed to convert the printed version into e-version for future needs. Therefore, of the different utilization of electronic resources knowledge has become the need of this hour for student teachers.

Reviews on e-resources

Shokeen and Kaushik (2002) reported that social scientists of Haryana University in India used current journals, textbooks, and reference books most frequently for their information needs. Baljinder Kaul and Rama Verma (2008) found out that, use of electronic information resources in a case study of Thapar University and concluded that, the awareness of UGC-Infonet e-Journals Digital Library Consortium is known the very few students and research scholars of Thapar University. So, they suggested that to conduct frequently user orientation programmes and workshops for getting the awareness on e-journals. Vijayakumari (2012) explored the idea that the use of library resources and services is necessary to help scholars

and student teachers meet their information requirements and finds that textbooks and journals are the most popular sources to information for their research work.

Praveena and Nadaraj (2011) studied e-resources usage among University Teachers and Research Scholars in University of Tamil Nadu and they concluded that the Faculty and Research Scholars of Social Sciences have expressed positively and essentially about the e-resources which are frequently used by them. Likewise, Karisiddappa et al., (2010) have highlighted in their study stated the importance of e-journals digital library consortium. They expressed that the e-journals are very essential for the Indian Higher Education system. They suggested that to use more e-Journals in study and research in teacher education, there is a great need of conducting the user education workshops to know about the e-journals.

Anjaiah (2013) discussed in usage of UGC- Infonet e-journals Digital Library Consortium by the faculty members and research scholars with special reference to Kakatiya University, Warangal, that on UGC info-net digital library consortium is playing a very important role in disseminating the e-resources information which is more useful to teaching community as well as research scholars to complete their research study.

Types of E-Resources

Generally, e-resources in Teacher Education classified into two major areas viz., online and offline e-resources. Chakravarthy et al., (2005) described the taxonomy of e-resources is on the basis for numeric, text, image and program (system & data); they are explained below;

- Electronic numeric data: a) Electronic census data; b) Electronic survey data.
- Electronic text data: a) Electronic bibliographic database; b) Electronic journal (e.g., journals containing textual information); c) Electronic newsletter (e.g., newsletters containing textual information); d) Electronic document (e.g., other textual material)
- Electronic image data: a) Electronic representational data; b) Electronic maps data; c) Electronic music data; d) Electronic sound data; e) Electronic font data.
- Electronic program: a) Electronic utility program; b) application program; c) CAD program; d) database program; e) spreadsheet program; f) word processor program; g) desktop publishing program and h) games.
- Electronic system program: a) Electronic operating system program; b) Electronic programming language; c) Electronic retrieval program.
- Electronic data and program: a) Electronic data and program (e.g., several types of data and the software to process the data- unable to determine predominance; Web sites with significant audio and video) b) Electronic interactive multimedia; c) Electronic online service (e.g., bulletin boards, discussion groups & lists, collections of online databases).

OBJECTIVES OF THE STUDY

The following objectives are made for the present study.

a) To know the availability of electronic resources on Indian National Leaders in Colleges of Education Libraries in Tamil Nadu.

b) To find out the degree of utility of electronic resources on Indian National Leaders among student teachers.

c) To find out the frequency of usage of electronic resources on Indian National Leaders among student teachers.

Hypotheses of the Study

The following Hypotheses are made for the present study.

a) There is no significant difference between the student teachers and their awareness of electronic resources and Journals on Indian National Leaders.

b) There is no significant difference between the student teachers and their utility of electronic resources and Journals on Indian National Leaders

METHODOLOGY OF THE STUDY

To conduct the study, a survey method with a checklist is used for data collection. A well-structured checklist was designed scientifically keeping in view of the objectives. Purpose of accessing e-resources is; a) frequency of use of such e-resources; and b) importance and influence of e-resources on Indian National Leaders. For the present study, a total of 175 structured questionnaires were distributed randomly to the student teachers. One hundred twenty- five (72%) were returned and these data were tabulated and analyzed.

The tool for the study is 'Utilization of National Leaders for Student Teachers". This tool is used to find out the user interface which provides the user with utilization information related to Indian National Leaders in their College of Education level. The tool consists of two parts. One is asking of demographic data such as demographic variables of gender and locality. Another one is related to checklist their utilization of Indian National Leaders.

Data Analysis

For the present study, a total of 175 questionnaires were distributed to the student teachers of social science in different College of Education institutes using a simple random sampling technique to which 125 responded, which amounts to 83.33 percent of response rate. Among them, 81 (64.8%) were male student teachers and remaining 44 (35.2%) are female student teachers.

Use of the internet: By using the internet, the student teachers can improve their knowledge by viewing the information and the information can be downloaded which they need. A question has been asked to the student teachers to know the use of the internet. Their replies are analyzed and regular utilization of the internet by the student teachers are 103 (82.4%) and non-regular utility of student teachers are 22 (17.6%).

Utility of e-journals: While asking the question about the frequency of Utility of the electronic journals, the student teachers results were as follows; everyday utility is 94 (75.2%); Once in two days is 13 (10.4%); Once in a week is 9 (7.2%) and every fifteen days is 6 (4.8%) and Once in a month is 3 (2.4%) student teachers are utilizing the electronic journals for gathering information related to Indian National Leaders.

Purpose of using e-journals: While asking the question about the Purpose of using electronic journals, the student teachers results were as follows; most of the student teachers 78 (62.4%) use UGC-INFONET e-journals for their searching online databases, followed by 18 (14.4%) student teachers use for writing assignments and preparing notes, 16 (12.8%) for writing articles for s and conferences; 9 (7.2%) of the student teachers for Internship teaching works, followed by 4 (3.2%) student teachers are used for collecting their general information. From this, it is clearly shown that the importance of e-journals in the academic field.

Place of Internet access of e-resources: While access the place of e-resources through Internet, the majority 96 (76.8 %) of student teachers access the Internet from the library of College of Education institutes, about 21 (16.8 %) student teachers access from Internet Centers and 8 (6.4 %) student teachers from their house. It is a good sign that using the library for accessing the electronic journals in this digital age. To know the level of utility of online resources is presented in the below table no.1

Table 1: Frequency and Percent Analysis of Student Teachers' Utility of Online Resources

S. No	Online – Resources	Frequency	%
1.	e-books	12	09.60
2.	e-Journals	42	33.60
3.	e-magazines	04	03.20
4.	e-thesis	04	03.20
5.	e-newspapers	04	03.20
6.	e-mail	03	02.40
7.	e-library	24	19.20
8.	e-forum	06	04.80
9.	e-book shops	06	04.80
10.	e-dictionaries	12	09.60
11.	e-encyclopedia	08	06.40
Total Sample		**08**	**100%**

The above table-1 furnishes the details about student teachers utility of online resources and it shows that, out of 125 student teachers, nearly more than half of student teachers (65) are expressed and they are fully satisfied with the existing usage of e-journals search related to National Leaders. The problems faced by the student teachers while accessing the e-journals Digital Library Consortium are the slow bandwidth of their college library and time-consuming while retrieving the relevant information sources. The following table-2 illustrates the frequently used search engines for e-resources.

Table 2: Frequently used Search Engines fore-resources queries

S.No.	Search Engines	% of Student Teachers
1	Alta Vista	05.70
2	Aol.com	44.20
3	Ask.com	52.40
4	Baidu	42.20
5	Bing	52.40
6	DuckDuckGo	34.60
7	Exalead	40.20
8	Gigablast	45.80
9	Google	100.00
10	Google Scholars	40.60
11	Khoj.com	10.20
12	Look Smart	10.10
13	Lycos	12.40
14	MSN	40.20
15	Munax	02.20
16	Qwant	04.10
17	WolframAlpha	06.60
18	Yahoo!	84.80
19	Yandex	48.20
20	Yandex.ru	12.20

The table-2, reveals that, out of 125 student teachers, 100 % utilized Google and 85% through Yahoo search engine, the third category of utilizing is Bing and Ask.com search engines.

Major Findings of the Study

The following major findings were found in the present study and given below:

- A majority of the student teachers 81 (64.8%) belongs to the male, followed by female 44 (35.2%)
- A Large majority of the student teachers 67 (53.6%) from the urban area, whereas 58 (46.4%) student teachers from rural
- A majority 103 (82.4%) of the student teachers opinioned that the e-journals are very useful to complete their assign-

ments related to Indian National Leaders and up-to-date that subject knowledge and remaining 22 (13.6%) student teachers are non-utilizing the information.

- A majority 78 (62.4%) of the student teachers says that the purpose of visiting the digital library of their College of Education, to use the e-resources for writing a note on Indian National Leaders.
- A majority 78 (62.4%) of the student teachers said that usage of the internet is most useful, needful and very essential to obtain the information from electronic journals for their internship teaching, but some of the student teachers 4(3.2%) responded negatively, because of lack of knowledge of electronic journals and they used only for collecting of general information.
- The student teachers visit the electronic journals once in two days 13 (10.4%), followed by once in a week 9 (7.2%), every 15 days 6 (4.8%) and once in a month is 3 (2.4%). But the majority of the student teachers 78 (62.4%) used electronic journals regularly.
- A majority of the student teachers 78 (62.4%) use UGC-INFONET e-journals for their searching online databases, followed by 18 (14.4%) student teachers use for writing Assignments and preparing notes, 16 (12.8%) for writing Articles for Seminars and Conferences; 9 (7.2%) of the student teachers for Internship Teaching works, followed by student teachers 4 (3.2%) for collecting their general information.
- While access the place of e-resources through Internet, the majority 96 (76.8 %) of student teachers access the Internet from their College of Education Institutes Library, about 21 (16.8 %) student teachers access from Internet Centers and 8 (6.4 %) student teachers from their house.

CONCLUSIONS

Communication Information Technology (ICT) plays a vital role in the development of society. Vast amounts of data are transmitted in seconds, and Internet access offers unimaginably large amounts of information, data, and interpreted materials. Use of the emergence of the internet and e-resources particularly the World Wide Web, as a new medium of information storage and delivery represents a revolution, which will have a boosting impact on the publishing and information delivery system in the twenty-first century.

The internet considered as the electronic mobile library in cyberspace provides an almost universal infrastructure for accessing the information with almost global reach. The Internet is composed of a large number of smaller interconnected networks called internets. These internets may connect tens, hundreds, or thousands of computers, enabling them to share information with each other and to share various resources, such as powerful supercomputers and databases of information. Free access to scholarly literature through UGC-Infonet Digital Library consortium is boosting the status of Indian higher education system (Nachimuthu, 2018). With the help of INFLIBNET, all the College of Education Institutes and Universities have to be geared up to meet the latest and authentic information needs of users.

E-resources will continue to enjoy wider acceptance among Teacher education academics as the future unfolds and barriers to their use are reduced. The teacher educators will improve the ICT skills and develop the academic carrier and

improve e-knowledge through the available e-resources. Then only the today's teachers are to be a future e-teacher for future generation community. Teaching is a serious task; indeed, a noble profession. Teachers need to roundly understand the needs of students in different aspects of their learning style. It may seem difficult; however, teaching is one way of communicating with students. Considering the students' differences, teachers are challenged to become effective, adept and innovative.

Based on the present study, the following constructive suggestions were made by the researcher for effective use of the electronic journals by the student teachers of the College of Education institutes and also to overcome the problems faced by student teachers of the study.

- The college of education digital library should be connected with a high inverter to overcome the frequent power off.
- The college of education library authorities should be taken steps to provide high-speed computer terminals to reduce slow bandwidth.
- The library staff should be enriching the updated ICT skills /knowledge and they will be given proper ICT training programmes frequently.
- The major problems such as downloading, irrelevant information, finding relevant information, and information over-load are faced by student teachers should be avoided by way of taking immediate steps.

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IMPACT: International Journal of Research in Humanities, Arts and Literature (IMPACT: IJRHAL)
ISSN (P): 2347-4564; ISSN (E): 2321-8878
Vol. 7, Issue 3, Mar 2019, 29-36
© Impact Journals

PLEASURES AND PRESSURES OF YOUTH VALUES

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Received: 11 Feb 2019 **Accepted:** 04 Mar 2019 **Published:** 11 Mar 2019

ABSTRACT

Internet use is very common all around the world, especially for academic work, and recreational purposes. The Internet has in recent years become ubiquitous in the lives of young persons and children, due to rapid information technology (IT) development, high speed wire connection, easy accessibility and increasing affordability. Its growth has also been fueled by a huge demand created by social and print media, advertisements and peer influences. Severe competition in educational institutions, stress from studies, parent-ward problems and peer conflicts are all highly stressful situations which could generate negative emotions, such as low self-esteem, feelings of inferiority and repressed anger, in teens. Many youths are using mainstream social networking sites. Most of the youths using internet in following utilities viz., Downloading, uploading, e-mail, chat, e-poll, health, news, current affairs, Job search, Education, science & technology, dictionary check, e-ticketing, banking, investments, insurance, sports update, fashion, beauty, GPS/ DPRS locations, literature, entertainment, license, cookery, astrology, traffic information, e-governance, e-bills, recharge activities, blogs creation and online shopping. Due to all the above works, they loss their realities and follow on modern cultures. This paper describes the pleasures and pressures of values on Youths.

KEYWORD: *Cultural Value, Media literacy*

INTRODUCTION

India has moved from the traditional stable society, mostly agrarian, to a highly developed, industrial and space society. The traditional joint family has changed to micro families. There is a change from rural to urban living. In such a society, where the youth came from various strata of the society, with diverse cultures, religions, economic status, language, lifestyles and the habits of net addictions, the youth experiences were difficulty in adapting to the changing roles and value systems. This results in alienation, withdrawal, interpersonal relationship difficulties, depression and even suicidal behaviours. But at the same time, we have to appreciate the youths' media literacy. It refers to the ability to access, analyse, evaluates and creates media messages of all kinds.

Addicts on Social Media

Engaging in various forms of social media is a routine activity that research has shown to benefit youths (adolescents) by enhancing communication, social connection, and even technical skills.,

Many youths are using mainstream social networking sites like Facebook, Twitter, LinkedIn, Google Plus, Flicker, Tumblr, MySpace, hi5, Orkut, Blogger, Wordpress Edmodo, Edu2.0, Ning, Grouply, Squidoo, Diigo 5.0 and Googlewave and Whats-upsare offer daily multiple opportunities for connecting with friends, classmates, and people with shared interests. During the last five years, the number of youths using Internet sites viz., BSNL, Airtel, Vodafone, Aircel, Tata Docomo, Reliance, Idea, MTS, and Videocon have increased dramatically (Senthilkumar, 2011).

According to a recent poll, 22% of teenagers log on their favourite social media site more than 10 times a day by broadband, and more than half of adolescents log on a social media site more than once a day by WiFi. Seventy-five percent of teenagers now own cell phones with Blue-tooth facilities, and 25% use them for social media, 54% use them for text typing, and 24% use them for instant messaging. (Vijayakumari, 2012). Thus, a large part of this generation's social and emotional development is occurring while through the Internet and through cell phones.

Because of their limited capacity for self-regulation and susceptibility to peer pressure, adolescents are at some risk as they navigate and experiment with social media. Hinduja et al (2007) studied that there are frequent online expressions of offline behaviours, such as bullying, clique-forming, and sexual experimentation, that have introduced problems such as cyber-bullying, privacy issues, and "sexting."

Depressions by Advertisements

Many online venues are now prohibiting ads on sites where youths are participating. It is important to educate parents and their wards about this practice so that they can develop into media-literate consumers and understand how advertisements can easily manipulate them.In advertisements, when men are shown in the background of a video, they are most often fully clothed. But, when women are in the background, approximately half the time, they are dressed in ways that expose or focus on their body leads to sexual violence.

Many social media sites display multiple advertisements such as banner ads, behaviour ads (ads that target people on the basis of their Web-browsing behaviour), and demographic-based ads (ads that target people on the basis of a specific factor such as age, gender, education, marital status, etc.) that influence not only the buying tendencies of youths but also their views of what is normal. The minimum age to sign in to sites such as Face book and MySpace are thirteen. Some of the sites they don't have even age restrictions.

Utilities of Internet

Most of the youths using internet in following utilities viz., downloading, uploading, e-mail, chat, e-poll, health, news, current affairs, Job search, Education, science & technology, dictionary check, e-ticketing, banking, investments, in-surance, sports update, fashion, beauty, GPS/ DPRS locations, literature, entertainment, license, cookery, astrology, traffic information, e-governance, e-bills, recharge activities, blogs creation and online shopping. Due to all the above works, they loss their realities and follow on modern cultures.

When youths visit various web sites, they can leave behind evidence of which sites they have visited. This collective, ongoing record of one's Web activity is called the "digital footprint." One of the biggest threats to young people on social

media sites is to their digital footprint and future reputations. Youths who lack an awareness of privacy issues often post inappropriate messages, pictures, and videos without understanding that "what goes online stays online." (Krishner, 2009). As a result, future jobs and college acceptance may be put into jeopardy by inexperienced and rash clicks of the mouse. The indiscriminate Internet activity also can make teenagers easier for marketers and fraudsters to target.

Need of Parental Care

The dissatisfaction of this generation is more to do with lack of communication than teenage rebellion. Now-a-days parents gave importance to their own peer group (society, family, etc.) than their wards' happiness. Some parents are able to communicate their ward's problems better than others. Today, there are some parents who openly discussed issues with their wards and helped them make careful decisions (or choices). Few parents threatened with harsh punishments, if the issue is even mentioned.

We are rather quick to blame western influence for the 'deterioration' of our culture and traditions. But 'culture' and traditions change with time. Each generation brings in new changes or a fresh perspective has the same 'old' values. Teenagers are as an impulsive, freedom-loving and 'tradition-breaking' as they've always been. From wishing to marry outside community, or to someone of a different caste or religion, or even the same gender, there has been always what we like to call rebels. Youth, the population aged 15—24, constitute some 222 million and represent 20 percent of the Indian population. This cohort is healthier, more urbanized and better educated than earlier generations; at the same time, they face significant risks related to sexual and reproductive health. Each generation, they have been always grandparents to complain about the destruction of our culture (Sheldon, 2008).

Today, many parents use technology incredibly well and feel comfortable as well as capable with the programs and online venues that their wards are using. Nevertheless, some parents may find it difficult to relate to their digitally savvy youngsters online for several reasons.A knowledge and technical skill gap between parents and youth, which creates disconnect in how these parents and youth participate in the online world together.Using social media becomes a risk and it fall into the following categories: peer-to-peer; inappropriate content; lack of understanding of online privacy issues; and outside influences of third-party advertising groups.

Online Harassments & Cyber-bullying

Cyber-bullying is deliberately using digital media to communicate false, embarrassing, or hostile information about another person. It is the most common online risk for all teens and is a peer-to-peer risk. "Online harassment" is often used in "cyber-bullying," and it is quite common, can occur to any young person online; can cause profound psycho-social outcomes including depression, anxiety, severe isolation, and tragic suicide.Even the youths can do in cyber crimes. Cyber crime is termed as any illegal activity that uses an internet such as stalking, hacking, bullying and terrorism.

Habits of Sexting

Sexting can be defined as "sending, receiving, or forwarding sexually explicit messages, photographs, or images via cell phone, computer, or other digital devices." It does occur among the teen population and it creates problems in mental health conditions of their lives.A research study, which investigated students' Internet use and its impact on their lives found that Internet addicts reported more negative consequences on their daily routines (Nachimuthu, 2013).

Adjustments on Emotional and Sexual

Youth is a period of life which is heightened in its emotional aspects. The sexual drive is highest at this time of life, which the youth need to be able to control and sublimate through socially approvable behaviours. This is a period where right interaction with the opposite sex is learned. It has been estimated that reproductive health problems are steeply rising - teenage marriage and pregnancy and sexually transmitted diseases. AIDS is reported to be a critical problem among the youth in major metropolitan cities and drug addicts; high rates of anemia in female adolescents after menarche; likewise, men youths were practicing in accidents and it leads to handicaps; some in addictions of smoke, alcohols and drugs.

Coping with Living Pressures

Unemployment in all sections in India is increasing, particularly in the higher educated groups. To cope up with the economic demands of life, the youth experience a conflict between economic survival in a competitive society vis-a-vise pursuit of inner human interests and services to the society. A high percentage of youth, after graduation at Bachelor's level or post-graduation levels in engineering, medicine, law, nursing, and other disciplines remain are under-paid.

The unemployment problems reduce the youth's life expectancy. Hypertension, cardiac problems, psychoneurosis, depression, suicide are rising among youth as also other behaviours including joining anti-social groups such as terrorists, naxalites etc. Alcoholism, drug addiction, smoking, and rash driving behaviours have increased. The Tamil Nadu Police departmentalso alarmed the increasing of suicide rates from youths.

The youth today is faced with much greater pressure of coping with living as compared with their parents. Many a youth does not wish to conform to the social and familial norms and they wish to live in the society with unconventional value systems such as remaining single; living with the opposite sex without marriage; marrying someone of the different religious, cultural, and social background (Nachimuthu, 2013). Many young girls feel that they are an economic burden on parents and commit suicide. The girls are also exploited by the in-laws to ask for continuing favours from their parents. This results in emotional conflict and psychiatric problems in the female youth.

Influences of Western Culture

India is the greatest country and Indian culture is one of the richest cultures in the world. It is one of the oldest forms and has held its heritage and flavour right from its birth to the present day. India is well known for its culture and its various diversities in Indian culture. Youths are more inclined towards western culture rather than concentrating and Indian culture. Listening western music is a good one. But if they follow the western culture blindly then that is something alarming. Even 18 year youths are also called as 'kids' in Indian family. We may well argue that people above the age of 18years are free to take part in any adverts of their choice but the danger of encouraging a youthful population to drink is not a positive influence on the nation. Video games are typical example of depictions of violence (Wilson et al, 2010).

Imitations as Filmy

The current films are more of action, thriller, romance, robbery etc. The youth tries to imitate each and everything which is in the films and this reflects in their dressing style, their driving, their way of talking etc. Even the youngsters in rural areas are so much affected by the movies, that they place the heroes of the film in a very integrated part of their mind. They try to change their lifestyle according to the films, starting from hairstyle, clothes & dialogues and so on. In many films, stunts are being performed, the teenagers try to copy such stunts on their bikes and cars which many a times lead to severe accidents. Harassment and rapes have increased because of the free and western culture shown in films today.

CONCLUSIONS

Internet helps the youths in beneficial aspects, but it also induces to destroy their life if they misuse or overuse it. Violence inthe media is one of the most important issues which could decrease moral values. Harmful behaviours are begun with the imitation of bad behaviour in the media such smoking, over-weight loss or harming people. These behaviours could ruin the one own life and also others' lives. The youth power is driving force of the nation, the instances of which may be cited from the vigorous movement of the past. But the youth of now-a day is adversely diverted which does not only influence the Indian society, but also it stimulates the coming generation of our civilization.

Consequently, we have to face an alarming and a more violent situation in the coming decades. Therefore, it is very much essential and a duty of everybody to find out the solution of this tyranny to establish India in the world of peace and Harmony. Parents are needed towards their ward's exposure to media and to provide guidance on age-appropriate use in all media, including television, radio, music, video games and the Internet. There is a shift occurred; but at the same time, it can't go beyond the limitations. We can teach the traditional values through the technological gadgets for younger generations. Through them, they can learn and obey it. We can conclude that the Internet itself is not an addict, but the specific application that allows and offer Internet user to gain more entertaining rather than real life make them to stay online longer and overuse it. Through the social media, all the youths to develop friendship and remove war and encourage the parents and teachers towards a safe peaceful learning in the world.

RECOMMENDATIONS

The author recommends the following;

- The voluntary organizations can offer counseling services regarding marriage, family planning, drug addiction, alcoholism, STD, AIDS, etc...,
- The educational institutions should have facilities for vocational and emotional counseling.
- Both in the family and in the educational institutions, the youth should be trained in yoga, meditation, and other techniques to cope with the distress situations.
- The parents should always accept their wards, irrespective of the sex and love their wards irrespective of their performance in the colleges or in life. Acceptance and love should not be performance-oriented.
- Advise parents to talk to their wards about their online use and the specific issues that today's online youths' face.
- Discuss with parents the importance of supervising online activities via active participation and communication, as opposed to remote monitoring with a "net-nanny" programs (software used to monitor the Internet in the absence of parents).

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OPEN ACCESS

Volume: 6

Issue: 4

Month: April

Year: 2019

ISSN: 2321-788X

Received: 08.03.2019

Accepted: 30.03.2019

Published: 02.04.2019

Citation:
Nachimuthu, K., and A. Revathi. "Need of Virtual Reality to Enrich Teacher Education." *Shanlax International Journal of Arts, Science and Humanities*, vol. 6, no. 4, 2019, pp. 14–21.

DOI:
https://doi.org/10.34293/sijash.v6i4.368

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Need of Virtual Reality to Enrich Teacher Education

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Abstract
Virtual reality (VR) is a technology which allows a user to interact with a computer-simulated imaginary environment. Users can interact with a virtual environment through the keyboard and mouse or special devices. Virtual reality can be defined as an upcoming technology that makes users feel in a Virtual Environment (VE) by using computer hardware and software. VR provides a different way to see and experience information, one that is dynamic and immediate. This paper explains the different models of VR devices in the world.
The aim of the research is to identify the level of awareness of virtual technology in the B.Ed college student-teachers in the Tamil Nadu State of India. A descriptive survey method to adopt and a total of 350 first year student-teachers from Seven B.Ed Colleges in and around Salem district of Tamil Nadu were selected by using simple random sampling technique. An awareness of virtual technology (AVT) tool with 0.89 reliability and known content validity was used.
The calculated 't' value among student-teachers with respect to gender; mobile in the home; to having PC in the home; and net course already passed significantly differ at 0.05 level could be noticed as rejected these hypotheses. Whereas locality and type of college of education are accepted the hypothesis. Postgraduate qualified student teachers had better awareness than undergraduate qualified student-teachers. The author recommends the students may be encouraged to use the network in their home.
Keywords: Virtual Reality, VR devices, student teachers, teacher education, multimedia, awareness, VR environment.

Introduction

Today's technologies have greatly enhanced more learning environments. Virtual reality learning is, plainly speaking, seeing an imaginary world, rather than the real one. Antonin Artaud an actor described in his book about the "virtual reality" for the first time in the world in 1938. Like another one book in 1958, described the illusory nature of characters and objects. Up to the 1970s, the name was coined as 'artificial reality'. In Oxford English Dictionary 1981 edition, cited this name. Virtual reality name was popularized through a film namely Brainstorm in 1981. And then, Damien Broderick (1982) used this word in his science fiction novel. Virtual Reality book was newly published by Howard Rheingold in 1991 and Randell packer published the same title in 2001 (John Vince, 2004). Now it was revolutionized and utilized in classroom techniques.

Virtual Reality (VR)

Virtual reality (VR) is a technology which allows a user to interact with a computer-simulated imaginary environment. Most current virtual reality environments are displayed either on VDU or through special displays. For e.g., it is easier to learn how a human heart works by actually going inside by a heart display and used in bio-medical reactions and complicated surgical techniques (Senthilkumar, 2012).

VR provides a firsthand approach to learning without the hazards of dealing with the real environment. Even in our history VR class, we will be able to visit different historical events. Likewise in mathematics we can go through the easiest calculations in trigonometry, light reactions in physics; color combinations of chemicals in chemistry; cytology & genetics in biology; consumer rights in economics & commerce; flora and fauna in geography; past events in history; grammar examples in languages; like these virtual technology methods can be used in different teaching units in different subjects. (Nachimuthu, 2011). Most up-to-date virtual realities are displayed either on a computer monitor or special devices.

Users can interact with a virtual environment through the keyboard and mouse or through the multi-model device of the wired glove. In the most popular applications of VR technology, any student viewer simply tours various needy content sites in a three-dimensional space; even virtual surgery and virtual gaming are also possible. The screen of the Multimedia player allows the user to select audio tracks, videos or presentations from a dynamic list (Vijayakumari, 2011). The 'User Selection Tools' allows the presenter to select what type of media they would like to show to their audience. Just as filmmaking, all characters, and settings have to follow a well-defined script to go through till the end (Wen-Hsi Chang, 2008). An Educationist could play the role of a director to make the virtual system keep storyline forward. This includes where and when virtual figures are placed, what kind of events would be triggered, and their corresponding reactions (Xia, 2000). A science specimen is multiplied on a 3D model, which when viewed would show not only the texture but also its appearance under different types of illumination from different angles.

Virtual Environment

Virtual reality can be defined as an upcoming technology that makes users feel in a Virtual Environment (VE) by using computer hardware and software. It was originally conceived as a digitally created space which humans could access by donning special computer equipment. It enables people to deal with information more easily. VR provides a different way to see and experience information, one that is dynamic and immediate. For example, in a computer game, user's mouse motions are tracked and the objects in the game are moved according to the mouse movements. In the same way, a simulated, three-dimensional world is created around the user in which he/she could interact with objects, people, and environments.

Typically three-dimensional life-sized images with support of audio devices are presented around the user and the perspective is modified in accordance with the user input (generally head or eye movements). Many devices along with the computers are used to create a virtual environment. The virtual environments are intended to replace the real world environment with the digital one and the human senses are immersed in the VE. Immersion is an experience of losing oneself in the VE and shutting out all cues from the physical world. A Virtual Environment can be created on different extents depending on the computer-based platform ranging from a cell phone screen to a desktop monitor or a fully Immersive Virtual Environment (IVE). The following table describes the variety of models available in Virtual Reality Devices.

Table 1: Different models of VR devices (Nachimuthu, K- 2011)

No.	VR Device	Different VR Device Models
1.	HMD 3D Stereo	HMD Pro 3D, Z800 Duel Pro,ARV-3D & nVisor SX
2.	HMD 2D Stereo	i-Cine Hi-Res, i-Trek, Myvu Crystal & SunVisor

3.	HMD Monocular	Proview S035-A, M3 Monocular, ET-Centra & I-Port
4.	Head Trackers	Minuteman, Gyro-Track Pro, TrackIR Pro & Cymouse
5.	3D Controllers	X-Gun, SpaceBall 5000, SpaceTraveler & Wanda
6.	M.T - Inertial	GyroTrack, Inerti-aCube2, Hy-Bird & 3D-Bird
7.	M.T - Magnetic	Minuteman, Patriot, Wintracker & micro-BIRD
8.	M.T - Optical	Hy-BIRD, laser-BIRD 2, FaceTraker & IMPULSE
9.	M.T- Capture Suits	MotionStar, Gypsy5, CypsyGyro-18 & Torso
10.	Gloves	5DT Glove 14, 5-VHand, Pinch Glove & Cyber-II
11.	Hap tics	Motion Chair, Shad-ow Hand, Cyber-Grasp & Cushion
12.	Stereo Displays	SVI MU 19, 17 SX /21SX, VisBox-HD & VisDuo
13.	VR Domes	Vision Station, VisionDome2, VD3 & VD5
14.	3D DVD	IMAX 3D DVD, Sci-Fi , H-3D DVD 2 & DVD3
15.	VR wear	VR T-Shirt, VR Women's Top, Sleeveless & Shorts
16	VR software & Kits	VR Racer, VR pilot, NuView 3D & Visualizer

The following research is to identify the level of awareness of virtual technology in their academic stream and to explain its advantages. For example, nobody wants to be a pig for dental students in training. Through this VR, dental students can make all their mistakes on a virtual patient by the help of the virtual dental implant training simulation program. It helps to walk students through an entire procedure from administering anesthesia to choosing the right drill size operations. Like this, we can use teaching methods with zoom in, zoom out activities of simulations and animations activities.

Virtual Reality Applications Review

The appearance of VR has been used in different fields, as for Education **(Englund et al., 2017)**, Learning and social skills training **(Schmidt et al., 2017)**, medial teaching **(Gallagher et al., 2005)**, psychological treatments **(Freeman et al., 2017)**, military training **(Alexander et al., 2017)**, gaming **(Zyda, 2005; Meldrum et al., 2012)**, architectural design (Song et al., 2017), phobia problems **(Botella et al., 2017)** and motor rehabilitation **(Llorens et al., 2014)**.

The VR and Augmented Reality **(AR)** has been used in research in recent application history **(Burdea & Coiffet, 2003; Kim, 2005; Bohil et al., 2011; Cipresso & Serino, 2014; Wexelblat, 2014)**. The study of VR was initiated in the computer graphics field and has been extended to other subjects **(Sutherland, 1965; Mazuryk & Gervautz 1996)** and in video games teaching **(Choi et al., 2015)**.

VR is defined as, Real-time interactive graphics with 3D models, combined with a display technology that gives the user the immersion in the model world and direct manipulation. Fuchs & Bishop(1992) defined VR as, the illusion of participation in a synthetic environment rather than external observation of such an environment. Gigante (1993) defined as; VR relies on 3D, stereoscopic head-tracker displays, hand/body tracking and binaural sound. VR is an immersive, multi-sensory experience and Cruz-Neira (1993), virtual reality refers to immersive, interactive, multi-sensory, viewer-centered, 3D computer generated environments and the combination of technologies required building environments.

The higher immersive systems, than the other two systems, can give the possibility to add several sensory outputs allowing that the interaction and

actions were perceived as real (Loomis et al., 1999; Heeter, 2000; Biocca et al., 2001). Higher technological immersive systems have showed a closest experience to reality, giving to the user the illusion of technological non-mediation and feeling him or her of 'being in' or present in the virtual environment **(Lombard & Ditton, 1997)**.

Technologically, the devices used in the virtual environments play an important role in the creation of successful virtual experiences. Input devices are the ones that allow the user to communicate with the virtual environment, which can range from a simple joystick or keyboard to a glove allowing capturing finger movements or a tracker able to capture postures. **(Burdea et al., 1996)**. Some of the companies like Sony, Samsung, HTC, and Google are making huge investments in VR **(Korolov, 2014; Ebert, 2015)**.

Objectives

The following are the major objectives of the present study:

(i) to study the awareness level of virtual technology among the B.Ed student-teachers and

(ii) to analyze the significant difference if any, in the awareness of virtual technology among the B.Ed student-teachers based on some demographic variables.

Hypothesis

On the basis of the objectives of the study, the following hypotheses have been formulated:

(i) the awareness level of virtual technology among the B.Ed student-teachers in Salem district is above the average and

(ii) there is no significant difference in student-teachers with respect to the awareness of virtual technology on the basis of some demographic variables.

Methodology

The investigator adopted the descriptive survey method for studying the problem of this study.

Sample

A total of 350 first year student-teachers from Seven B.Ed Colleges in and around Salem district of Tamil Nadu were selected by using simple random sampling technique for this study.

Tool Used

Virtual reality is all about the creation of a virtual world that users can interact with. This virtual world should be designed in such a way that users would find it difficult to tell the difference from what is real and what is not. Education and technology are interconnected. This synergy is able to transform the world we live in. The contradictory phenomenon is that while being an early adopter of technology, education is also one of the last sectors to be fully transformed by it, due to institutional inertia and a number of other reasons.

The present study was carried out with the help of awareness of virtual technology (AVT) tool based on multiple-choice items developed by the investigator. The tool consists of 30 statements covering the different classroom utility aspects of virtual technology. The investigator established the reliability (r=0.89) and content validity of the tool. The tool was administered and subsequently, data was gathered from the sample.

From the analysis, the awareness level of virtual technology among the B.Ed student-teachers in Salem district is above average and there is no significant difference in student-teachers with respect to the awareness of virtual technology on the basis of some demographic variables was analyzed both descriptively and inferentially though hypotheses.

Table 2: Virtual Technology awareness based on the demography variables

Variables		N	Mean	S.D	't' value
Gender	Male	168	149.13	13.663	2.1778 *
	Female	182	153.14	20.370	
Locality	Rural	193	150.33	19.696	0.9441@
	Urban	157	152.26	18.468	

Type	Govt.	100	150.42	19.210	0.7211@
	Private	250	151.98	15.732	
Having Mobile in Home	Yes	183	162.69	17.249	4.3873 *
	No	067	150.69	18.428	
Having PC in Home	Yes	192	160.29	18.822	4.8865 *
	No	158	151.06	16.505	
Course Studied	PG	176	155.74	19.696	3.2622 *
	UG	174	149.63	15.076	

From the table-2, it is inferred that, the calculated 't' value among student-teachers with respect to gender-wise is 2.18; 't' value among student-teachers with respect to having mobile in home is 4.39, and with respect to having PC in home is 4.89 and their course already passed is 3.26 has significantly differed at 0.05 level could be noticed as rejected these hypotheses.

Whereas the calculated 't' value among student-teachers with respect to locality is 0.94 and with respect to the type of college of education is 0.72 at 0.05 level indicates there will be no significant difference. That means, as per the locality and the types of the college of education, the student's teachers' awareness of virtual technology are equal. These types of two variables were accepted the hypothetical conditions.

Postgraduate qualified student teachers had better awareness than undergraduate qualified student-teachers. The Salem district B.Ed institutions may provide proper motivation and orientation to the student-teachers to enhance their knowledge of contemporary affairs and also may bring some experts in the field of Virtual technology for student teachers' knowledge enhancement.

Conclusion

Teaching is a serious task; indeed, a noble profession. Teachers need to roundly understand the needs of students in different aspects of their learning style. It may seem difficult; however, teaching is one way of communicating with students. Considering the students' differences, teachers are challenged to become effective, adept and innovative (Senthilkumar, 2012). Indeed, teaching is more than just a profession. It is a noble passion to pursue. Teachers do not stop teaching inside the classroom. Though this chosen vocation is tiring sometimes, everything would be rewarding and fulsome in the end through the burning desire, love, and dedication of teachers to teach their students effectively. We believe that our teaching profession gives me different fulfillment. No matter how challenging it is; how difficult it is; how fulfilling the pleasure is; still we feel, we have inspired and encouraged our students greatly in bringing out their best potential by technology help. The most significant thing is our desire to consistently and continuously exercise excellence in the utility of virtual technology resources and affects a positive working attitude among our students. Hence the virtual technology resources will give our teaching for us, pleasure and pressures.

My recommendation for teacher educators will improve ICT skills and develop the academic carrier and improve e-knowledge through the available virtual technology resources. Then only today's teachers are to be a future e-teacher for future generation community.

Educational Implications of the Study

The results yielded can be a pointer for B.Ed training programmes which will help them grasp the modern trends and innovative practices in technology teaching and adopt them in all classrooms to provide the pupils the best possible learning situations. The management of secondary students should conduct a programme on virtual technology. It is helpful to the students to be aware of virtual technology. Also, the management should provide a computer lab with internet facilities for the betterment of the students. My recommendations are the students should be engaged in using a network that keeps a person in a good knowledge about their subjects and the students may be encouraged to use the network in their home.

At present, on the basis of evidence, VR can be considered as a useful tool for education, training, medical, defense, management, banking, diagnosis, and therapy. However, the technique is still in its infancy and much work is needed including controlled trials before they can be put to routine use. Another factor is not addressed the substantial cost of these systems and software. This is another barrier that has to be surmounted before VR can be introduced in routine use. But at the same time, due to these virtual technology methods creates an imaginary world, which is capable of breaking the boundaries in traditional classrooms. The simulation and animation environments using sensory immersion have been proven an effective learning method. In educational institutions, Virtual simulations have been used to teach students how to make easy, quick understanding ability and effective knowledge about their subjects. In future, these virtual reality gadgets are filled in our Indian classrooms and to develop our student's knowledge.

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REVIEW OF RESEARCH
IMPACT FACTOR : 5.7631(UIF) UGC APPROVED JOURNAL NO. 48514 ISSN: 2249-894X
VOLUME - 8 | ISSUE - 7 | APRIL - 2019

ACADEMIC STRESS AND COPING STRATEGIES AMONG COLLEGE STUDENTS



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ABSTRACT :

Adolescence is a period of developmental transition between childhood and adulthood entailing major aspects in physical, cognitive and psychosocial changes. In this stage, they are mostly affectionate to gender oriented fluctuations. The major problem among the student is controlling their emotions, stress that causes behavioral problems. The students selected for the study belongs to the age group final stage of adolescence. The study was carried by survey method; random sampling technique was used to collect data from 400 college students studying in government and private college in Salem district by self constructed and standardized questionnaires. The findings are gender, locality of student, stream of study, residential mode and locality of institution bring significant differences among college students with respect to academic stress and only gender for coping strategies. The study reveals that the parents and teachers encouragement is very essential for the student's achievement by promoting group motivations like helping, socialization etc that can inculcate progressive growth in their academics as well as healthy citizens for the society.

KEYWORDS : *transition, fluctuations, promotes and support*

INTRODUCTION

Stress is the combination of psychological, physiological and behavioral reactions that an individual have in response to events that threaten or challenge them. They can be good or bad, sometimes helpful by providing them extra energy or alertness they need and unfortunately, doesn't helpful and can even be harmful when not managed effectively. Students face various academic problems including exam stress, lack of interest in attending classes and inability to understand the subject. Exam stress can lead them being unable to perform to the best of their abilities. Stress is an unavoidable part of present life. It was associated with pressure or strain excreted upon an individual's that resists upon and attempts to maintain its original state. Today's life is full of challenges. In everyday life one comes across many situations. Some of them act as a source of inspiration for us and some causes challenges. It is the human nature to face the challenges boldly or to escape varies from person to person.

ACADEMIC STRESS

Academic stress occurs to many students, caused by many things, such as a new, more demanding workload, a student's low-tolerance changes learning environment and many more. The large workload that students regularly take on is a big factor in causing academic stress. For professional students during graduate school, the work burden is even more, coupled with the stress of

finding a job. Signs of academic stress are sleeping too much or not sleeping at all, getting sick constantly, feeling anxious or upset for no reason and even depression. Some good ways to cope with academic stress is instead of attempting to meet all tasks, to categorize them according to their importance.

COPING STRATEGIES

Coping includes all the possible responses to stressors in one's environment. It often reduces the negatives effects of the stressor, but sometimes coping creates new and different problems. While much of the stresses can be minimized through support, persistence, active decision making and planning. There are still times when adolescents find themselves in difficult situations. Coping with stress is associated with various competencies such as organizational adaptability human relations, problem solving and self-confidence.

REVIEW OF RELATED LITERATURE

Kaur (2014) conducted a study on study of academic stress of higher secondary students in relation to school environment. The main aim of the study was clear connection between student stress and academic success. Findings revealed that the majority of the students have average level of academic stress and infers that in modern times students have taken stress particularly academic stress as an accomplice in their lifestyle.

Manikandan (2013) experimented a study on stress, anxiety and achievement of the hearing impaired students. The main objectives were to find the relation between anxiety and stress, anxiety and achievement; achievement and stress of the hearing impaired students. The findings revealed that that the majority of the students have average level stress and anxiety. It had affected the achievement, so parents as well as teachers encouragement is very essential for the achievement of the hearing impaired students.

Rajeshkumar & Nancy (2007) studied on stress and coping strategies among nursing students. The aims of study was students are subjected to different kinds of stressors, such as the pressure of academics with obligation to succeed, an uncertain future and difficulties of integrating into the system. Result being separated from home for the first time, the transition from personal to impersonal academics and the vary structure of academic experience at the college level.

NEED AND IMPORTANCE

Academic stress and learning environment are related in such a way that the effect change and redefine student's life in many ways. The students if developed a negative concept on studies that can have impact on their mental and physical well-being. Children with stressed situation exhibits sign of emotional disturbances like aggressive behavior, shyness, social phobia and lack of interest in their academic. Discipline, adjustment related concern, peer pressure and problems such as getting good grades and also pressure from parents and society form the main reasons or cause of this stressful situation.

OBJECTIVES

The main objectives of the study are

- To find out the significant difference in the academic stress among college students with respects to their demographic variables.
- To find out the significant difference in the coping strategies among college students with respects to their demographic variables
- To find out the significant relationship between academic stress and coping strategies among college students.

The demographic variables are gender, locality of the student, stream of study, course of study, residential mode, and type of the management.

HYPOTHESES

The following research hypotheses have been formulated for the present investigation

- There will be a significant mean score difference in the academic stress among college students with respect to their demographic variables.
- There will be a significant mean score difference in the coping strategies among college students with respect to their demographic variables.
- There will be a significance relationship between academic stress and coping strategies among college students.

The demographic variables are gender, locality of the students, course of study, stream of study, residential mode, and type of the management.

METHODOLOGY AND SAMPLING

Survey method with a descriptive type of research was carried out with 400 college students (both undergraduate and postgraduate) by random sampling technique for collecting data from various arts and science colleges in Salem districts. The investigator had selected six different colleges ranging from three colleges in rural and three from urban areas.

TOOL AND TECHNIQUES

Academic stress and coping strategies questionnaire was constructed by the investigator. Finally standardized with the help of expert's opinion with 40 statements for academic stress and coping strategies with 32 statements. Two different types of tools was used which consists of 4 point scored is positive of 4, 3, 2 & 1 and negative of vice reveres. Both the tools are valid and reliable **0.72** and **0.69** respectively.

STATISTICAL TECHNIQUES

During the study area was also observed by the investigator. In statistics techniques Mean, Standard Deviation, correlation and't'-test were applied to know the academic stress and coping strategies of college students at Salem district.

DATA INTERPRETATION

The data thus obtained were analyzed and tabulated below

Table: (I) Values based on analysis for academic stress

Variables	Sub Variables	N	Mean	SD	't' Value
Gender	Male	191	84.15	23.61	
	Female	209	70.59	28.41	**5.20***
Locality of the Student	Rural	218	72.21	29.86	
	Urban	182	82.89	21.98	**4.11***
Stream of Study	Arts	225	74.60	28.92	
	Science	175	80.23	24.18	**2.11***
Course of Study	UG	208	74.95	27.57	
	PG	192	79.36	26.37	1.63
Residential Mode	Day Scholar	247	73.22	28.33	
	Hostel	153	83.27	23.67	**3.82***
Type of the management	Government	181	79.53	26.31	
	Private	219	75.03	27.56	1.66

*** Indicates significance at 0.05 level**

There is no significance difference in academic stress in relation to their variables such as course of study ('t'= 1.63) type of management ('t'=1.66). There is a significance difference in academic

stress in relation to their variables such as gender('t'=5.20), locality of the students('t'= 4.11), stream of study ('t'=2.11), residential mode('t'=3.82).

Table: II Values based on analysis for coping strategies

Variables	Sub Variables	N	Mean	SD	't' Value
Gender	Male	191	84.15	17.01	**1.99***
	Female	209	70.59	17.02	
Locality of the Student	Rural	218	72.21	17.31	1.09
	Urban	182	82.89	16.78	
Stream of Study	Arts	225	74.60	16.54	0.55
	Science	175	80.23	17.78	
Course of Study	UG	208	74.95	18.06	1.02
	PG	192	79.36	15.94	
Residential Mode	Day Scholar	247	73.22	17.85	1.40
	Hostel	153	83.27	15.70	
Type of the management	Government	181	79.53	16.71	1.39
	Private	219	75.03	17.34	

*** Indicates significance at 0.05 level**

There is no significance difference in coping strategies in relation to their variables such as, locality of the students('t'= 1.09), stream of study ('t'= 0.55), course of study ('t'= 1.02) type of management ('t'=1.39) residential mode('t'=1.40). There is a significance difference in coping strategies in relation to their variables such as gender ('t'=1.99).

To find out the relationship between the academic stress and coping strategies among college students, the correlation was carried out and the calculation value obtained was **0.34.** It shows that there is a **positive correlation** existing between the both variables.

EDUCATIONAL IMPLICATIONS

- Educational counseling centre should be setup in each school under the supervision of head of schools and timely advice and help at fright can be given before and after exam will reduce stress.
- Teachers in the class must understand the students ability and by providing essential assistance during their need will improve confidence in academics.
- Educational field trip at the end of each transition class to next class yearly will bring academic success and motivation to next step

CONCLUSION

Academic stress and coping strategies appeared to be the largest problem for the students. So, the main implications for the practice are that interventions should not only focus on the individual students but on its entire environment. Parents and teachers need to spend more time with these students and encourage them to overcome these hurdles. The love, care, concern, constant encouragement in educational aspects and in personal as well is essential, support and closeness of the parents enable these students to develop positive attitude among them which will help them to score high and can overcome problems in life too. With positive supports from parents and teachers as they have a key role in shaping the society, a student can overcome their hurdles in academics and in

personal life to succeed in future, as the society needs well achieved academic scholars for societal developments as a good citizen.

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LBP PUBLICATION

INTERNATIONAL CONFERENCE ON ADVANCED MATERIALS CHEMISTRY AT THE INTERFACES OF ENERGY, ENVIRONMENT AND MEDICINE

(AMCI - 2019)



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International Conference on
Advanced Material Chemistry at the Interfaces of
Energy, Environment and Medicine
AMCI-2019

ISBN: 978-93-81402-64-1
2(111-115)2019

PEG mediated synthesis of Novel 1,2,4-triazole derivatives as Inhibitors of Anti-HIV-1 Non-Nucleoside Reverse Transcriptase (NNRT).

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Abstract

With the aim of developing anti-HIV-1 Non-nucleoside reverse transcriptase Inhibitors(NNRTIs)a new class of 1,2,4- triazolederivatives have been synthesized and in silico docking approach has been applied to these compounds to screen their efficacy against selected drug target ofAnti-HIV-1 Non-Nucleoside Reverse Transcriptase (NNRT).

Introduction

Non-nucleoside reverse transcriptase (NNRT) is the main target enzyme against HIV-1 infections.[1]The1,2,4-triazoles, plays a vital role as a novel class of potent NNRTIs .[2,3]To the best of our knowledge this is the first report of synthesis of 1,2,4-triazole from the reaction of aldehyde, isoniazid and ammonium acetate.

Experimental method:

Typical experimental procedure for the synthesis of novel 4-(5-phenyl-1H-1,2,4-triazol-3-yl)pyridine

Compounds 4a-f were synthesized by the reaction of various aldehydes (1a-f) with isoniazid (2) and ammonium acetate (3) in 5 ml of PEG stirred at reflux condition (80°C). The reaction was monitored by TLC using ethyl acetate/hexane (1:1) as mobile phase at regular intervals of 10 min. until TLC showed complete disappearance of the starting materials. After completion of the reaction, the solids precipitated were separated by simple filtration and purified by washing with ethanol or recrystallized with chloroform. All the synthesized compounds were confirmed by IR, ^{1}H NMR and ^{13}C NMR.

REVIEW OF RESEARCH
IMPACT FACTOR : 5.7631(UIF) UGC APPROVED JOURNAL NO. 48514 ISSN: 2249-894X
VOLUME - 8 | ISSUE - 7 | APRIL - 2019

EFFECT OF MULTIMEDIA ON LEARNING HISTORY AT SECONDARY LEVEL



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ABSTRACT:

Technology can be imperative for individualized instruction in order to bridge the gaps between teaching and learning. The Kothari commission report asserts that if history subject is poorly taught and badly learned, it is a little more than burdening the mind with dead information. It could even degenerate into new superstitions. In India, history teaching needs overhauling. To understand the real concept of history, classical face-to-face teaching methods may have to be supplemented by innovative methods. Developing Multimedia is emerging to be an innovative method which could help the learners visualizes the materials so as to make them be creative and productive learners. The multimedia are developed with the integration of Multimedia components such as text, audio, video, animation and image which are set to ensure a better understanding of history by the students. In that way, multimedia on cloning was developed for finding its impact on learners. 60 ninth standard students from both genders were taken as a sample. Results revealed that the multimedia package has a positive impact on history learning among students irrespective of gender.

KEYWORDS: *multimedia, history learning, secondary level, animation, ninth standard.*

INTRODUCTION:

Technological advances and the significance of usability, accessibility, and individualization have created a less hierarchical knowledge society where individuals, as well as organizations, are creating knowledge using Web 2.0 tools. By engaging students in these practices early on, they are being prepared and equipped for later life as knowledge workers in a global information society. There are some underlying principles in explaining any process in History with different components. To understand the principles and process, learners need to integrate all properties and functions of each individual component. Indeed, Multimedia was providing multi-sensory experiences to the learners and it helps to mastery of the Botany unit at the secondary level (Nachimuthu, 2018). A multimedia package provides a wide range of sensory stimuli. The animations, simulations, software packages, speech, music, multimedia networks, image enhancements, etc. create virtual realities and experience for the learners, which in turn, help in making learning a more direct, useful, and joyful experience and in retaining knowledge for a longer time (Vijayakumari, 2011).

DESIGN OF THE STUDY

Experimental research method with a control design was adopted in this study. Investigator selected 60 ninth standard students as a sample from three secondary schools in Salem District of Tamil Nadu State of India. Multimedia on 'Cultural Traditions of Tamil Nadu' was developed by the investigator. Based on the material incorporated in the multimedia, an achievement test was developed

on the basis of guidelines of Bloom (1956) which was validated by the experts. The pre-test was conducted initially for 60 students. The students were divided into two groups namely, control and experimental groups. The experimental group was treated with multimedia and traditional approach was adopted for the control group. The investigator clarified their queries if any, raised by the students during the experimentation phase. Learners were provided a congenial atmosphere for the experimentation. Soon after the experiment was over, the post-test was conducted for all the 60 students.

DEVELOPMENT OF MULTIMEDIA

Considering the objectives and hypotheses, and having the exposure to Educational Technology, has developed and validated multimedia for learning History based on the ninth standard syllabus and the unit of 'Cultural Traditions of Tamil Nadu'. In order to prepare the multimedia, the investigator followed the five phases of analysis, design, development, implementation, and evaluation.

The multimedia will present multimedia in multiple formats. The multimedia is explained with suitable graphics, animations. The instructional strategies will be chalked out in such a way that learner never lose interest. It presents the multimedia in a simple text with visuals and with relevant supportive headings (Homepage). It will have its own reference materials which generally do not burden the learners and those can appear on demand with optional frames. Multimedia is developed with the integration of components such as text, audio, video, animation and image which will give multi-sensory experience to the learners.

In the present study, the investigator decided to develop the multimedia in Adobe Premiere Software based on the objectives. At this stage, the subtopics were formed and appropriate images, animations, and videos were collected. The topic "Early Tamil Society and Culture" form the Lesson III and that units covered in Quarterly Portions of Tamil Nadu State Board in English Medium p.no 44- 65) was selected the topic and it is relevant to the ninth standard students and it suitable time in their curriculum.

According to Wang et al., 2003, model the Multimedia was developed in such a way by using the above software which contains the following Menus: Homepage, Introduction, Key concepts, Examples, and Assignment. The script was carefully planned and prepared to adhere to the norms. The audio part of the script contains the matter that has to be orally explained as the sound effect. The visual part of the script shows all shot that will explain the processes involved in the selected topic. Storyboard is a script with visuals and explanations which actualizes the development of multimedia. The investigator used three column formats for storyboard writing. In this format the first column contains objectives part, the second one was the 'Cultural Traditions of Tamil Nadu' concepts with its videos, and the third one was the interactive questioning part which contains MCQ with 'right' or wrong responses of branched programming.

The good designing of multimedia is necessary to follow the steps of multimedia development. The steps involved in developing the script are, mastering the subject, arrangement of the sentences, rearranging the work, drafting the full script with visual illustrations and added voice. Editing was done by the investigators with the help of technical experts in the Computer Center. The video coverage of the topic 'Cultural Traditions of Tamil Nadu' was done by the programmer. The multimedia package contains text, images, video, and animations. The investigator prepared the video and animation to explain the concept according to the instructional objectives and carefully edited.

RESULTS AND DISCUSSION

An achievement questionnaire was also prepared by the investigator related to the learning unit part and that was found out with face validity and reliability (0.82). It consists of 50 questions with Yes or No type in learning History. There are also multimedia package was prepared and stored in a single file as 'Cultural Traditions of Tamil Nadu'. The collected data were analyzed and interpreted with mean, standard deviation and 't' test. The statistical treatment was given to test the hypothesis and to find out that, there is no significant mean difference in the achievement of History between the group taught

through multimedia package material and the group taught through lecture method of teaching. The table-1, illustrates the analysis on pre and post-tests of control and experimental groups.

Table 1. Analysis on pre and post-tests of control and experimental group

Analysis	Group	N	Mean	S.D	't' value	p- value
Control	Pre-test	30	5.16	1.66	0.832 @	0.40871
	Post-test	30	5.46	1.07		
Experimental	Pre-test	30	5.40	2.63	2.970 *	0.00428
	Post-test	30	3.53	2.23		
Pre-Test	Control	30	5.16	1.66	0.423 @	0.67381
	Experimental	30	5.40	2.63		
Post-Test	Control	30	5.46	1.07	4.274 *	0.00007
	Experimental	30	3.53	2.23		

(@=No significant level, * =Significant at 0.05 level)

It can be found from the table-1, for the pre and post-tests of the control group mean scores of multimedia are 5.16 and 5.46 respectively. Likewise the tests control group standard deviations are 1.66 and 1.07 respectively. The table concluded that the calculated 't' value 0.83 is lesser than the table value indicates the acceptance of the hypothesis. For the pre and post-tests of experimental group mean scores of multimedia are 5.40 and 3.53 respectively. Likewise, the experimental group standard deviations are 2.63 and 2.23 respectively. The table concluded that the calculated 't' value 2.97 is greater than the table value indicates the rejection of the hypothesis.

As per the table-1, that students in both control and experimental group do not differ in their pre-test performance which shows the equivalence of both the groups in their entry behavior as far as their performance in history learning was concerned. For the post-tests of control and an experimental group of multimedia package learning in history, concluded that the calculated 't' value 4.27 is greater than the table value indicates the rejection of the hypothesis-1. Hence it is concluded that there is a significant difference between post-tests of control and experimental group. It is heartening to note that the experimental group which was given treatment on multimedia along with classroom discussion outperformed their counterparts as per the second part. From these two results, it is inferred that multimedia package integration into history learning was found effective.

As per the hypothesis-2, 'There is no significant difference between the multimedia package learning in history in relation to their experimental and retention tests wise' analyzed in the following table-2.

Table 2. Analysis on Experimental Group Post-test Score and Retention Test Score

Exptl. Group	N	Mean	S.D	't' value	p- value
Experimental score	30	3.53	2.23	2.423 *	0.01843
Retention score	30	4.96	2.34		

(* =Significant at 0.05 level)

For the post-tests of the experimental and the retention group of multimedia package mean scores are 3.53 and 4.96 respectively. Likewise, the experimental and the retention group standard deviations are 2.23 and 2.34 respectively. The table concluded that the calculated 't' value 2.42 is greater than the table value indicates the rejection of the hypothesis. Hence it is concluded that there is a significant difference between post-tests experimental group and retention group.

CONCLUSION

School education should make skillful and effective students (Selinger, 2004). They should give sufficient learning experience to the students and training given to the teachers in utilizing the technological equipment's. They should conduct special programmes on preparing a multimedia package for languages as well as science and social sciences for all medium students and teachers. Any multimedia product available in a digital form and it typically refers to music, information and images that are available for distribution on electronic media are called multimedia. (Anurag Saxena, 2011). For the multimedia package development aspect each one is used to develop the following phases of ADDIE model viz., analysis, design, development, implementation, and evaluation (Prensky, 2006). A digital text and images designed for display on web pages which is suitable for a particular audience are called as 'multimedia package'. e-learning is a process and multimedia package is a product. This approach of teaching has become an answer to the complicated problems and un-identified areas.

With multimedia package materials, the learner and teacher will understand that he or she is changing from a provider of facts to the one who facilitates a learning environment (Cady et al., 2011). Humans can integrate information from different sensory stimuli into meaningful experiences. (Revathi et al.,2019). This experimental study proved that multimedia package enhances the achievement of the ninth standard students. It is observed that the ninth standard students' academic achievement on 'Cultural Traditions of Tamil Nadu' and participation in learning had improved significantly when compared to traditional instruction.

The students have shown much enthusiasm to learn through this mode and it is observed that they prefer to select various other topics. It is further observed that the students started using a wide variety of media from the internet, PowerPoint presentations, simulations and activities in Learning as it provided a holistic approach (Senthilkumar, 2017). This can be facilitating students to master the concept of their subject at their own pace, which also demands that teachers create such Electronic learning digital applications that can be used in their schools and to enable students to access it in anytime.

We need innovative work in multimedia package material as a form of digital literacy in educational settings particularly to investigate the implications of new forms of social networking, knowledge sharing, and knowledge building. The application of the multimedia package is the teaching-learning process will have a significant impact. As technology becomes user-friendly the creation of multimedia package by teaching community will be much easier. The multimedia package is generally designed to guide students through a lot of information in a specific task. The quality of learning depends not only on the form of how the process is carried out but also on what multimedia is taught and how the multimedia is presented.

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LBP PUBLICATION

NEED OF SOCIAL MEDIA IN RECENT CLASSROOMS

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INTRODUCTION

Education is the process of facilitating learning, or the acquisition of knowledge, skills, values beliefs and habits. Educational methods include storytelling, teaching, training, and directed research. Education frequently takes place under the guidance of educators, but learners may also educate themselves. Education can take place in formal or informal settings and any experience that has a formative effect on the way one thinks, feels, or acts may be considered educational. The methodology of teaching is called pedagogy.

Educational technology is 'the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources'. Educational technology is the use of both physical hardware and educational theoretic (Boyd et al, 2007). It encompasses several domains including learning theory, computer-based training, online learning, and where mobile technologies are used, m-learning. Accordingly, there are several discrete aspects of describing the intellectual and technical development of educational technology.

Social media in education refers to the practice of using social media platforms as a way to enhance the education of students (Hilbert, 2016). Social media is defined as 'a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of content'. Social media are interactive computer-mediated technologies that facilitate the creation and sharing of information, ideas, career interests and other forms of expression via virtual communities and networks. The variety of evolving stand-alone and built-in social media services makes it challenging to define them.

CHARACTERISTICS OF SOCIAL MEDIA

Characteristics of social media are as follows; a) Web space: The website should provide the users with free web space to upload content. b) Web address: The users are given a unique web address that becomes their web identity. They can post and share all their content on this web address. c) Build profiles: Users are asked to enter personal details like name, address, date of birth, school/college education, professional details etc. The site then mines the personal data to connect individuals. d) Connect with friends: Users are encouraged to post personal and professional updates about themselves. The site then becomes a platform to connect friends and

relatives. e) Upload content in real time: Users are provided the tools to post content in real time. This content can be text, images, audio, video or even symbolic likes and dislikes. The last post comes first, giving the site freshness. f) Enable conversations: Members are given the rights to comment on posts made by friends and relatives. The conversations are a great social connect, and g) Posts have time stamp: All posts are time stamped, making it easy to follow posts.

PROS OF SOCIAL NETWORKS

Pros of Social Networking are Ability to connect to other people all over the world; easy and instant communication; real-time news and information discovery; great opportunities for business owners and general fun and enjoyment. They are explained as; a) Ability to connect to other people all over the world: One of the most obvious pros of using social networks is the ability to instantly reach people from anywhere. Use Facebook to stay in touch with our old high school friends who've relocated all over the country, get on Google Hangouts with relatives who live halfway around the world, or meet brand new people on Twitter from cities or regions we've never even heard of before; b) Easy and instant communication: Now that we're connected wherever we go, we don't have to rely on our landlines, answering machines or snail mail to contact somebody. We can simply open up our laptops or pick up our Smartphone's and immediately start communicating with anyone on platforms like Twitter or one of the many social messaging apps available; c) Real-time news and information discovery: Gone are the days of waiting around for the six o'clock news to come on Television or for the delivery boy to bring the newspaper in the morning. If we want to know what's going on in the world, all we need to do is jump on social media.

An added bonus is that we can customize our news and information discovery experiences by choosing to follow exactly what we want. d) Great opportunities for business owners: Business owners and other types of professional organizations can connect with current customers, sell their products and expand their reach using social media. There are actually lots of entrepreneurs and businesses out there that thrive almost entirely on social networks and wouldn't even be able to operate without it. e) General fun and enjoyment: We have to admit that social networking is just plain fun sometimes. A lot of people turn to it when they catch a break at work or just want to relax at home. Since people are naturally social creatures, it's often quite satisfying to see comments and likes show up on our own posts, and it's convenient to be able to see exactly what our friends are up to without having to ask them directly.

CONS OF SOCIAL NETWORKS

Cons of Social Networking are information overwhelms; privacy issues; social peer pressure and cyberbullying; online interaction substitution for offline interaction; distraction and procrastination; and sedentary lifestyle habits and sleep disruption. They are explained as; a) Information overwhelms: With so many people now on social media tweeting links and posting sulfides and sharing YouTube videos, it sure can

get pretty noisy. Becoming overwhelmed by too many Facebook friends to keep up with or too many Instagram photos to browse through isn't all that uncommon.

Over time, we tend to rack up a lot of friends and followers, and that can lead to lots of bloated news feeds with too much content we're not all that interested in. b) Privacy issues: With so much sharing going on, issues over privacy will always be a big concern. Whether it's a question of social sites owning our content after it's posted, becoming a target after sharing our geographical location online or even getting in trouble at work after tweeting something inappropriate sharing too much with the public can open up all sorts of problems that sometimes can't ever be undone. c) Social peer pressure and cyberbullying: For people struggling to fit in with their peers especially teens and young adults the pressure to do certain things or act a certain way can be even worse on social media than it is at school or any other offline setting. In some extreme cases, the overwhelming pressure to fit in with everyone posting on social media or becoming the target of a cyberbullying attack can lead to serious stress, anxiety and even depression.

And also Online interaction substitution for (d) offline interaction: Since people are now connected all the time and we can pull up a friend's social profile with a click of our mouse or a tap of our Smartphone, it's a lot easier to use online interaction as a substitute for face-to-face interaction. Some people argue that social media actually promotes antisocial human behavior. e) Distraction and procrastination: People get distracted by all the social apps and news and messages they receive, leading to all sorts of problems like distracted driving or the lack of gaining someone's full attention during a conversation. Browsing social media can also feed procrastination habits and become something people turn to in order to avoid certain tasks or responsibilities. f) Sedentary lifestyle habits and sleep disruption: Lastly, since social networking is all done on some sort of computer or mobile device, it can sometimes promote too much sitting down in one spot for too long. Likewise, staring into the artificial light from a computer or phone screen at night can negatively affect our ability to get a proper night's sleep.

DIFFERENT TYPES OF SOCIAL MEDIA

Different types of social media are classified based on the nature and as follows; Social networks; bookmarking sites; social news; media sharing; micro blogging; blog comments and forums.

a) **Social networks:** A social network site is a social media site that allows users to connect and share with people who have similar interests and backgrounds. Facebook is the most popular example of a social network website.

b) Bookmarking sites: These sites allow users to save and organize links to any number of online resources and websites. A great feature of these services is the ability for the user to 'tag' links, which makes them easier to search, and invariably, share with their followers. Stumble Upon is a popular example of a bookmarking site.

c) Social news: This is a social news site that allows its users to post news links and other items to outside articles. Users then vote on said items, and the items with the highest number of votes are most prominently displayed. A good example of a social news site is Reddit.

d) Media sharing: Media sharing websites allow users to share different types of media, such as pictures and video. Most of these sites also offer social features, like the ability to create profiles and the option of commenting on the uploaded images. YouTube is the most well-known media sharing site in the world.

e) Micro blogging: These are just what they sound like, sites that allow the users to submit shortly written entries, which can include links to product and service sites, as well as links to other social media sites. These are then posted on the 'walls' of everyone who has subscribed to that user's account. The most commonly used microblogging website is Twitter.

f) Blog comments and forums: An online forum is a site that lets users engage in conversations by posting and responding to community messages. A blog comment site is the same thing except a little more focused. The comments are usually centered on the specific subject of the attached blog. Google has a popular blogging site aptly titled, Blogger. However, there are a seemingly endless number of blogging sites, particularly because so many of them are niche-based, unlike the universal appeal of general social media sites.

USES OF SOCIAL MEDIA IN CLASSROOMS

Today's younger generation is hooked on social media. Many teachers think that if they allow their students to use social media in the classroom, students will be posting status updates about how their day is going, which would only detract from educational experiences (Beshears, 2016). However, social media can be a powerful educational tool that provides unique and dynamic learning experiences to students and teachers alike.

Social media are internet sites where people interact with one another. They provide a place for people across the world to share information and engage in discussions. Social media provides the means to share graphics, videos, and audio files. With a history dating back nearly twenty years, social media has become second nature to today's students. Social learning theory says that students learn best when they learn from each other. Several studies have found that when students study together, they earn higher grades, are more engaged, and are more motivated. For that reason, teachers have incorporated group/team learning into their classrooms for decades. Today's learners view social media as 'cool,' making it useful in providing social learning activities that are both educational and engaging. This group learning format appeals to younger, socially conscious learners and is built around the notion that many minds are better than one.

Today Social media has become the phenomenon of teenagers; and is a way of life. The growing ubiquity of cell phones, especially the rise of smart phones, has made social networking just a finger tap away and it has redefined how the individual user relate to each other as humans. It is about dialog - two way discussions bringing people together to discover and share information.

As stated by Laura James (2010) Social Networking websites such as face book and LinkedIn have emerged rapidly. The use of Face book by higher education students is especially interested in gathering academic information (Boyd et al., 2007). New developments in the technological world have made the internet an innovative way for individuals and families to communicate. Social media networks have created a phenomenon on the internet that has gained popularity over the last decade. People use social media sites such as Face book, Twitter, and My space to create and sustain relationships with others (Hilbert, 2016). Spending time on social networking sites appears to be part of most U.S. young adults' daily activities. The ease of communication on social media allows college students to remain connected with a large number of others such as people from high school; acquaintances met at a party, friends of friends or music bands. With this large sphere of friendship networks a new kind of 'audience' is created for one's self presentation on the profile. Analyzing their motivational pattern with regard to their online social media behaviour is pertinent to study the use of the Social media shaped personality in future.

CONCLUSION

Information and communications technology (ICT) is that stresses the role of unified communications and the integration of computers, as well as necessary enterprise software, storage, and audiovisual systems, that enable users to access, store, transmit, and manipulate information (Chaffey et al, 2012). Computers in the classroom include any digital technology used to enhance, supplement, and replace a traditional educational curriculum. As computers have become more accessible, inexpensive, and powerful, the demand for this technology has increased, leading to more frequent use of computer resources within classes, and a decrease in the student-to-computer ratio within schools (Cuban, 2001). From the foregoing, it is so clear that social media in education is essential. Students should also increase their interest and the will to know more about social media since it is a field that is highly dynamic. It changes severely with the changing needs of the public. In addition, the use of social media in schools should not be banned with an excuse of moral disruption and time wastage.

The best ways to react to social media is only embracing it positively and engage the same in the student's learning strategies. Students will not be bound by the walls of the classroom; instead, they will use the Internet productively in order to interact with other students in group discussions. Furthermore, educational administrators should understand the pivotal role played by social media in education. They should consider the pros and cons with the purpose of changing their irrational thinking patterns, which promote the fact that students always abuse the Internet. Hence we recommended using the social media in future classrooms in a meaningful way.

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Effect of Multimedia Learning on Science

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Received: 06 Mar 2019 Accepted: 08 Apr 2019

ABSTRACT:

Multimedia is a powerful aid to learning. The use of multimedia in teaching and learning presents challenges to institutions of higher learning. The Video combined with Multimedia techniques were more effective for teaching and learning process. The aim of this study was to find out the impact of multimedia effect on science learning by the student teachers (N=312) in three districts of Tamil Nadu State. The investigator prepared multimedia is Cell divisions content. Multimedia 5-point Likert type utility scale was used as a tool for this study and concluded that Multimedia learning is effectively in science subjects. There is a significant difference occurred within the demographic variables. This paper also discusses the impact of multimedia in science teaching and learning.

Keywords: *Multimedia, Science Learning, Techniques, Interactive Video, Utility Scale, Higher Learning.*

INTRODUCTION

Multimedia is a powerful aid to learning. Moving images, motion graphics and dynamic text in combination with sound effects, narration or dialogue, stimulate viewer's cognitive processing, emotional and even physical responses. The use of multimedia in teaching and learning presents challenges to institutions of higher learning. Multimedia refers to any computer-mediated software or interactive application that integrates text, color, graphical images, animation, audio sound, and full motion video in a single application. Multimedia learning systems consist of animation and narration, which offer a potential venue for improving student understanding (Mayer & Moreno, 2000). This paper briefly discusses the impact of multimedia in science teaching and learning.

Teaching and learning are two complementary aspects of education. Within learning, there are two key elements: content, which forms the "what" of learning; and skills, which describe the application of content to specific tasks, or the "how." These two elements are mirrored in teaching by the curriculum and syllabus (the ‘what') and the teaching methodology (the ‘how'). Multimedia technology affects both aspects of teaching and learning. It does this in three ways: in how it presents information; in how students interact both with the medium and through the medium with the teacher and other learners; and in how knowledge is structured within multimedia.

The cognitive effect of multimedia is derived from what is known as ‘multi-sensory' learning. Multi-sensory learning theory looks at how the brain is stimulated via the Visual, Auditory and Kinesthetic senses (VAK). Multi-sensory learning happens when more than one sense is used to acquire and retain information. With multimedia, the visual and auditory senses are engaged simultaneously in making sense of the content. This creates a powerful emotional context for learning, and when emotions are evoked, memory and recall are enhanced.

Video and Multimedia Techniques

Video and multimedia techniques are listed below; whiteboard illustrations; interview shots; interactive video; vox pops;

coaches, tutors or guides; documentary video; video drama; motion graphics–kinetic text and info-graphic animations.

Whiteboard illustration: This uses a single camera angle. Concepts are shot ‘in real time' using a marker pen on a whiteboard and speeded up in line with voiceover narration. The audio explains concepts verbally while the pictures plant visual ‘hooks' in the learner's mind, helping them interpret and remember key points.

Papermation: These are brief stories using paper cut-outs, manipulated by a hand under a static camera, accompanied by a voiceover. The stories are usually center on people, encouraging an ‘effective response' from the viewer. This is a really cost-effective way of harnessing the benefits of narrative, usually reserved for scripted drama.

Interview shots: Interviews with subject matter experts or senior figures can provide credibility, anchoring the content in an academic or practical experience. These can be shot in the interviewee's working environment to create realism or shot against a plain background allowing for more dynamic, lively and quirky camera moves. They can also be shot against a ‘green screen', which allows graphics, motion graphics or effects to be combined with live action in post-production.

Interactive video: Interactive videos are similar to simulations; allowing the viewer to determine what they see. They are distinguished by the mode of interaction; instead of answering a question to determine an outcome, the learner clicks elements within the video itself and is they on-screen graphics, objects or characters. Often more playful than video dramas, they can be created using live action video or illustrated animations.

Vox pops: Vox pops (voice of the people) lend realism to an experience. In a sense, they are a subset of interviews, although typically they are shot in a ‘fly on the wall' style capturing real-time thoughts, feelings and attitudes in response to a leading question. Vox pops allow viewers to empathize with people like themselves, as they are usually ‘peer to peer', which makes them particularly effective for induction programmes.

Coaches, tutors or guides: A guide helps us through the learning experience, rather than imparting knowledge and skills. Video or animation-based ‘walk on' guides may give feedback on overall progress, how well we've done and what needs doing next. Research shows that on-screen tutors can improve learning by 24 percent to 48 percent.

Documentary video: Documentary is an excellent way of delivering information in an informative and well-recognized way. It uses a combination of interviews, filmed sequences, archive footage, and other material to raise awareness about a whole range of subjects, such as the benefits of a new system.

Video drama: Drama sequences form the backbone of scenarios or simulations and promote an emotional response prior to making a choice. The learner's chosen course of action determines which video outcome they see. The point-of-view or ‘through the lens' perspective is particularly powerful for skills transfer, as the learner becomes a participant ‘in the scene'. Drama is also ideal for modeling behavior.

Motion graphics–kinetic text: It is kinetic typography and the technical name for ‘moving text'. This is an animation technique mixing motion and text. The text is presented over time to convey or evoke a particular idea or emotion.

Info-graphic animations: Information graphics are visual representations of data that present complex information quickly and clearly. They improve cognition by emphasizing visual patterns and trends. These images are often animated to music and/or voiceover.

METHODOLOGY

The aim of this study was to find out the multimedia effect on science classrooms learning by the student teachers in three districts of Tamil Nadu State. A sample of 312 (150 male and 162 female) undergraduates (student teachers) in a College of Education (B.Ed) used the multimedia system to learn the operation of cell divisions. The multimedia system consists of a labeled diagram of Cell cycle, seven phases of Mitosis division and three phases of meiosis division, followed by a

description often stages to successfully make the new diploid cells.

The Multimedia consists of mitosis division process, which has seven phases of the Cell cycle like inter-phase, prophase, prometaphase, metaphase, anaphase, telophase, and cytokinesis and to successfully make the new diploid cells. And the meiosis division consists of three phases of interphase, meiosis-I, and meiosis-II. The sample was randomly divided into two groups who used either an interactive (experimental) or a non-interactive (control) version involving both images and text. The interactive system differed from the non-interactive system by the incorporation of control of pace, self-assessment questions and an interactive simulation. Student teachers then undertook with an achievement test.

The Sample for the STUDY

The population in this study covers three districts viz., Coimbatore, Salem and Namakkal districts of Tamil Nadu state of India, which scattered in Government, aided and self-financed college of education affiliated by Tamil Nadu Teacher Education University, Chennai. The stratified random method of sampling has been used because the population is heterogeneous form, which covers the type of institution, locality of the institution, gender, age, computer knowledge and presence of a computer with an internet facilities in their home. By using stratified random sampling, the data collected is more accurate and it represents each stratum (Nachimuthu, 2010). This study has selected 312 student teachers from the selected three districts of the college of education institutions in the Tamil Nadu state of India.

Design and Tool for the Study

The study was experimental research on the impact of multimedia effect on science learning by the student teacher's teaching-learning process. A Multimedia 5-point Likert type utility scale was used as a tool for this study. The tool contains 2 parts (Part A and Part B). Part A includes socio-demographic of respondents. Part B is to determine the level of multimedia utility. In the scale, positive scoring was calculated as 1=almost never, 2=never, 3= nil utility, 4 = every time and 5 = almost every time has been used and for negative scoring the same as in vice-versa. Dependent variables in this study are the multimedia utility level; while independent variables include the type of institution, locality of the institution, gender, age, computer & multimedia knowledge, and presence of a computer with an internet facilities in their home.

The validity of the MUS (Multimedia Utility Scale) was approved by multimedia experts and the Faculty of Education, Periyar University, Salem city in Indian country. The views of the experts were used to revise some of the items in the tool. The reliability was measured by Alpha Cronbach method and it shows the coefficient of reliability 0.88 for the level of multimedia usage among student teachers. The coefficient of reliability shows that all items in the scale were reliable and can be accepted. An effective rapport was developed before administering the scale and then collects the data. The collected data was analyzed using R Programming (Statistical Package) and the mean, the standard deviation was used to determine the impact multimedia level of student teachers and also ‘t' and F test was conducted to check the significant differences among the variables. The sample for the study is presented in Table 1.

Table 1: The Sample for the Study

Type of Institutions			Locality of Institutions		Gender		Age			Computer Knowledge		Net facility in Home	
G	SF	A	U	R	M	F	< 25 Yrs	25-30 Yrs	> 30 Yrs	Yes	No	Yes	No
048	216	048	168	144	150	162	105	126	081	234	078	198	114

From the table- 1, the sample for the study was 312 student teachers and that they were enrolled in three types of institutions viz., Government (48), aided (48) and self-financed student teachers (216) and most of

the locality of institutions are situated in urban area (168) with the composition of 162 female student teachers and 150 males. The majority of the student teachers have had the basic knowledge of computer. Around 64% of the student teachers have their own computer in their home with an internet facility in their home.

Multimedia Usage based on Type of Institutions

Table-2 shows one-way variance analysis results, which were conducted to determine if there is a significant difference in the type of institutions regarding multimedia usage level of student teachers.

Table 2: ANOVA Results of Multimedia Usage Level (Type of Institution Wise)

Type of Institutions	N	Mean	S.D	F	p-value
Government	048	0.592	0.0654	19.2029*	0.000
Self-financed	216	2.355	0.0525		
Aided	048	0.412	0.1221		

(* = Significant at 0.05 level)

As can be seen in Table-2, significant differences in multimedia usage based on the type of institutions were observed. When the mean score was determined, student teachers in the self-financed were the highest users of multimedia (mean=2.355) compared to the Government student teachers (mean=0.592) and aided student teachers (mean=0.412). Multimedia usage among student teachers in Self-financed College of education was higher than in the Government student teachers as well as aided college of education student teachers.

Multimedia Usage Based on Location of Teaching

Table-3 shows 't' test results, which were conducted to determine if there is a significant difference in the location of institutions regarding multimedia usage level of student teachers.

Table 3: 't'-test Results of Multimedia Usage Level (Locality Wise)

Locality	N	Mean	S.D	't' value	p-value
Urban	168	2.12	0.428	4.2209*	0.000
Rural	144	1.86	0.624		

(* = Significant at 0.05 level)

Table-3 shows that there was a significant difference between the multimedia usage of student teachers in the urban and rural locality with the value 't' = 4.2209 and p = 0.000 (p < 0.05). Based on meaning obtained, student teachers in the urban locality have a higher mean (mean = 2.12) compared with the mean of student teachers in the rural locality (mean = 1.86). This shows that the multimedia usage of student teachers in the urban locality was higher than student teachers in the rural locality.

Multimedia Usage Based on Gender

Table-4 shows 't' test results, which were conducted to determine if there is a significant difference in gender regarding multimedia usage level of student teachers.

Table 4: 't'-test Results of Multimedia Usage Level (Gender Wise)

Gender	N	Mean	S.D	't' value	p-value
Male Student teachers	150	1.98	0.562	3.2739 *	0.001
Female Student teachers	162	2.14	0.214		

(* = Significant at 0.05 level)

Table-4 shows that there was a significant difference between the multimedia usage of female and male student teachers with the value 't' =3.274 and p = 0.001 (p < 0.05). Based on meaning obtained, female student teachers have a

higher mean (mean =2.14) compared with the mean of the male (mean = 1.98). This shows that the multimedia usage of female student teachers was higher than the male student teachers as per gender wise analysis.

Multimedia Usage Based on Age

Table-5 shows one-way variance analysis results, which were conducted to determine if there is a significant difference in age regarding multimedia usage level of student teachers.

Table 5: ANOVA Results of Multimedia Usage Level (Age Wise)

Age	N	Mean	S.D	F value	p-value
Less than 25 years	105	0.991	0.2825	9.9591*	0.000
25 to 30 years	126	1.098	0.1785		
More than 30 years	081	1.261	0.2517		

(* = Significant at 0.05 level)

As can be seen in Table-5, significant differences in multimedia usage based on age were observed (F=9.959). When means score were determined, student teachers age is more than 30 years were the highest users of multimedia (mean=1.261). While aged 25 to 30 years (mean=1.098) were higher than aged less than 25 years (mean=0.0991) of student teachers.

Multimedia Usage based on their Computer knowledge

Table-6 shows 't' test results, which were conducted to determine if there is a significant difference in their computer knowledge regarding multimedia usage level of student teachers.

Table 6: 't'-test Results of Multimedia Usage Level (Knowledge Wise)

Computer Knowledge	N	Mean	S.D	't' value	p-value
Yes	234	2.24	0.584	3.9037*	0.001
No	078	1.98	0.482		

(* = Significant at 0.05 level)

Table-6 shows that there was a significant difference between the multimedia usage of student teachers having computer knowledge and not having computer knowledge with the value 't' = 3.904 and p = 0.001 ($p < 0.05$). Based on meaning obtained, student teachers' knowing computer knowledge have a higher mean (mean = 2.24) compared with the mean of student teachers were not having computer knowledge (mean = 1.98). This shows that the multimedia usage of student teachers having computer knowledge was higher than student teachers not having computer knowledge.

Multimedia Usage Based on their availability of a home computer with net facilities Table-7 shows 't' test results, which were conducted to determine if there is a significant difference based on the home computer with net facilities regarding multimedia usage level of student teachers.

Table 7: 't'-test Results of Multimedia Usage Level (Home Computer Facility Wise)

Net Facility in Home	N	Mean	S.D	't' value	p-value
Yes	198	2.04	0.448	3.2405*	0.001
No	114	1.86	0.486		

(* = Significant at 0.05 level)

Table-7 shows that there was a significant difference of multimedia usage of student teachers based on having Home

computer (PC) with internet facility with the value 't' = 3.241 and p = 0.001 ($p < 0.05$). Based on meaning obtained, student teachers having a home computer with internet facility have a higher mean (mean = 2.04) compared with a mean of student teachers those who are not having a computer in their home (mean = 1.86). This shows that the multimedia usage of student teachers having a home computer with internet facility was higher than student teachers not having computers in their home.

DISCUSSION

Findings showed that the use of multimedia among student teachers in teacher education institutions in the selected three districts of Tamil Nadu State was at an effective level. This research is also supported by Konan (2010) found that the academic qualification was affected by the use of multimedia. These research calculations are not taken their academic qualifications because of all are entry level of first-year B.Ed student teachers.

The results also showed significant differences in the use of multimedia teaching on gender. The use of multimedia among female student teachers mean score is higher than male mean scores. This finding is supported by Abdul (2005) and Larry et al. (2001) which showed the significant in different levels of multimedia usage on gender.

The findings of multimedia usage of student teachers in the urban locality were higher than student teachers in the rural locality in this study was not supported to Senthilkumar et al., (2012), who found out that there is no significant difference between the use of multimedia in rural and urban areas. They noted that the use of multimedia is not dependent on location such as rural or urban, but it is related to the knowledge and attitudes towards multimedia.

The multimedia utility was depending on the facilities in which they work (Jamian et al., 2011). These same findings also supported these research findings such as multimedia usage among student teachers as per their age wise. From the analysis, there is a significant difference occurred in the multimedia usage based on age. When means score were determined, student teachers within age more than 30 years were the highest users of multimedia compared to less than 30 years of age. As usual, depending on their computer knowledge the student teachers working ability in multimedia was vice-versa. (Larry, et al., 2001). Also, they have a better effect on the use of multimedia on the basis of their knowledge of computer and having a computer with an internet facility at the home.

CONCLUSION

Multimedia is generally designed to guide students through a lot of information in a specific task (Vijayakumari, 2011). A multimedia package can be used as a teacher in the virtual classroom situations. The quality of learning depends not only on the form of how the process is carried out but also on what content is taught and how the content is presented. Student and teachers both need to accept and face the challenges for the coming future and adapt the new ways of multimedia learning to improve their methods of learning and to elevate better educational outcome of the whole society. E-learning is a process and multimedia and e-content packages are products. This approach of teaching has become an answer to the complicated problems and un-identified areas.

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WEB RESOURCES

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REVIEW OF RESEARCH
ISSN: 2249-894X
IMPACT FACTOR : 5.7631(UIF)
UGC APPROVED JOURNAL NO. 48514
VOLUME - 8 | ISSUE - 9 | JUNE - 2019

MULTI-SENSORY TEACHING STRATEGIES IN ENHANCING PROBLEM SOLVING ABILITIES OF HIGHER SECONDARY STUDENTS IN MATHEMATICS

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ABSTRACT:



The main objectives of the study is to find out whether the package use to enhancing problem solving ability in mathematics among higher secondary students is effective. The investigator adopted the Quasi-Experiment method has gathered information to measure a multi-sensory teaching strategies in enhancing problem solving abilities of higher secondary students in mathematics. The investigator used simple random sampling technique for selecting the sample from the population. The sample consists of 58 secondary students studying in secondary level in Salem District, Tamil Nadu. The researcher has constructed and standardized the following research tool (problem solving ability questionnaire) to collect data from the sample. The statistical used descriptive analysis, differential analysis. The major findings of the study reveals that there was a significant differences in the pre and post test scores of problem solving ability in mathematics among higher secondary students through multi-sensory teaching strategies for control group and experimental group. The findings of the study concluded that multi-sensory teaching strategies definitely enhance problem solving ability in mathematics among higher secondary students.

KEYWORDS: *multi-sensory teaching strategies, problem solving abilities, Mathematics, higher secondary students.*

INTRODUCTION

Mathematics is a form of reasoning. Thinking mathematically consists of thinking in a logical manner, formulating and testing conjectures, making sense of things, and forming and justifying judgments, inferences, and conclusions. We demonstrate mathematical behaviour when we recognize and describe patterns, construct physical and conceptual models of phenomena, create symbol systems to help us represent, manipulate, and reflect on ideas, and invent procedures to solve problems (Battista, 1999). Mathematical problem-solving competence is defined as the capacity to the ability to solve real-world problems and to transfer problem-solving strategies through metacognition and technology and also ability to solve problems by applying cognitive skills such as reasoning and logical thinking (Rajkumar and Hema, 2019). Through this approach, teachers can present information in multiple ways and engage all students in the learning process. Because multi-sensory teaching allows teachers to present information to students using a number of different means of sensory input, this method

adheres to the universal design of learning (UDL) (Metcalf, Evans, Flynn, and Williams, 2009) by providing a flexible learning environment that accommodates students' differences with regard to the ways in which they learn (Rajkumar and Nachimuthu, 2017; 2018).

NEED AND SIGNIFICANCE OF THE STUDY

Mathematics is regarded as the mother of all sciences. Mathematics is the only subject to encourage and develops logical thinking and problem solving ability in the world. If our students are to function effectively in this digital era of rapid technological advancement and globalisation, they must be mathematically literate. Therefore, in teaching mathematics it is necessary to combine the picture method and the definition method in order to improve the existing knowledge and to enlarge it with the new facts, which is one of the points of the cognitive theory of multimedia learning (Mayer, 2001, 2005).

Hence, the researcher felt a need of finding out the effect of multisensory strategy in learning Mathematical Concepts. Multisensory Strategies was selected to make learning active, interesting, creativity, understanding knowledge and concrete and above all activity centred. Mathematical knowledge is very essential for training rational, trustworthy and useful citizens in a democratic society. It is necessary that each student should learn mathematics.

REVIEW OF RELATED STUDIES

Nurdiana Siregar (2017) The objective of this study were to determine the increasing of students' problem solving ability and self confidence after the implementation of problem based learning and to see the interaction between gender and learning to increase problem solving ability and students' self confidence. The method kuantitaif with the design of this research was quasi-experimental with factorial design is 2×2. There were 73 students as the sample of this study containing 36 students in grade VIII-5 and 37 students in grade VIII-6. The instruments of this student were test of problem solving and self confidence scale. The data were analyzed by applying two way analysis of variance (ANOVA). The result showed that the increasing of students' problem solving ability taught by using problem based learning was higher than that taught by using conventional learning there was no interaction between gender and learning with increasing of students' problem solving ability.

Robert L. Durham., Jenny R. Rains., and Catherine A. Kelly., (2008) In recent years, partially because of federal legislation, there have been increases in demand for accountability in all educational venues. Performance in elementary mathematics is no exception. In this paper we review the relevant parts of the learning theories of Piaget, Bruner, and Vygotsky and address the difficulties teachers may face when introducing mathematical concepts. The review of theories, along with a review of previously published empirical studies, supports the use of multi-sensory teaching techniques in the elementary, specifically kindergarten through third grade, classrooms. Since students (both regular and special needs) develop and learn at different rates, it is unlikely that all will be developmentally prepared to assimilate new mathematical concepts at the same time. Multi-sensory techniques allow many students, by assimilation, to grasp elusive concepts and keep up with their peers.

STATEMENT OF THE PROBLEM

Educational technology is the application of the teachers and headmasters of mathematics and to make the educational process more effective and creativity of increase for their problem solving ability. Today teachers will need to prepare with planning and preparation of an electronic instructional material and use of devices and materials that involve sight, sound both for tomorrow's classrooms to use multisensory approach to a text, audio, visual and Kinesthetic learning of mathematical education. The proposed study entitled as **'Multi-sensory Teaching Strategies in Enhancing Problem Solving Abilities of Higher Secondary Students in Mathematics'.**

OBJECTIVES OF THE STUDY

- To find out the significant differences in the pre and post test scores of problem solving ability in mathematics among higher secondary students through administration of multi-sensory teaching strategies between control group.
- To find out the significant differences in the pre and post test scores of problem solving ability in mathematics among higher secondary students through administration of multi-sensory teaching strategies between experimental group.
- To find out the significant differences in the post test scores of problem solving ability in mathematics among higher secondary students through administration of multi-sensory teaching strategies between control and experimental group.
- To find whether the package use to enhancing problem solving ability in mathematics among higher secondary students is effective.

HYPOTHESES OF THE STUDY

- There may be significant differences in the pre and post test scores of problem solving ability in mathematics among higher secondary students through administration of multi-sensory teaching strategies between control group.
- There may be significant differences in the pre and post test scores of problem solving ability in mathematics among higher secondary students through administration of multi-sensory teaching strategies between experimental group.
- There may be significant differences in the post test scores of problem solving ability in mathematics among higher secondary students through administration of multi-sensory teaching strategies between control and experimental group.
- The package used to enhancing problem solving ability in mathematics among higher secondary students may be effective.

METHODOLOGY OF THE STUDY

The advantage of Quasi-Experiment method is that it becomes possible to study on the problem thoroughly and deeply in all aspects. Therefore the investigator adopted the Quasi-Experiment method has gathered information to measure a multi-sensory teaching strategies in enhancing problem solving abilities of higher secondary students in mathematics. The investigator used simple random sampling technique for selecting the sample from the population. The sample consists of 58 secondary students studying in secondary level in Salem District, Tamil Nadu. The researcher has constructed and standardized the following research tool (problem solving ability questionnaire) to collect data from the sample. The data was tabulated then the data way analyzed statistically using descriptive analysis, differential analysis.

TESTING OF HYPOTHESES:

Hypothesis: 1

There may be significant differences in the pre and post test scores of problem solving ability in mathematics among higher secondary students through administration of multi-sensory teaching strategies for control group.

Table No: 1

Significance of Difference of control group pre and post-test of problem solving ability in mathematics among higher secondary students through administration of multi-sensory teaching strategies

Control	N	Mean	Std. Deviation	r value	t value	P value
Pre Test	24	6.79	1.587	0.852	69.056	0.01
Post Test	24	23.38	2.183			

S – Significant at 5% level

Inference:

Form the table 2, it is showed that the mean and standard Deviation values of Pre-test scores in the control group are 23.51 and 2.216 and Post-test scores in the control group are 27.13 and 1.981. The obtained p value 0.01 is lesser than the table value at 0.05 level of significance. So, the hypothesis is rejected. Hence, there is significant difference in the pre and post test scores of control group.

Hypothesis: 2

There may be significant differences in the pre and post test scores of problem solving ability in mathematics among higher secondary students through administration of multi-sensory teaching strategies for experimental group.

Table No: 2

Significance of Difference of experimental group Pre and post-test of problem solving ability in mathematics among higher secondary students through administration of multi-sensory teaching strategies

Experiment	N	Mean	Std. Deviation	r value	t value	P value
Pre Test	24	6.79	1.560	0.859	95.917	0.01
Post Test	24	26.79	1.978			

S – Significant at 5% level

Inference:

Form the table 2, it is showed that the mean and standard Deviation values of Post-test scores in the experimental group are 6.79 and 1.560 and Post-test scores in the experimental group are 26.79 and 1.978. The obtained p value 0.01 is lesser than the table value at 0.05 level of significance. So, the hypothesis is rejected. Hence, there is significant difference in the pre and post test scores of experimental group.

Hypothesis: 3

There may be significant differences in the post test scores of problem solving ability in mathematics among higher secondary students through administration of multi-sensory teaching strategies for control and experimental group.

Table No: 3

Significance of Difference of control group and experimental group post-test of problem solving ability in mathematics among higher secondary students through administration of multi-sensory teaching strategies

Post Test	N	Mean	Std. Deviation	r value	t value	P value
Control	53	23.38	2.183	0.230	6.472	0.01
Experiment	53	26.79	1.978			

S – Significant at 5% level

Inference:

Form the table 2, it is showed that the mean and standard Deviation values of Post-test scores in the control group are 23.51 and 2.216 and experimental group are 26.79 and 1.978. The obtained p value 0.01 is lesser than the table value at 0.05 level of significance. So, the hypothesis is rejected. Hence, there is significant difference between control group and experimental group of post-test.

CONCLUSION

The major findings of the study reveals that there was a significant differences in the pre and post test scores of problem solving ability in mathematics among higher secondary students through multi-sensory teaching strategies for control group and experimental group. The findings of the study concluded that multi-sensory teaching strategies definitely enhance problem solving ability in mathematics among higher secondary students. Finally, a nationwide research could take place in the future in order to study the correspondence of a larger sample of students in various disciplines with the use of ICT in mainstream higher secondary education. In this research, it was examined with the participant observation a teenage student enrolled in the mainstream higher secondary education so as to verify whether the use of multi-sensory approach using ICT helped him correspond to the objectives of the school curriculum of Mathematics and to socialize.

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LBP PUBLICATION

REVIEW OF RESEARCH
ISSN: 2249-894X
IMPACT FACTOR : 5.7631(UIF)
UGC APPROVED JOURNAL NO. 48514
VOLUME - 8 | ISSUE - 9 | JUNE - 2019

IDENTIFYING PROBLEMATIC CONTENT IN NINTH STANDARD SCHOOL TEXT BOOK AMONG SECONDARY SCHOOL STUDENTS

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ABSTRACT:



Mathematics is a crucial subject of school curriculum and it is important in daily living as well as in the study of other subjects. Mathematics has a vital role in the classroom because of direct of the syllabus material but because of the reasoning processes the student can develop. But many students develop fear towards Mathematics due to their misunderstanding, non-understanding and failure during previous lessons. Children with negative attitudes towards Mathematics have performance problems because they develop anxiety. There is a common belief that majority of the students like mathematics, to instruction and learners' cognitive, affective and psychomotor attributes, subject matter and the learning environment. The study adopts the descriptive surveydesign using simple frequency and percentage in analyzing data. 30 students are randomly selected from Higher Secondary Schools at Salem District in Tamil Nadu. The major findings revealed that Scientific Notation of real numbers and logarithms is more difficult followed by statistics, probability, real number systemin learning ninth standard mathematics text book for secondary level students is a highly effective tool for learning mathematics.

KEYWORDS: *School Curriculum, Learning Environment, Mathematics School Text Book, Higher Secondary School Students.*

INTRODUCTION :

Mathematics is the mother of all sciences. Art is a systematic study of knowledge. The structure of mathematics in their nothing but a structure of science. The structure of science can be related to the framework of a building consists of a foundation, vertical pillars, and horizontal beams. Mathematics is aknowledge of the logic of shape, quantity, and arrangement. Math is all around development us, in everything we do. Theworld largely depends on art and science, in turn, depends on mathematics (Ali,2011). People selected as a theoretical subject. Because the truth is all the branches of mathematics were developed to enhance the demand of day to day practical life. Mathematics is a fundamental part of human thought, logic, and integral to attempts at understanding the world of ourselves. Mathematics provides an effective way of building psychological discipline and encourages logical reasoning and mental rigor. Teaching approaches in mathematics classrooms have been changed to a more insight-based problem-oriented process during the last

decade. In addition, problem solving requires a variety of skills including interpreting information, planning and methodical working, checking results and trying alternative strategies. Educational reform and development have in recent decades been directed towards mathematical competencies, by the state or national levels (Rajkumar & Hema, 2019). Mathematical knowledge plays a crucial role in understanding the contents of other school subjects such as science, social studies, even music, and art.Education is the basic part of everyone's life it is required for the holistic development of an individual. Educationimparts knowledge, skills, shapes values and attitudes. It is vital for the development of civil society. Mathematics is essential in everyday life, in their science and technology, medicine, the economy in public decision-making, etc... Mathematics is acrucial success in school, informed citizen, being productive in one's chosen carrier and personal fulfillment. The technology-focused society, greater demands have been placed on individuals to interpret, use mathematics to make sense of information and complex situations. The study of mathematics prepares students with the knowledge, habits of mind that are essential for successful and rewarding participation in society.It is the main subject as it is considered as theQueen of all Sciences'. The nature of Mathematics, exactness, and exactness being its hall mark, makes this subject appears as more difficult than other subjects. Even the simplest of concepts in it is like numbers, addition, subtraction, and multiplication division prescribed for the primary classes deserve in-depth understanding, imagination and creative thinking on the part of the teacher for effective teaching. Research in cognitive development has led to understanding of basic processes involved in academic skills, like reading and mathematics problem-solving. Mathematics has great cultural values; it has helped in transmitting and enriching our culture. It has helped in the development of various subjects and occupations. It is mainly responsible for the progress of our civilization and it has been rightly said, "mathematics is the mirror of civilization". It has helped man in bringing him to the advanced stage of development (Rajkumar & Hema, 2018).

NEED AND SIGNIFICANCE OF THE STUDY

Mathematics is a subject that causes in their many undesirable emotions. One of the main challenges to mathematics teacher is to move a positive attitude in students toward learning mathematics.Because teachers should be responsiveto student's affective beliefs and interrelations of those in learning mathematics as to engagement more effective strategies in teaching to improve student's mathematics learning by reducing their undesirable beliefs. The investigator aims to identify the difficulties handled by students in learning mathematics, student'seffective reasons forliking mathematics and to know their motivational beliefs relate to their liking of subject and expectancy about itsdifficulty.Mathematics is considered a difficult subject by most of the students payable to aversive teaching style, difficultythe ensuing instruction, difficulty in understanding the subject and difficulty in remembering its equations and ways to solve a problem. The same reason is given by students for liking mathematics and there is a strong association and their belief regarding the difficulty of the subject and like towards math.

OBJECTIVES OF THE STUDY

- To identify the difficulties faced by students in an understanding learning mathematics textbook.
- To find out frequency and percentile analysis of ninth standard studentsdifficulties in learning mathematics textbook.

HYPOTHESIS OF THE STUDY

- The level of percentile analysis of ninth standard students has facing difficulties in learning mathematics textbook.

METHODOLOGY

The investigator selected for survey method.The population of the study comprised of ninth standard students at Salem district, Tamil Nadu, India.Sample of the study 30 ninth standard students asa sample selected from governmenthigher secondary schools by using purposive sampling

techniques. Tools and Techniques of the data collection have been collected through self-made Questionnaire of the investigators themselves with the Yes or No scoring procedure. The researcher using a statistical analysis was simple frequency and percentile analysis for analyzing difficulties faced by ninth standard students in mathematics text book.

Hypothesis: 1

The level of frequency and percentile analysis of ninth standard students have facing difficulties in learning ninth standardmathematics textbook.

Term	Mathematics Content	More difficult		Difficult		Easy		Very Easy	
		No	(%)	No	(%)	No	(%)	No	(%)
I	Theory of set	3	6.25	16	33.33	29	60.41	1	2.08
I	Real number system	6	12.5	19	39.58	17	35.41	5	10.41
III	Real number system	5	10.41	19	39.58	19	39.58	3	6.25
I	Algebra	4	8.33	16	33.33	25	52.08	5	10.41
II	Algebra	3	6.25	17	35.41	25	52.08	2	4.16
I	Geometry	2	4.16	1	2.08	24	50	20	41.66
III	Geometry	2	4.16	4	8.33	26	54.16	18	37.5
I	Coordinate Geometry	4	8.33	12	25	20	41.66	16	33.33
I	Practical Geometry	-	-	-	-	23	47.91	20	41.66
II	Practical Geometry	-	-	-	-	17	35.41	28	58.33
II	Trigonometry	3	6.25	7	14.58	23	47.91	13	27.08
II	Statistics	9	18.75	15	31.25	16	33.33	7	14.58
I	Scientific Notation of real numbers and logarithms	13	27.08	23	47.91	8	16.66	3	6.25
III	Mensuration	3	6.25	8	16.66	26	54.16	8	16.66
III	Probability	6	12.5	14	29.16	20	41.66	8	16.66
III	Graphs	3	6.25	4	8.33	17	35.41	23	47.91

From the above, the percentile analysis very difficult the student responses subject is Scientific Notation of real numbers and logarithms value is 47.91 highest difficult responses, more difficult the students response in the subject 27.08 lowest percentile value. The student's response difficult subject real number system term I & II more difficult and difficult percentile is same value is 39.58 and more difficult percentile value is 10.41 & 12.5 respectively. Their difficult subject is algebra term I & II percentile value is 35.41& 33.33, more difficult subject student's response the percentile value is 8.33&6.25 respectively. The percentile subject theory of set student response difficult value 33.33, more difficult subject lowest value 6.25. The probability percentile subject is difficult & more difficult 29.16 & 12.5.

CONCLUSION

Curriculum plays an important role in what way students learn and develop in school. The realities of practice, however, that for Mathematics teachers fostering in-depth learning in line with andthe true spirit of the aims and objectives of the National Curriculum is a task easier. The goal of in-depth student learning be combined with the principles that guide school education in general and teacher education (focus on higher secondary school teachers) in particular. The goal of fostering learning of subjectmatter knowledge with deeper understanding in such core curriculum subjects as mathematics needs to be the first and foremost guiding principles of the school curriculum.Even without showing a competent understanding of these initial concepts, they are expected to solve problems involving multiplication, division, and rational numbers by theend of the school year

(Rajkumar & Hema, 2019). The implications of not being able to solve simple word problems are huge.The coverage of syllabus is considered as with learning concept would continue to prevail. To improve teaching and learning processes in Mathematics classrooms requires a better understanding of the real nature of the common difficulties that hinder conceptual learning, particularly at secondary level, as well as the pedagogical remedies by the teachers, to help students overcome these difficulties. The concern primarily arises from a desire to see students learn more than memorization and recalling factual information provided in the textbook, that is what is happening in many mathematics classrooms.

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LBP PUBLICATION

EFFECT OF SCHOOL CLIMATE ON TEACHERS WORKING IN POLLACHI EDUCATIONAL DISTRICT, TAMILNADU

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Abstract

A school climate is its atmosphere for learning. It includes the feelings people have about the school and whether it is a place where learning can occur. A positive climate makes a school a place where both staff and students want to spend a substantial portion of their time; it is a good place to be. The characteristics of school are associated with school effectiveness. The goal of the school is to find school climate processes that are causally related to desired student outcomes, both cognitive and affective. The purpose of the research is to study the Effect of School Climate on Teachers working in Pollachi Educational District, Tamilnadu. The investigator used survey method in order to collect data from the population. [The researcher used the CFK Ltd. School Climate Profile (Fox) for data collection. To test the hypotheses t-test was used. Results of this study indicated that Female Teachers were better than that of Male Teachers in Pollachi Educational District in respect of School Climate.

Key words: School Climate, Teachers, Pollachi Educational District

INTRODUCTION AND REVIEW

The importance of the teacher in the educational process is unquestionable. Teachers work under different management systems and working conditions which affect their psychological state. There is a widespread belief that work-related stress among teachers has serious implication for the teachers' mental health and performance.

Kendziora, D. et. al., (2007) conducted a research study regarding school climate and connectedness and student achievement. Longitudinal evaluation revealed that not only are several aspects of school climate and connectedness related to student achievement, but positive change in school climate and school connectedness is related to significant gains in student scores on statewide achievement tests. The characteristics of school are associated with school effectiveness. The goal of the school is to find school climate processes that are causally related to desired student outcomes, both cognitive and affective.

Jeremiah Mutuku Kalai,(2006) made a Study of Educational Management Practices in Secondary Schools and their Implications for In-Service Training of Head Teachers: A Survey of Kitui and Machakos Districts, Kenya." He found that there was a significant differences existed between Curricular Design and Planning, Curricular Transaction and Evaluation, Research, Development and Extension, Infrastructure and Learning Resources, Students' Support and Progression, and School Management and Organization scores between schools under head teachers exposed to management training by the KESI and those who lacked such management training.

Majid Vahedi (2009) made a Study of Parents' Participation in the High Schools Administration and its Effect on School Activities. The objective of the study was to study the Parents' participation in decision making of the school administration. The finding of the study was parents' participation does make a positive contribution to their Children's Learning Activities in the Schools.

NEEED AND SIGNIFICANCE OF THE STUDY

School climate has been found to be associated with multiple areas of student's learning and development. A pervasive pattern of relationships has been found between climate dimensions and student's academic, behavioral, and socio-emotional adjustment, even after partial ling out the effects of poverty on student outcomes. School environments vary greatly. Whereas some schools may feel as friendly, inviting, and supportive, others

feel exclusionary, unwelcoming, and even unsafe. The feelings and attitudes that are elicited by a school's environment are referred as school climate. Upon entering any school, students, parents and those who work within the establishment immediately experience the climate of the school. School climate has been found to be associated with multiple areas of student's learning and development. Teachers, Administrators and Parents should participate in Children learning activities, decision making in School Administration and School Activities respectively.

STATEMENT OF THE PROBLEM

The Statement of the problem is "**EFFECT OF SCHOOL CLIMATE ON TEACHERS WORKING IN POLLACHI EDUCATIONAL DISTRICT, TAMILNADU.**"

OPERATIONAL DEFINITION

A school's climate is its atmosphere for learning. It includes the feelings people have about the school and whether it is a place where learning can occur. A positive climate makes a school a place where both staff and students want to spend a substantial portion of their time; it is a good place to be.

—Howard, Howell, and Brainard (1987)

Coimbatore District is divided into four Educational Districts. They are 1. Coimbatore Educational District 2. S.S.Kulam Educational District 3. Perur Educational District and 4. Pollachi Educational District.

OBJECTIVES OF THE STUDY

The objective of this study is to find out the significant difference between Male and Female Teachers working in Pollachi Educational District in Tamilnadu in respect of School Climate.

HYPOTHESES OF THE STUDY

Following are the major hypotheses for the present study:

1. There is no significant difference between Male and Female Teachers working in Pollachi Educational District in respect of School Climate.
2. There is no significant difference between Male and Female Teachers working in Government Schools in respect of School Climate.
3. There is no significant difference between Male and Female Teachers working in Municipal Schools in respect of School Climate.
4. There is no significant difference between Male and Female Teachers working in Boy's Schools in respect of School Climate.
5. There is no significant difference between Male and Female Teachers working in Girl's Schools in respect of School Climate.

RESEARCH METHODOLOGY

The researcher adopted **Survey Method** for the present study.

TOOLS USED FOR THE STUDY

The researcher used the CFK Ltd. School Climate Profile (Fox) to study the school climate of teachers working in schools in Coimbatore Corporation Area. Content validity of the CFK Ltd. School Climate Profile was determined by a panel of experts who identified the content areas involved in school climate and then constructed the instrument items (Fox, et al., 1973). Using a criterion measure of school climate and ratings from a panel of experts, the construct validity for the perception of teachers was determined to be .86. The reliability of the instrument was found to be .98. The school climate inventory contains 40 statements with eight dimensions. All the 40 statements are in the form of 4-point Scale. The dimensions of the school climate inventory are Respect, Trust, High Morale,

Opportunity for Input, Continuous academic and social growth, Cohesiveness, School Renewal, and Caring.

SAMPLE OF THE STUDY

147 teachers from the different types of schools in Pollachi Educational District, Coimbatore District, Tamilnadu were selected by stratified random sampling procedure.

STATISTICAL TECHINIQUES USED

The investigator proposes used t-test for analysis after data collection.

INTERPRETATION

Hypothesis No. 1.

There is no significant difference between Male and Female Teachers working in Pollachi Educational District in respect of School Climate.

Table No: 1

Mean S.D. and t-value Male and Female Teachers working in Pollachi Educational District in respect of School Climate.

Variables	N	Mean	S.D	t-value	Significant Level
Male Teachers working in Pollachi Educational District.	38	84.0	12.5	2.5	Significant at 0.05 level
Female Teachers working in Pollachi Educational District.	99	89.5	7.94		

Interpretation:

From the above Table it is clear that the calculated t-value 2.50 is greater than that of the Table value of 1.962 for 135 degrees of freedom at 0.05 level. Since the t-value is significant at 0.05 level, the null hypothesis is rejected.

Conclusion:

Female Teachers were better than that of Male Teachers in Pollachi Educational District in respect of School Climate.

Hypothesis No. 2.

There is no significant difference between Male and Female Teachers working in Government Schools in respect of School Climate.

Table No: 2

Mean S.D. and t-value Male and Female Teachers working in Government Schools in respect of School Climate.

Variables	N	Mean	S.D	t-value	Significant Level
Male Teachers working in Government Schools	22	84.1	10.0	2.44	Significant at 0.05 level
Female Teachers working in Government Schools	41	90.4	9.3		

Interpretation:

From the above Table it is clear that the calculated t-value 2.44 is greater than that of the Table value of 2.00 for 61 degrees of freedom at 0.05 level. Since the t-value is significant at 0.05 level, the null hypothesis is rejected.

Conclusion:

Female Teachers were better than that of Male Teachers in Government Schools in respect of School Climate.

Hypothesis No. 3.

There is no significant difference between Male and Female Teachers working in Municipal Schools in respect of School Climate.

Table No: 3

Mean S.D. and t-value Male and Female Teachers working in Municipal Schools in respect of School Climate.

Variables	N	Mean	S.D	t-value	Significant Level
Male Teachers working in Municipal Schools	16	83.9	15.7	1.253	Insignificant at 0.05 level
Female Teachers working in Municipal Schools	40	88.9	4.7		

Interpretation:

From the above Table it is clear that the calculated t-value 1.253 is less than that of the Table value of 2.021 for 54 degrees of freedom at 0.05 level. Since the t-value is insignificant at 0.05 level, the null hypothesis is accepted.

Conclusion:

There is no significant difference between Male and Female Teachers working in Municipal Schools in respect of School Climate.

Hypothesis No. 4.

There is no significant difference between Male and Female Teachers working in Boy's Schools in respect of School Climate.

Table No: 4

Mean S.D. and t-value Male and Female Teachers working in Boy's Schools in respect of School Climate.

Variables	N	Mean	S.D	t-value	Significant Level
Male Teachers working in Boy's Schools	13	82.4	16.62	0.2	Insignificant at 0.05 level
Female Teachers working in Boy's Schools	29	86.7	8.96		

Interpretation:

From the above Table it is clear that the calculated t-value 0.2 is less than that of the Table value of 2.021 for 40 degrees of freedom at 0.05 level. Since the t-value is insignificant at 0.05 level, the null hypothesis is accepted.

Conclusion:

There is no significant difference between Male and Female Teachers working in Boy's Schools in respect of School Climate.

Hypothesis No. 5.

There is no significant difference between Male and Female Teachers working in Girl's Schools in respect of School Climate.

Table No: 5

Mean S.D. and t-value Male and Female Teachers working in Girl's Schools in respect of School Climate.

Variables	N	Mean	S.D	t-value	Significant Level
Male Teachers working in Girl's Schools	15	83.2	12.5	2.24	Significant at 0.05 level
Female Teachers working in Girl's Schools	70	90.6	5.9		

Interpretation:

From the above Table it is clear that the calculated t-value 2.24 is greater than that of the Table value of 1.99 for 83 degrees of freedom at 0.05 level. Since the t-value is significant at 0.05 level, the null hypothesis is rejected.

Conclusion:

Female Teachers were better than that of Male Teachers in Girl's Schools in respect of School Climate

FINDINGS OF THE STUDY

1. Female Teachers were better than that of Male Teachers in Pollachi Educational District in respect of School Climate.
2. Female Teachers were better than that of Male Teachers in Government Schools in respect of School Climate.
3. There is no significant difference between Male and Female Teachers working in Municipal Schools in respect of School Climate.
4. There is no significant difference between Male and Female Teachers working in Boy's Schools in respect of School Climate.
5. Female Teachers were better than that of Male Teachers in Girl's Schools in respect of School Climate.

RECOMMENDATIONS:

(i) This study is limited to Pollachi Educational district.
(ii) It may be extended to other Revenue districts in Tamil Nadu.
(iii) This study may also be conducted at hill region.

EDUCATIONAL IMPLICATIONS

The Administrators, Teachers and Parents should take necessary action to improve the School Climate. The institution makes an interaction among teachers, students, staff and parents so as to improve the school climate. School should arrange Parents-Teachers meeting to improve the School Climate.

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ISSN-0976-0245 (Print) • ISSN-0976-5506 (Electronic)

Volume 9 | Number 11 | November 2018

Indian Journal of Public Health Research & Development

An International Journal

SCOPUS IJPHRD CITATION SCORE

Indian Journal of Public Health Research and Development Scopus coverage years: from 2010 to 2017 Publisher: R.K. Sharma, Institute of Medico-Legal Publications ISSN:0976-0245E-ISSN: 0976-5506 Subject area: Medicine: Public Health, Environmental and Occupational Health
CiteScore 2015- 0.02
SJR 2015- 0.105
SNIP 2015- 0.034

Covered by Scopus
EMBASE
Approved by MCI

Website:
www.ijphrd.com

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Print-ISSN: 0976-0245-Electronic-ISSN: 0976-5506, Frequency: Monthly

Indian Journal of Public Health Research & Development is a double blind peer reviewed international journal. It deals with all aspects of Public Health including Community Medicine, Public Health, Epidemiology, Occupational Health, Environmental Hazards, Clinical Research, and Public Health Laws and covers all medical specialties concerned with research and development for the masses. The journal strongly encourages reports of research carried out within Indian continent and South East Asia.

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Editor

Dr. R.K. Sharma
Institute of Medico-legal Publications
Logix Office Tower, Unit No. 1704, Logix City Centre Mall,
Sector- 32, Noida - 201 301 (Uttar Pradesh)

Printed, published and owned by

Dr. R.K. Sharma
Institute of Medico-legal Publications
Logix Office Tower, Unit No. 1704, Logix City Centre Mall,
Sector- 32, Noida - 201 301 (Uttar Pradesh)

Published at

Institute of Medico-legal Publications
Logix Office Tower, Unit No. 1704, Logix City Centre Mall,
Sector- 32, Noida - 201 301 (Uttar Pradesh)

Indian Journal of Public Health Research & Development

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DOI Number: 10.5958/0976-5506.2018.01749.7

Scientometric Study on Diabetic Retinopathy Research during the Year 2017

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ABSTRACT

The present study attempted to analyze the growth in diabetic retinopathy (DR) research in 2011 through Scientometric study. For the purpose data retrieved from ISI Web of Science database using the search team of "Diabetic Retinopathy". Data was analyzed with the help of bibexcel, Pajek and VOSviewer. The article found that during 2011 more number of articles published in English and contributed from USA. Investigative Ophthalmology & Visual Science published more articles on diabetic retinopathy. The degree of collaboration shows that more number of multiple authors contributed in DR. The results of the study show promising output of scientific publications in diabetic retinopathy and comparatively high-quality of scientific productions in this field.

Keywords: *Scientometric, Diabetic Retinopathy, WOS, Bibexcel, VOSviewer.*

INTRODUCTION

Scientometrics defined as "the quantitative study of the disciplines of science based on published literature and communication. This could include identifying emerging areas of scientific research, examining the development of research over time, or geographic and organizational distributions of research" Tague-*Sutcliffe* (1992) defines Scientometrics as "the study of the quantitative aspects of science as a discipline or economic activity. It is part of the sociology of science and has application to science policy-making. It involves quantitative studies of scientific activities, including, among others, publication, and so overlaps bibliometrics to some extent".

Van Raan (1997) supposed that scientometric research is devoted to quantitative studies of science and technology. It aims at the advancement of knowledge and the development of science and technology; it is also in relation to social and political questions.

He divides the core interests of scientometric research to four interrelated areas:

Development of methods and techniques for the design, construction, and application of quantitative indicators in important aspects of science and technology.

Development of information systems in science and technology.

Study of the interaction between science and technology.

Study of cognitive and socio-organizational structures of scientific fields and developmental processes in relation to social factors.

Diabetic Retinopathy:

An estimated 18 million American children and adults have diabetes. Within 10 years of diagnosis, 75 percent will have some degree of diabetic retinopathy. Diabetic retinopathy is caused by high blood sugar, which damages tiny blood vessels of the retina. In response, the body grows fragile new blood vessels (neovascularization) within the retina. A person with diabetic retinopathy might notice symptoms only after damage is done. A doctor is usually able to detect retinal changes much sooner and can help prevent vision loss. Therefore, regular dilated eye exams are extremely important.

Review of Literature

Ali, Hydar (2018) revealed that relative growth rate of article contributions of biodiversity literature

has shown a decreasing trend, whereas the doubling time for publications has shown increasing trend during the period from 1989 to 2016.. Most of articles were contributed by multi authored papers and lesser number of articles contributed by single authors. The Chinese Academy of Sciences occupies the first rank among the top institutions contributing Biodiversity literature[1].

GonzaÂlez-Alcaide, Gregorio (2018) examined patterns of research on Chagas cardiomyopathy. The study found 1932 documents on Chagas cardiomyopathy in the MEDLINE database. More publications were found as journal articles and reviews and clinical trials. Brazil and the USA dominated the research. Although clinical research dominated overall, the USA, Mexico and several countries in Europe produced a considerable body of basic research on animal models[2].

Sweileh, Waleed M (2018) focused on the psychiatric component of diabetes mellitus needs to be strengthened and encouraged. At the practical level, screening for depression/suicide among patients attending primary healthcare clinics is needed to optimize health and quality of life of diabetic patients. The data retrieved from SciVerse Scopus for retrieve relevant literature up to 2016[3].

Abrishami, Zahra (2017) analyzed the research output in the field of diabetes complication in Iran in details and identify research gap in this field. However, results show lack of studies with high level of evidence including cohorts and systematic reviews in Iran. Although the trend of publications is growing but considering the importance of this issue, it is not enough and more funds should be allocated in this field[4].

3Gao Y, et al. (2017) used the WOS and retrieved the publications on DM and T cells from 1997 to 2016 using bibliometric methodology. The study indicated that highest contribution came from the United States having 61.44% of the citations and the highest H-index. China had the 5th place for total publications; the quantity of publications on DM and T cells grew rapidly around year 2000, but has relatively decreased recently[5].

Hemala K (2017) aims that the publication of the papers in Diabetic Retinopathy. The five years data were collected the Diabetic Retinopathy Disease to find out the area of research authors. The information used for this research year wise distribution of publication, Authors productivity, Source of Journal List, country wise distribution, Exponential growth Rate, Arithmetic Mean. The Degree of collaboration is 4.73[6].

Caglar C, (2016) investigated diabetic retinopathy (DR) literature using ISI WOS database and to analyze the correlation results between socio-economic development data and number of DR publications. The study found that more DR studies have been published in developed countries, DR and other complications of diabetes have gradually increased in developing countries over recent decades[7].

Mansour, A M (2015) discussed about the citation patterns in ophthalmic journals and contrast them with major medical and surgical journals from 1997 to 2009. The study found that JIF rose steadily around 10% annually in ophthalmic journals, and likewise for major medical and surgical journals. JIF of subspecialty journal Retina rose from 0.740 in 2000 to 3.088 in 2007[8].

K. K. Mueen Ahmed (2014) analyzed the 1293 Indian publications in cataract research during 2002-2011using Scopus Citation Database. Indian publications increased from 87 papers in 2002 to 195 papers in 2011, having growth rate of 10.03%. The study was registering an average citation impact per paper of 3.26 and international collaborative share of 21.58% during 2002-2011[9].

Liu, Lei (2011) analyzed the progress in diabetic retinopathy (DR) researches between 2000 and 2010 through bibliometric study. DR researches changed as a linear upward trend, the main researches focused on ophthalmology, endocrine and metabolic diseases. There has achieved a significant increase in the number of ISI publications and collaborations in DR literatures from 2000 to 2010[10].

OBJECTIVES OF THE STUDY

- The study the authorship pattern of Diabetic Retinopathy research and to find the degree of collaboration.
- To find the language, document type and keyword wise distribution of articles in Retinopathy research,
- To find out the source wise and country wise distribution of articles in diabetic retinopathy research.

METHODOLOGY

For this study, data were retrieved from Web of Science (WoS) using the search term of “diabetic

Retinopathy" of papers on the period of 2017. Totally 2016 records were downloaded and analyzed by using Bibexcel. The collected data have been analyzed with the Bibexcel, VOSviewer and presented in the form of tables and pictures.

Data Analyzing and Interpretation

Table No 1 : Language wise distribution of articles

S.No.	Language	Records	Percen-tage
1	English	1976	98.01
2	German	20	0.99
3	Russian	7	0.35
4	Spanish	3	0.15
5	Portuguese	2	0.1
6	Italian	2	0.1
7	French	2	0.1
8	Czech	1	0.05
9	Hungarian	1	0.05
10	Japanese	1	0.05
11	Korean	1	0.05
	Total	**2016**	**100**

The table no 1 shows the language wise distribution of the articles published in the area of diabetic retinopathy. It is known that majorities (98%) of the articles were published in English. One percent of the article published in the German. In Russian language, seven articles were published and three articles were published in Spanish.

Table No: 2 : Document type of the articles

S.No.	Document type	Records	Percen-tage
1	Article	1448	71.82
2	Meeting Abstract	257	12.75
3	Review	195	9.67
4	Letter	46	2.28
5	Editorial Material	43	2.13
6	Article; Proceedings Paper	11	0.55
7	Correction	9	0.45
8	Article; Book Chapter	3	0.15
9	Review; Book Chapter	3	0.15
10	News Item	1	0.05
	Total	**2016**	**100**

Cont... **Table No: 2 : Document type of the articles**

The table no 2 shows the document wise publications available in the area of diabetic retinopathy in 2017. It is noticed that majorities (72%) of the publications were related to articles. Around 13% of the documents were meeting abstracts and 10% of the documents were reviews. 2% of the letters and editorial materials were published. 10 numbers of records found to be as articles as proceedings papers and lesser number of records found under the heading of corrections, book chapters articles & Reviews and news item.

Table No 3: Keyword wise distribution

S.No.	Keyword	Records	Percen-tage
1	Diabetic-Retinopathy	418	4.92
2	Retinopathy	192	2.26
3	Endothelial Growth-Factor	190	2.24
4	Prevalence	187	2.2
5	Mellitus	156	1.84
6	Disease	138	1.63
7	Macular Degeneration	134	1.58
8	Risk-Factors	132	1.55
9	Complications	130	1.53
10	Macular Edema	126	1.48
11	Expression	119	1.4
12	Optical Coherence Tomography	116	1.37
13	Oxidative Stress	107	1.26
14	Population	83	0.98
15	Progression	77	0.91

Cont... **Table No 3: Keyword wise distribution**

16	Proliferative Diabetic-Retinopathy	75	0.88
17	Eye	68	0.8
18	Association	67	0.79
19	Ranibizumab	66	0.78
20	Angiogenesis	64	0.75

The table no 3 shows the distribution of the articles by the keywords. For understanding purpose, the top 20 keywords were listed for analysis. 418 numbers (5%) of articles were published with keyword of diabetic retinopathy. Around 2 % of the articles were published on retinopathy, endothelial growth factor and prevalence keywords. One percent of the articles were published with the keyword of Mellitus, Disease, Macular Degeneration, Risk-Factors, Complications, Macular Edema, Expression, Optical Coherence Tomography and Oxidative Stress. Lesser than one percent of the articles were published with the keywords of Population,, Progression, Proliferative Diabetic-Retinopathy, Eye, Association, Ranibizumab and Angiogenesis

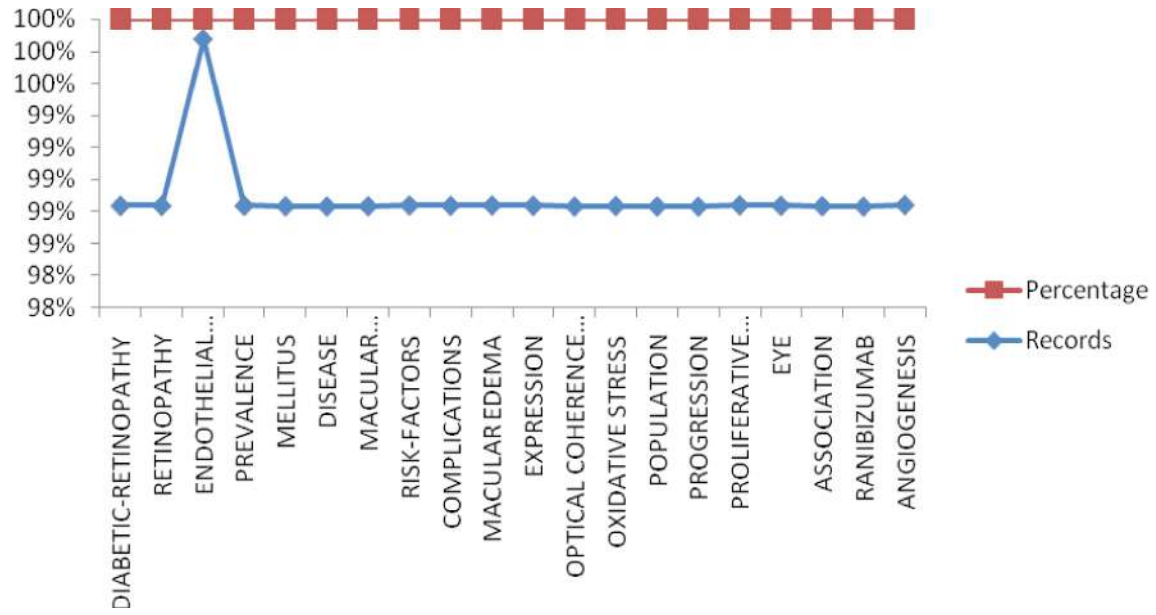


Figure No 1: Keyword distribution of articles

Table no 4 : Authorship Pattern

S.No.	Authors	No.of publications	Percen-tage
1	Single author	78	3.87
2	Two authors	174	8.63
3	Three authors	220	10.91
4	Four authors	272	13.49
5	Five authors	261	12.95
6	Six authors	256	12.7
7	Seven authors	199	9.87
8	Eight authors	171	8.48
9	Nine authors	111	5.51
10	Ten authors	95	4.71
11	Above Ten authors	179	8.88
	Total	**2016**	**100**

The table no 4 shows the authorship pattern of the articles published in the area of diabetic retinopathy. It is noticed from the table that 13.49% of the articles were published by four authors. Around 12.95% of the articles were published by five authors and 12.7% of the articles published by six authors. 9.87% of the articles had seven authorship patterns. 8.88% of the articles were published by more than ten authors. 8.63% of the articles were published by two authors. 8.48% of the articles were published by eight authors. It is highlighted that only 3.87% of the articles were published by single author.

Table No: 5 ; Degree of Collaboration

S.No.	Authorship pattern	Publications	Percen-tage	Degree of Collaboration
1	Single author	78	3.87	
2	Multiple Authors	1938	96.13	**0.96**
	Total	**2016**	**100**	

Degree of collaboration is an examination of the prominent area of inquiry in the study indicating the trend in patterns of single and joint authorship in the publication. It is found that the degree of collaboration diabetic retinopathy wad 0.96. As the degree of collaboration exceeds 0.5, it indicates a high degree of collaborative research in diabetic retinopathy which is already evident from Table number 5.

Table No: 6: Source wise Distribution of Publications

S.No.	Types of Source	Records	Percen-tage
1	Investigative Ophthalmology & Visual Science	228	11.65
2	Retina-The Journal Of Retinal And Vitreous Diseases	54	2.76
3	Plos One	50	2.55
4	Scientific Reports	42	2.15
5	European Journal Of Ophthalmology	38	1.94
6	Acta Ophthalmologica	34	1.74
7	Graefes Archive For Clinical And Experimental Ophthalmology	33	1.69
8	International Journal Of Ophthalmology	33	1.69
9	Jama Ophthalmology	29	1.48
10	Ophthalmology	29	1.48

The table no 6 shows the top 10 source wise distribution of the publications in the area of diabetic retinopathy. It is noticed that 228 (11.65%) records were found in Investigative Ophthalmology & Visual Science. 54 (2.76%) records found in Retina-The Journal Of Retinal And Vitreous Diseases, 50 (2.55%) of the articles published in PLOS One. 42 (2.15%) numbers of the articles found in Scientific Reports. 38 (1.94%) numbers of the records found in European Journal Of Ophthalmology

Table No: 7: Country wise distribution top 10 countries

S.No.	Country	Records	Percentage
1	USA	562	21.55
2	Peoples R China	363	13.92
3	UK	171	6.56
4	India	149	5.71
5	Japan	144	5.52
6	Italy	105	4.02
7	Germany	88	3.37
8	Australia	84	3.22
9	South Korea	77	2.95
10	Singapore	67	2.57

The table no 7 shows the top ten countries wise distribution of the articles in the area of diabetic retinopathy in the year 2017. It is noticed that 562 (21.55%) of the articles were published from USA. 13.92% (363 no) of the articles were published from Republic China. 171 numbers (6.56%) of the articles were published from UK. 6% of the articles were contributed from India and Japan. It is followed by Italy, Germany, Australia, South Korea and Singapore.

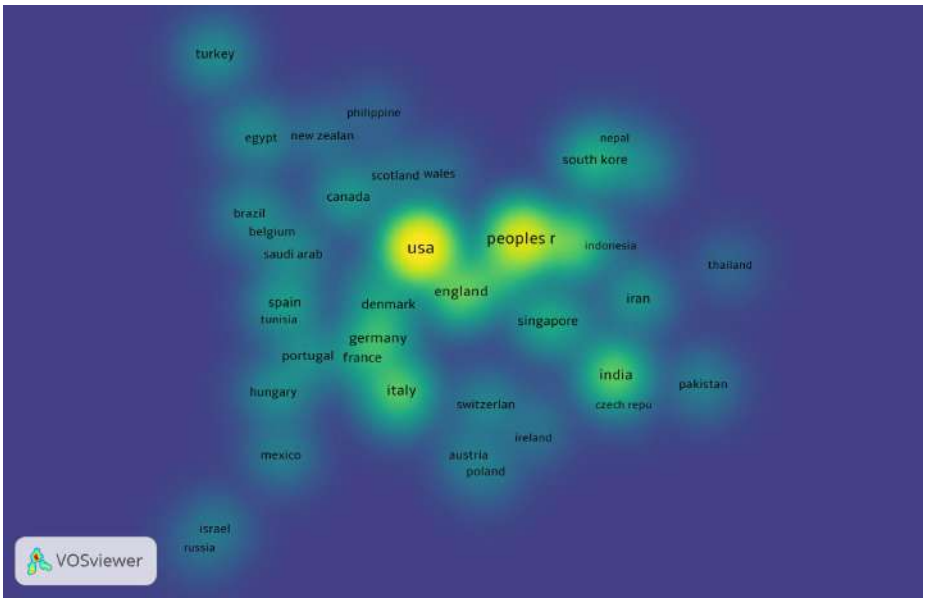


Figure No: 2: Mapping of Country Collaboration

The above VOSviewer picture shows the mapping between co-authorship with country wise contribution. Out of 93 countries, 49 records meet the conditions of maximum number of authors per documents 5. All the 49 records were taken for mapping. Yellow color score shows the high density contribution countries in the area of diabetic retinopathy.

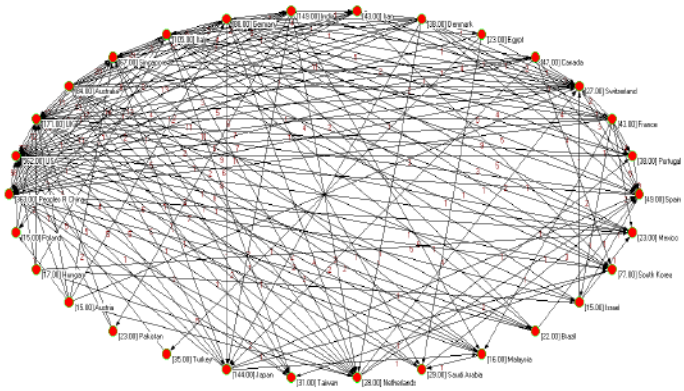


Figure No: 3: Country Collaboration

The figure no 3 shows the Pajek output of country wise collaboration of the diabetic retinopathy in the year 2017. From the picture it is understand about more collaboration found among top 10 countries such as USA, Peoples R China, UK, India, Japan, Italy, Germany, Australia, South Korea and Singapore

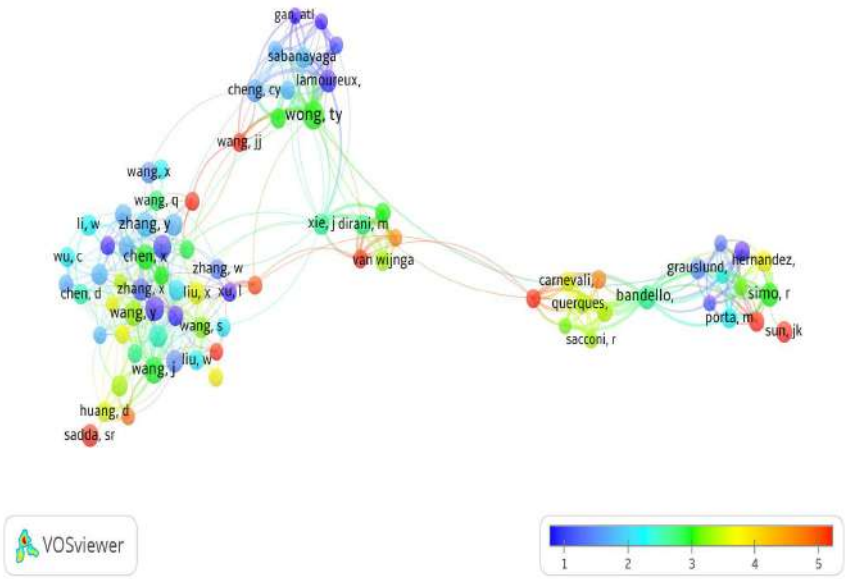


Figure No:4: Mapping of Co-authorship with authors

The above VOSviewer picture shows the mapping between co-authorship with authors. Out of 8179 authors, 228 records meet the conditions of maximum number of authors per documents 25 and minimum authors as 5. Among this top most 100 records taken for the mapping. Red color score about maximum of 5 and Blue color score about minimum of 1 and shows the relationship.

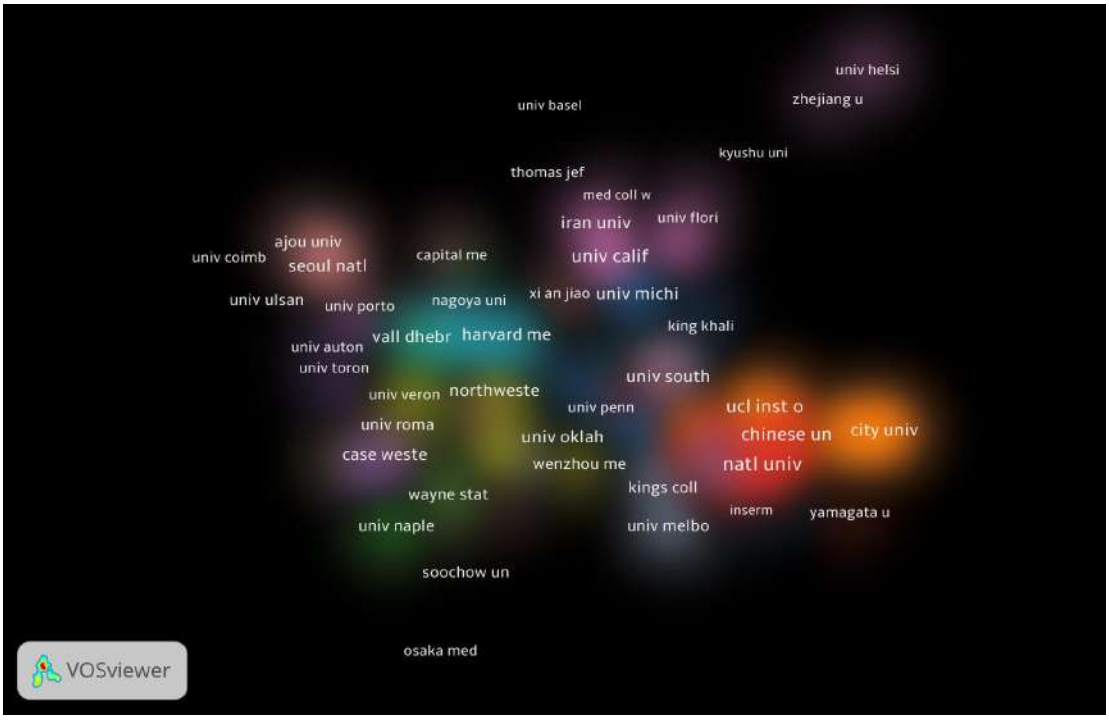


Figure No: 5 Mapping of Co-authorship with authors

The above VOSviewer picture shows the mapping between citation with the organization of the authors. Out of 2418 citation records, 203 organization records meets the conditions of maximum number of authors per documents 25 and minimum authors as 5. Among this top most 170 records taken for the mapping. The highly contributed citation with the organizations highlighted in the bright colors.

FINDINGS

- It is understood that 98% of the articles were published in English. One percent of the article published in the German. In Russian language,
- The study indicated that 72% of the publications were related to articles and it was followed by .meeting abstracts and reviews.
- It is understand that 5% of articles were published with keyword of diabetic retinopathy and 2 % of the articles were published on retinopathy, endothelial growth factor and prevalence keywords.
- It is noticed that 13.49% of the articles were published by four authors and 12.95% of the articles were published by five authors It is highlighted that only 3.87% of the articles were published by single author.
- It is found that the degree of collaboration diabetic retinopathy wad 0.96 which having high degree of collaborative research in diabetic retinopathy
- Most of the DR article were published from Investigative Ophthalmology & Visual Science and followed by Retina-The Journal Of Retinal And Vitreous Diseases and PLOS One.
- It is understand from the study that 21.55% of the articles were published from USA, 13.92% of the articles were published from Republic China.
- Using the VOSviewer, mapping between co-authorship with country wise contribution found. Out of 93 countries, 49 records meet the conditions of maximum number of authors per documents 5.
- Pajek output shows about more collaboration found among top 10 countries such as USA, Peoples R China, UK, India, Japan, Italy, Germany, Australia, South Korea and Singapore
- The mapping between co-authorship with authors indicated about the out of 8179 authors, 228 co-authorship data were taken. Red color score about maximum of 5 and Blue color score about minimum of 1 and analyzed the relationship.
- Mapping between citation with the organization of the authors through the data of 2418 citation records and 203 organization. Among this top most 170 records taken for the mapping. The highly contributed citation with the organizations highlighted in the bright colors.

CONCLUSION

The results of the present scientometric analysis showed promising output of scientific publications in diabetic retinopathy and comparatively high-quality of scientific productions in this field. In this paper, we have presented VOSviewer, a freely available computer program for constructing and viewing bibliometric maps. VOSviewer pays special attention to the graphical representation of bibliometric maps. This study provided practical information to researchers who look for studies with potentially highly citations, and also would be helpful for researchers to conduct better researches that eventually could lead to more publications in this field.

Conflict of Interest: Nil

Source of Funding: Self

Ethical Clearance: IJRISE Journal Reviewer Committee

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FACULTIES APPROACH TOWARDS ASSORTMENT MEASURES ON DIGITAL ARCHIVES: A STUDY

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FACULTIES APPROACH TOWARDS ASSORTMENT MEASURES ON DIGITAL ARCHIVES: A STUDY

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Abstract

The digital archive and preservation is advantageous in comparison to traditional archive. For successful creation and maintenance of digital archive and preservation various basic principles should be followed. There are several technological, legal policies and related challenges which have to be solved for successful implementation of digital archive and preservation. The developing countries have started taking interest in digital archive and preservation but facing several challenges on the way. The study attempted to distinguish the level of consciousness on various copyright or legal issues associated with the digital collection and to get opinion from various categories of respondents about criteria guide on selection of materials for digitization. The present study analysis is to know various problems while using digital archives and ways to broadcast to use the IR/ digital archives and discuss about the special skills required for library staff to implement various methods to access the digital collection and defensive measures relating to issues on digitizing the documents in the digital archives

Keywords: Digital Archives, IR,

INTRODUCTION

Digital has become the order of the day due to the significant advances of computer and communications technology have brought in the post Internet information age we are living. Libraries are not lagging behind other social service institutions in exploring the new technology available at any point of time to improve information organization and services. This can be ample justified by the use of non-paper media like microforms for decades to archive less/ selectively used materials

Archives are different from libraries as they give more emphasis to prevention than use. However with digital documents, the distinction between archives and libraries blurs as digital materials being intangible never get decayed or suffer wear and tear like print materials by mere use. It is the archival function in the system of knowledge creation and use the services to identify and retain important source of information and to ensure continuing access to them. Beyond the ubiquitous Web server, there is little consensus about repositories for digital libraries and the field of digital archiving is new. Digital archives are distinct from digital libraries in the sense that digital libraries are repositories that collect and provide access to digital information, but may or may not provide for the long-term storage and access of that information.

There are essentially two motivations for creating and maintaining digital archives.

- First, to ensure that no valued digital information is lost to future generation, and
- Second, certified digital archives will have available to them a critical fail-safe mechanism.

In addition to raw data, digital archiving must preserve ways to interpret the data, to understand its type, its structure, and its formats. Perhaps the most important way that digital libraries can support archiving is through selection regarding what to collect, what to store, what to preserve for the future, and what to discard. The measure of integrity in the preservation process depends on informed and skillful judgments about the definition on the content – the extent to which content depends on its configuration of bits, on the structure and format of its representation, and on the ideas it contains – and for what purposes.

Purpose of the Digital Archives

- Unlike the printed world, digital information cannot be understood without the technical data stored in it, which is normally concealed from the user and needs to be preserved and migrated with the content.
- With the current rapid changes and evolution in hardware and software, digital information needs active management from its inception if it is to survive and be kept accessible across different technological regimes.
- The magnetic and optical media on which digital information is stored are impermanent and cannot be relied upon for preservation of their contents for more than a few years or decades.
- Digital data has allowed the development of new types of information: dynamic resources which are constantly changed and updated, highly contingent on their hardware and software environments for the nature of the experience they create.
- The provenance and context of digital information Is not transparent and easily understood by the user and this needs to be explicitly captured and documented.
- The authenticity of digital information is an issued due to the ease with which digital information can be copied and amended.

- The rights and terms attached (license) to a digital object when it is created or acquired may fundamentally control how or whether a repository can preserve it or make it accessible to future users.
- The substantial volume and rate of growth of digital information places an increased importance on creating resources which are fit for purpose and cost-effective over their full life cycle.

REVIEW OF LITERATURE

Bähr, Thomas (2011) described the necessary knowing about how identified, ranging from digital curation skills needed to evaluate digital data carriers to specialist digital preservation knowledge of file formats needed to describe information with the goal of sustaining accessibility over long-term. It shows how central tasks of digital preservation like process description and preservation planning require expert knowledge of traditional librarian and information technology skills as well as new knowledge which is described as digital preservation skills. **Calanag, Maria Luisa (2001)** stated about the Selection and metadata issues which surround the preservation of digital information are discussed, in particular, the assignment of "collection levels" to Web materials to ensure preservation,. PMES have been identified as informed by the OAIS as Reference Model. They expressed preservation decision and responsibility for the resource at the time of selection. **Chen, Tin-Kai (2014)** aimed to digitize video collections hosted by the Museum of Shadow Play of the Kaohsiung City Cultural Affairs Bureau in Taiwan. The study cooperated with the museum and digitizes films kept there, whilst also constructing a Web 2.0 interactive online platform to promote the culture of shadow puppet theatre. The study designed and validated three prototypes of social interfaces representing the cultural context by taking advantage of interactive technology. **Hodge, Gail (2004)** discussed about OAIS Reference Model which provided the framework for discussing the key areas that impact on digital preservation, the creation of the electronic information, and acquisition policies surrounding the archiving of resources, preservation formats, preservation planning. They are encouraged to monitor developments and projects in the field, to raise awareness of the need for preservation within their institutions, to consider preservation and long-term access issues when negotiating licenses for electronic resources.

Kim, Julia Y (2018) conducted the study about the archives and library communities that had benefited from major innovations in emulation and software preservation. Presently the digital archives were accessible to all users and supported all major operating and desktop systems, and much of the work in determining platform requirements can be made almost invisible to end-users. The study investigated solutions for emulation, also legal issues, metadata, and other impediments to the preservation of software necessary for rendering digital files. **Maxwell, Alexander (2010)** discussed the mission and implementation of digital libraries from an historian's perspective. This paper summarizes the abstract qualities that historians look for their sources, and then

compares various digital archives both qualitatively and quantitatively, highlighting design features that enhance or detract from the ease of use. It gives library scientists candid opinions about an intensive end user of digital information, also contains several practical suggestions, and explains the reasoning behind those suggestions. **Muir, Adrienne (2014)** discussed that there are various possible approaches in dealing with the issues, including extending legal deposit law, amending copyright and related law, development and use of preservation clauses in licenses or collective licensing and the provision of preservation rights metadata. There is a need for clarification of the legal situation and a raising of awareness. Roles and responsibilities in digital preservation and the impact of new trends in electronic publishing also need to be investigated. **Ravenwood, Clare (2015)** examined the social context of selection in institutions, in which the responsibilities of stakeholders and relationships between them can affect the material chosen for preservation by practitioners. A range of stakeholders is identified and addressed the relationships between practitioners, information technology staff, and sources of material are found to be crucial. The influence of senior managers is important in providing a mandate and encouraging shared working and networks of expertise.

OBJECTIVES

1. To study the consciousness levels on various copyright or legal issues associated with the digital collection
2. To get opinion from the respondents about criteria guide on selection of materials for digitization
3. To analyse various problems while using digital archives and ways to broadcast the use of IR/ digital archives
4. To discuss about the special skills required for library staff to implement and manage the digital collection and defensive measures to be taken to digitize the documents.

METHODOLOGY

The researcher used a design of empirical survey using questionnaire method. This study involves both primary, secondary data and wide interaction with a sample group. Simple random sampling method is adopted to collect data from the faculty members.

DATA ANALYSIS

TABLE 1
DISTRIBUTION OF THE RESPONDENTS BY GENDER, AGE AND FREQUENCY LEVEL OF ACCESSING THE DIGITAL ARCHIVES

	Sl. No	Gender	No of respondents	Percentage
Gender	1	Male	91	75.8
	2	Female	29	24.2
		Total	120	100

Age	**Sl. No**	**Age**	**No of respondents**	**Percentage**
	1	Below 35	29	24.2
	2	36 – 40	67	55.8
	3	41 – 45	10	8.3
	4	46 – 50	7	5.8
	5	Above 51	7	5.8
		Total	120	100
Frequency level of accessing the digital archives	**Sl. No**	**Frequency level**	**No of respondents**	**Percentage**
	1	Daily	66	55
	2	Twice a Week	23	19.2
	3	Occasionally	31	25.8
		Total	120	100

It is noticed from the table that 76% of the respondents were male and 24% of the respondents were female. It is clear from the table that 56% of the respondents belong to the age group of 36-40. Around 24% of the respondents were below 35 aged and 8% of the respondents belong to the age group of 41-45 age. 6% of the respondents were aged 46-50 and another 6% of the respondents were aged above 51. It is clear that 55% of the respondents were accessing the digital archives daily and 26% of the respondents were accessing the digital archives occasionally. 19% of the respondents were accessing the digital archives twice a week.

TABLE 2
CONSCIOUSNESS ON COPYRIGHT OR LEGAL ISSUES ASSOCIATED WITH DIGITAL COLLECTION

Sl. No	Type		Highly Aware	Aware	Moderately Aware	Somewhat Aware	Never	Total	Mean	Std. Div	Rank
1	Publishers Policy	N	27	41	27	13	12	120	2.52	1.237	5
		%	22.5	34.2	22.5	10.8	10	100			
2	Sherpa Romeo	N	45	29	10	18	18	120	2.46	1.489	4
		%	37.5	24.2	8.3	15	15	100			
3	Creative Common Licensing	N	44	25	36	8	7	120	2.24	1.188	2
		%	36.7	20.8	30	6.7	5.8	100			
4	Fair Dealing /Fair use Rights	N	49	7	31	15	18	120	2.55	1.494	6
		%	40.8	5.8	25.8	12.5	15	100			
5	Site Licensing	N	34	7	15	7	57	120	3.38	1.74	10
		%	28.3	5.8	12.5	5.8	47.5	100			

6	Indian Copyrights Act	N	50	37	8	15	10	120	2.15	1.313	1
		%	41.7	30.8	6.7	12.5	8.3	100			
7	International Copyrights	N	32	37	30	8	13	120	2.44	1.256	3
		%	26.7	30.8	25	6.7	10.8	100			
8	Confidentiality	N	42	14	8	7	49	120	3.06	1.798	9
		%	35	11.7	6.7	5.8	40.8	100			
9	Multiple Format	N	42	13	23	26	16	120	2.68	1.473	7
		%	35	10.8	19.2	21.7	13.3	100			
10	Inter Library Loan	N	34	21	16	22	27	120	2.89	1.549	8
		%	28.3	17.5	13.3	18.3	22.5	100			

The table 2 shows the respondents' opinion about Awareness on copyright or legal issues associated with digital collection which would result in restrictions on its use. It is noticed that 56.7% of the respondents were aware about the publishers policy related copyrights. Around 61.7% of the respondents were aware about Sherpa Romeo type of copy rights and another 57.5% of the respondents were aware about the Creative Common Licensing. 46.6% of the respondents were aware about Fair Dealing /Fair use Rights and 34.1% of the respondents were aware about Site Licensing. It is noticed that 72.5% of the respondents were aware about the Indian Copyrights Act, 46.7% of the respondents had awareness on Confidentiality based rights and 57.5% of the respondents were aware about the International Copyrights. It is noticed that 45.8% of the respondents were aware about multiple format of rights and 45.8% of the respondents were aware about the inter library loan rights.

Among the various factors of the awareness on copyright or legal issues associated with the digital archives, Low level of awareness was noticed on Inter Library Loan, Confidentiality and Site Licensing, Moderate level of awareness was found in Publishers Policy, fair Dealing /fair use Rights and Multiple Format. High level on awareness is noticed on Indian Copyrights Act, Creative Common Licensing, International Copyrights and Sherpa Romeo.

TABLE 3
CRITERIA GUIDE SELECTION OF MATERIALS FOR DIGITIZATION

Sl. No	**Criteria**		**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**	**Total**	**Mean**	**Std. Div**	**Rank**
1	Preservation	N	87	12	6	7	8	120	1.64	1.222	1
		%	72.5	10	5	5.8	6.7	100			
2	Enhanced Access	N	53	38	8	12	9	120	2.05	1.263	2
		%	44.2	31.7	6.7	10	7.5	100			

3	Archival value	N	40	22	38	7	13	120	2.42	1.301	8
		%	33.3	18.3	31.7	5.8	10.8	100			
4	Academic Importance	N	45	23	14	27	11	120	2.47	1.420	9
		%	37.5	19.2	11.7	22.5	9.2	100			
5	To Save Space	N	60	26	10	10	14	120	2.10	1.405	3
		%	50	21.7	8.3	8.3	11.7	100			
6	Organizational Commitment	N	59	11	16	19	15	120	2.33	1.514	6
		%	49.2	9.2	13.3	15.8	12.5	100			
7	Quantity to meet user need	N	38	21	15	23	23	120	2.77	1.538	12
		%	31.7	17.5	12.5	19.2	19.2	100			
8	Subject relevance	N	27	20	28	38	7	120	2.82	1.263	13
		%	22.5	16.7	23.3	31.7	5.8	100			
9	Cost effectiveness	N	64	15	14	14	13	120	2.14	1.455	4
		%	53.3	12.5	11.7	11.7	10.8	100			
10	Authenticity of information	N	27	32	36	11	14	120	2.61	1.259	10
		%	22.5	26.7	30	9.2	11.7	100			
11	Distributed access	N	55	22	22	11	10	120	2.16	1.322	5
		%	45.8	18.3	18.3	9.2	8.3	100			
12	Added Value	N	30	51	19	6	14	120	2.36	1.242	7
		%	25	42.5	15.8	5	11.7	100			
13	Ease of accessibility	N	21	31	18	29	21	120	2.98	1.384	14
		%	17.5	25.8	15	24.2	17.5	100			
14	Legal issues	N	27	21	45	11	16	120	2.73	1.282	11
		%	22.5	17.5	37.5	9.2	13.3	100			

The table 3 shows the respondents' opinion about various criteria guide selection of materials for digitization in the digital archives. It is clear that 82.5% of the respondents were considering for type of preservation and digitization of digital archives. 75.9% of the respondents thought about enhanced access for digital archives. 51.6% of the respondents considered for archival values. 56.7% of the respondents were thinking of academic importance before digitization of the documents and 71.7% of the respondents have agreed to save the space. It is noticed that 58.4% of the respondents have thought of organizational commitment factor for digitization of materials and 49.2% of the respondents have agreed for criteria of quality of information to meet the user need. It is clear that 39.2% of the respondents have thought about selection of materials based on subject relevance and 65.8% of the respondents about the cost effectiveness. It is noticed that 49.2% of the respondents have discussed about authenticity of information for digital archives and 64.1% of the respondents have agreed for distributed access of digital archives. . It is clear that 67.5% of the respondents have agreed to the point of added values of the digital collection and 43.3% of the respondents agreed about the ease of accessibility to be considered for digitization.

Among the various criteria guide for selection of materials for digitizing the digital archives, Low level of acceptance noticed on Legal issues, Quantity to meet user need, subject relevance, and ease of accessibility. Moderate level of acceptance was found on, Organizational Commitment, added Value, archival value, academic Importance and Authenticity of information. High level of acceptance was found as criteria for preservation, enhanced Access saving the space, cost effectiveness and distributed access.

TABLE 4
MAJOR PROBLEMS WHILE USING DIGITAL ARCHIVES

Sl. No	Problems		**Always**	**Often**	**Sometimes**	**Rarely**	**Never**	**Total**	**Mean**	**Std. Div**	**Rank**
1	Inadequate Funding	N	37	33	26	16	8	120	2.38	1.237	1
		%	30.8	27.5	21.7	13.3	6.7	100			
2	Human resource	N	18	35	41	17	9	120	2.7	1.12	8
		%	15	29.2	34.2	14.2	7.5	100			
3	IT support	N	18	57	21	16	8	120	2.49	1.108	3
		%	15	47.5	17.5	13.3	6.7	100			
4	Data storage	N	14	26	47	25	8	120	2.89	1.075	12
		%	11.7	21.7	39.2	20.8	6.7	100			
5	Copyright issues	N	24	38	34	16	8	120	2.55	1.151	5
		%	20	31.7	28.3	13.3	6.7	100			
6	Expertise and experience	N	25	45	29	14	7	120	2.44	1.121	2
		%	20.8	37.5	24.2	11.7	5.8	100			
7	Support from Administration	N	18	29	45	21	7	120	2.75	1.094	9
		%	15	24.2	37.5	17.5	5.8	100			
8	Rapid Growth	N	25	22	37	23	13	120	2.81	1.272	11
		%	20.8	18.3	30.8	19.2	10.8	100			
9	Sustainability	N	31	22	32	23	12	120	2.69	1.314	7
		%	25.8	18.3	26.7	19.2	10	100			
10	Management of resources	N	20	22	23	27	28	120	3.18	1.412	13
		%	16.7	18.3	19.2	22.5	23.3	100			
11	Partnership / Collaboration	N	27	41	21	17	14	120	2.58	1.30	6
		%	22.5	34.2	17.5	14.2	11.7	100			
12	Lack of Flexibility	N	28	25	30	22	15	120	2.76	1.335	10
		%	23.3	20.8	25	18.3	12.5	100			
13	Lack of Expertise	N	35	24	34	19	8	120	2.51	1.25	4
		%	29.2	20	28.3	15.8	6.7	100			

The table 4 shows the respondents' opinion about major problems faced by them while accessing and developing the digital archives. It is noticed that 58.3% of the respondents mentioned about inadequate funding, 44.2% of the respondents stated about the lack of human resources, 62.5% of the respondents said about the lack of IT support and 33.4% of the respondents faced the lack of sufficient space for data storage for developing the digital archives. It is clear that 51.7% of the respondents were worried about copyright issues and 58.3% of the respondents were about the lack of expertise and experience in accessing the digital archives. It is clear that 39.2% of the respondents faced the lack of support from the administration, 39.1% of the respondents faced the rapid growth of literature and another 44.1% of the respondents were worried about the sustainability problems. for developing the digital archives. It is noticed that 35% of the respondents thought about the management of resources in the digital archives and 56.7% of the respondents considered about the partnership and collaboration areas of digital archives. Around 44.1% of the respondents faced the lack of flexibility in maintaining the digital archives and 49.2% of the respondents were worried about lack of expertise in developing and accessing the digital archives.

Among the various problems faced by the respondents while accessing and developing the digital archives, Least preference of barrier to be mentioned by the respondents like lack of Flexibility, rapid Growth on literature, data storage and Management of resources. Moderate respondents were lack of Partnership /Collaboration, Sustainability, lack of Human resource support and lack of support from Administration. Mmajority of the respondents faced inadequate funding, Expertise and experience, IT support, lack of Expertise and Copyright issues

TABLE 5
WAYS TO PUBLICIZE TO USE THE IR/ DIGITAL ARCHIVES

Sl. No	Factors		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Mean	Std. Div	Rank
1	User orientation	N	32	40	20	16	12	120	2.47	1.289	1
		%	26.7	33.3	16.7	13.3	10	120			
2	Intimation through email	N	25	22	29	27	17	120	2.91	1.347	5
		%	20.8	18.3	24.2	22.5	14.2	100			
3	Notice board	N	29	22	33	23	13	120	2.74	1.312	4
		%	24.2	18.3	27.5	19.2	10.8	100			
4	Pamphlets	N	26	24	42	17	11	120	2.69	1.222	3
		%	21.7	20	35	14.2	9.2	100			
5	Seminar	N	27	24	41	24	4	120	2.62	1.139	2
		%	22.5	20	34.2	20	3.3	100			

The table 5 shows the respondents opinion about ways to publicize the use of digital archives. It is noticed that 60% of the respondents agreed about user orientation to

help to publicize the effective use of digital archives. Around 39.1% of the respondents agreed about intimation through emails which promote the effective use of digital archives and another 42.5% of the respondents agreed about display on notice boards will promote the digital archives. 41.7% of the respondents agreed about using the pamphlets to promote the digital archives and 42.5% of the respondents agreed about promoting the digital archives by conducting seminars.

Among the various ways to publicize the use of digital archives, some of the respondents suggested to promote through email and notice board. Majority of respondents suggested to publicize the digital archives through user orientation, Seminars, and pamphlets to publicize the digital archives.

TABLE 6
ATTITUDE TOWARDS SPECIAL SKILLS REQUIRED FOR LIBRARY STAFF POSSESS IN THE FIELD OF DIGITAL PRESERVATION

Sl. No	Factors		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Mean	Std. Div	Rank
1	Technical skills	N	32	30	31	18	9	120	2.52	1.243	1
		%	26.7	25	25.8	15	7.5	100			
2	Assistance in digitization	N	16	32	43	19	10	120	2.79	1.122	5
		%	13.3	26.7	35.8	15.8	8.3	100			
3	Copyright advice	N	16	51	26	18	9	120	2.61	1.125	2
		%	13.3	42.5	21.7	15	7.5	100			
4	Ensuring material availability for long term	N	33	23	29	20	15	120	2.68	1.367	4
		%	27.5	19.2	24.2	16.7	12.5	100			
5	Allowing other institutions to view the material	N	31	22	36	22	9	120	2.63	1.256	3
		%	25.8	18.3	30	18.3	7.5	100			

The table 6 shows the respondents' attitude towards special skills required for library staff to possess in the field of digital preservation. It is noticed that 51.7% of the respondents agreed that the library staff must have adequate technical skill to manage the digital archives. Around 40% of the respondents agreed about the library staff need for assistance in digitization. 55.8% of the respondents agreed about the library staff to know about the copyright advices. 46.7% of the respondents accepted to ensure the material availability for long term through the library staff. 44.1% of the respondents agreed about allowing other institutions to view the material.

Among the various special skills required for library staff to possess in the field of digital preservation, some of the respondents had mentioned about ensuring material

availability for long term and assistance towards digitization. Most of respondents agreed for required skills on technical skills, Copyright advice, allowing other institutions to view the material.

TABLE 7
OPINION ABOUT THE PROTECTIVE MEASURES RELATING TO WHILE DIGITIZING THE DOCUMENTS IN THE DIGITAL ARCHIVES

Sl. No	Factors		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Mean	Std. Div	Rank
1	Future changes in hardware technology	N	20	36	37	18	9	120	2.67	1.147	3
		%	16.7	30	30.8	15	7.5	100			
2	Future changes in software technology	N	24	48	33	10	5	120	2.37	1.028	1
		%	20	40	27.5	8.3	4.2	100			
3	Security issues	N	14	31	50	20	5	120	2.76	1.004	4
		%	11.7	25.8	41.7	16.7	4.2	100			
4	Copyright issues	N	13	24	47	27	9	120	2.96	10.8	5
		%	10.8	20	39.2	22.5	7.5	100			
5	Copying and updating incase of obsolescence of storage device	N	18	22	65	10	5	120	2.68	0.97	2
		%	15	18.3	54.2	8.3	4.2	100			

The table 7 shows the respondents' opinion about the protective measures related to digitizing the documents in the digital archives. It is noticed from the table that 46.7% of the respondents agreed to adopt the future changes in hardware technology while digitizing the documents in the digital archives. Around 60% of the respondents agreed about adopting the future changes in software technology while digitizing the documents in the digital archives. 37.5% of the respondents agreed about security issues related to digital archives. 30.8% of the respondents agreed about maintaining the copyright issues related to digital archives and 33.3% of the respondents agreed upon copying and updating incase of obsolescence of storage device for digital archives.

Among the protective measures relating to digitizing the documents in the digital archives, moderate levels of concern were identified on Security and copyright issues. Most of the respondents showed concern about the, future changes in software technology, copying and updating incase of obsolescence of storage device and future changes in hardware technology.

Findings and Discussions

- It is noticed that high level on consciousness is noticed on Indian Copyrights Act, Creative Common Licensing, International Copyrights and Sherpa Romeo.
- There is need to bestow more consciousness on Inter Library Loan, Confidentiality and Site Licensing
- Majority of the respondents agreed to follow preservation, enhanced Access saving the space, cost effectiveness and distributed access..
- It is identified that majority of the respondents faced the inadequate funding, Expertise and experience, IT support, lack of Expertise and Copyright issues while accessing and developing the digital archives.
- The study indicated that more number of respondents suggested to publicize the digital archives through user orientation, Seminars, and pamphlets to publicize the digital archives.
- Some of the respondents suggested to promote through email and notice board to publicize the digital archives.
- It is suggested that more number of respondents agreed to the requirement on technical skills, Copyright advice, allowing other institutions to view the material for assistance towards digitization.
- It is clear that more number of respondents have shown concern about the, future changes in software technology, copying and updating incase of obsolescence of storage device and future changes in hardware technology.

Conclusion:

Digital archive seeks to preserve the information in digital format regardless of media on which the information is stored Digital preservation is the management and maintenance of digital objects which can be accessed and used by future users. The main goal of digital archive ensures the long-term preservation of digital data so that it remains accessible for appropriate use in future. Selection of physical storage for digital material in an archive is also a serious issue. Any physical storage medium is completely dependent upon very specific combination of hardware and software for access. The study attempted to draw the attention of the users towards digital archives on their copyright awareness and their own criteria for the digital collection. The digital archives policies and the strategy is simple, and to know about the digital collection which could identify possible partners and projects. Digital archives helps in identifying the importance of the users with their associated specific needs. The digital archive and preservation is advantageous in comparison to traditional archive. For successful creation and maintenance of digital archive and preservation various basic principles should be followed. There are several technological, legal policies and related challenges which have to be solved for successful implementation of digital archive and preservation.

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"STUDY ON EMOTIONAL INTELLIGENCE OF STRESS MANAGEMENT ABILITY OF PRIMARY SCHOOL TEACHERS IN SALEM DISTRICT"

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ABSTRACT

Emotional intelligence (EI) has been defined as "the ability to monitor one's own and other people's emotions, to discriminate between different emotions and label them appropriately, and to use emotional information to guide thinking and behavior". Emotional intelligence has the following common components or factors: perceiving, understanding, using, and managing emotions. Perceiving as well as utilizing and managing emotions is essential to everyday practice for people in different careers - management professionals, Teachers, doctors, advocates, and even students. Research has shown a limited association between emotional intelligence and stress management of primary school teachers.

Method: Schutte Self-Report Emotional Intelligence Test questionnaire will be used. The Randomized data collected will be treated statistically

Result:The mean scores of EI among the study participants was 61.7 with a standard deviation of 11.7. The total scores possible in the scale range from 33 to 165, with higher scores representing higher EI. The age of the participants was positively associated with emotional intelligence (r = 0.187, p = 0.008). EI was also found to decrease with the increase in total workload (p=0.013)

Keywords:

Emotional Intelligence, , primary school teachers, Managing emotions, Schutte Self-Report,etc.

Introduction

Education, as a whole, is not provided by an individual, but by a team. In the educational service, the teacher is expected to successfully manage both themselves as well as the student's goal achievement.

Though there are considerably many factors associated student's goal attainment with , one among the important ones is the behavior of the teacher with the students. This can be focussed upon for improvement, if needed. Emotionally intelligent teachers are better able to perceive the need of the student and are then able to address issues if any arise., as compared to previous scores.

In the case of teachers, emotional intelligence has been proven to be associated with their academic and performance, as well as the amount of stress affecting their lives. Students with low emotional intelligence

have a higher risk of indulging in health-damaging behaviour in response to stress, along with it affecting their sleep habits. On the other hand, their emotionally intelligent counterparts were more likely to manage their stress using social support and were able to judge that such behaviour would not help.

Emotional intelligence also plays a role in communication skills, job satisfaction , academic and performance, alleviating stress and a good student-teacher relationship.

1.0 STATEMENT OF THE PROBLEM

Stress management refers to the wide spectrum of techniques and psychotherapies aimed at controlling a person's levels of stress, especially chronic stress, usually for the purpose of improving everyday functioning. Perhaps the most significant difference between primary school and secondary school teaching is the relationship between teachers and children. In primary schools each class has a teacher who stays with them for most of the week and will teach them the whole curriculum. The proposed study is to find the influence of emotional intelligence on stress management ability of primary school teachers.

2.0 TITLE OF THE STUDY

*"**STUDY ON EMOTIONAL INTELLIGENCE OF STRESS MANAGEMENT ABILITY OF PRIMARY SCHOOL TEACHERS IN SALEM DISTRICT**".*

3.0 SIGNIFICANCE OF THE STUDY

The present generation is more emotionally troubled than the last. Pupil are growing lonelier and depressed, more angry and unruly, more nervous and prone to worry, more impulsive and aggressive. High emotional intelligence are more confident, have higher self-esteem, have fewer behavioral problems are more optimistic and happier. Across various job levels emotional intelligence matters twice as much as technical and analytic skill combined. Emotional intelligence needs to be developed to be truly effective teachers.

Schools and teachers are usually very good at thinking about the well-being of their pupils. Teachers consider themselves to have a duty of care to their pupils. Teachers do not usually think about their own well-being – until it is too late and we are sick. People who take on caring roles are often not good at looking after themselves. One can say that the present century has rightly been called the age of stress. Head of the institution have more stress and strain. Emotional intelligence of the teachers would make them competent so as to help the children play, study and develop the personality of them; hence, stress management is essential for better society.

4.0 REVIEW OF RELATED LITERATURE

INDIAN STUDIES:

STUDIES RELATED TO EMOTIONAL INTELLIGENCE

Anwar (2015) conducted a study on relationship between emotional intelligence and personality adjustments among teacher-trainees

The investigators found that the student teachers with high level of Emotional Intelligence could easily get adjusted to home environment. There is no significant influence of SES on Emotional Intelligence on teacher trainees.

Sharma (2014) conducted a study on Emotional Intelligence of scheduled caste students in relation to self-concept.

The invegistor found that the findings are there is positive relationship between the self-concept of scheduled caste male students having low Emotional Intelligence than female students of the same grade having high Emotional Intelligence.

Studies related to stress management

Savitha and Raja Kumari (2012) conducted a study on stress among secondary school teachers

The investigators found that the findings of study showed that there was significant difference in the level of the teachers but there is no significant difference in the level of stress with regard to sex, marital status and types of school.

Sujeetha and Hemalatha Natesan (2011) conducted a study on management of stress and academic problems of adolescents through positive therapy.

The invegistor found that the findings were (i) 78% of the sample had high stress and only 5% had low stress. After positive therapy, 38% had stress and 39% had low stress (ii) before positive therapy 91% of the academic problems and 47% had more than 5% academic problem of the sample and reduced 46% did not have any academic problem and only 4% had more than 5% academic problem of the sample (iii) the common academic problems of the sample before positive therapy were forgetfulness (72%), laziness (49%), distraction(48%) and lack of concentration(46%). After positive therapy these problem were reported by less than 27% of the sample.

Palme and Angele (2009) conducted a study on mindfulness, stress, and coping among university students

The invegistor found that the findings revealed significant positive relationship between mindfulness and rational coping and significant negative relationships with emotional and avoidant coping and perceived stress. Regression analyses revealed the avoidant coping and perceived stress predicted 38.2% of the variance of mindfulness scores.

STUDIES DONE IN ABROAD

STUDIES RELATED TO EMOTIONAL INTELLIGENCE:

Gülten Gen, Emine kulusakli and Sava Aydin (2016) conducted the relationship between Emotional Intelligence and productive language skills.

The investigator found that the findings each participants Emotional Intelligence scores and their success in speaking and writing skills, their scores were compared to the positive and close relation Emotional Intelligence and foreign language proficiency can be drawn out according to the result.

Huseyin, Mehmet Demirezen and Jafar Pourfeiz (2015) conducted a study on Emotional Intelligence and Attitudes Towards Foreign Language Learning Pursuit of Relevance and Implications.

The invegistors found that the findings revealed high levels of overall Emotional Intelligence (95%). between components that an awareness of the importance of students Emotional Intelligence and its role in shaping their attitudes towards learning and language learning will yield more insightful implications regarding quality language learning and better educational outcomes.

Meysam Zafari and Reza Biria (2014) conducted a study on the relationship between Emotional Intelligence and Language Learning Strategy Use

The invegistor found that the findings of the study revealed that metacognitive strategy was the most frequently used strategy among Iranian EEL learners, whereas the atleast preferred strategy was affective strategy. It was found that the Emotional Intelligence is significantly correlated at the (<0.001) level with language learning.

STUDIES RELATED TO STRESS MANAGEMENT ABILITY

Houghton and Jeffery (2012) conducted a study on effective stress management; a model of emotional intelligence, self leadership and stress coping

The invegistor found that the model has the potential to generalize to the work place, management students exposed to emotion regulation and self leadership strategies may be better equipped to effectively manage stress in their future careers.

Robin (2008) conducted a study on relationship among stress, coping and mental health in high achieving high school students.

The investigator found that the findings the students in a IB program perceive significantly more stress than a sample of 168 of their general education peers, and that specific coping styles are differentially related to mental health outcomes in the subgroup of high achieving high school students.

OBJECTIVES OF THE STUDY

1. To find out the level of emotional intelligence among primary school teachers in Salem District.
2. To find out the significant difference in the level of emotional intelligence among primary school teachers with respect to gender, age,educational qualification and years of experience.
3. To find out the stress management ability of the among primary school teachers in Salem District.
4. To find out the significant difference in stress management ability among primary school teachers

with respect to age and years of experience.

5.0 HYPOTHESES

Emotional intelligence of primary school teachers

1. There is no significant difference among the mean scores of emotional intelligence of primary school teachers with respects to gender.
2. There is no significant difference among the mean scores of emotional intelligence of primary school teachers with respects to age.
3. There is no significant difference among the mean scores of emotional intelligence of primary school teachers with respects to experience of the teacher.
4. There is no significant difference among the mean scores of emotional intelligence of primary school teachers with respects to educational qualification.

Stress management ability of primary school teachers

1. There is no significant difference among the mean scores of stress management ability of primary school teachers with respects to gender.
2. There is no significant difference among the mean scores of stress management ability of primary school teachers with respects to age.
3. There is no significant difference among the mean scores of stress management ability of primary school teachers with respects to locality of the teacher.
4. There is no significant difference among the mean scores of stress management ability of primary school teachers with respects to educational qualification.
6. There is no significant difference among the mean scores of stress management ability of primary school teachers with respects to experience.

❖ There is no significant relationship between emotional intelligence on stress management ability of primary school teachers.

6.0 METHODS

6.1 SUBJECTS:

Population

primary school teachers in Salem District.

Sample

Selecting 100 primary school teachers in Salem district.

Sampling technique

Simple random sample technique will be use to select the sample.

6.2 PROCEDURE:

Schutte Self-Report Emotional Intelligence Test questionnaire will be used. The data collected will be treated statistically and interpretations will be given. The research carried out.

DATA ANALYSIS:

Emotional Intelligence score of primary school teachers in salem District

Scores and sub scales of the Schutte Self-Report Emotional Intelligence Test

Analysis	Over all score	Perception of emotions	Mgt of stress	Mgt of emotion	Utilization of Emotion
Mean	61.7	17.95	14.76	17.67	11.77
SD	11.71	4.44	3.24	4.1	2.80

Result

The emotional intelligence scores of the primary school teacher ranged from 88 to 159, with a mean score 61.7 and standard deviation of 121.4 (11.71) . The distribution of scores for the subscales of EI has been depicted in Table. A statistically significant association was observed between the age and EI scores of the participants. However, it may be noted that the correlation was weak. As the age, Experience and Educational Qualification of the teachers increased, the emotional intelligence was found to increase ($r = 0.187$, $p = 0.008$).

Conclusion

The research measure the EI of teachers, the factors affecting it, and possible measures to improve it, are needed. The workload of the teachers needs to be assessed with appropriate changes made in the total work quality.

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January 2020

RESEARCH OUTPUT ON ACUPUNCTURE RESEARCH ACROSS THE GLOBE: A SCIENTOMETRIC ASSESSMENT ON WEB OF SCIENCE DATABASE

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RESEARCH OUTPUT ON ACUPUNCTURE RESEARCH ACROSS THE GLOBE: A SCIENTOMETRIC ASSESSMENT ON WEB OF SCIENCE DATABASE

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Abstract

The present study explores the Scientometric analysis of the Keyword Research on "Acupuncture Research". This study covered 6257 records worldwide from 2014 to 2018. The data were collected from the web of science database. In this study discussed the Keyword Research on "Acupuncture Research" year by year in this study. The study was undertaken to examine the year wise distribution of contributions, authorship pattern, and degree of collaboration, relative growth rate and doubling time, Document wise distribution of records. A Number of publications published in the year of 2017 with 1406(22.4%) records. China ranked first in the Acupuncture Research with 2202 (35%) records followed by USA (1368), and South Korea (620), with second, and third position. A number of records published through the article 4305. Only 11% of the total publications were contributed by the single authors and rest of the 89% research publications were contributed by multi-authors in this study. The study revealed that the average Degree of Collaboration was 0.88. The study analyzed the relative growth rates (RGR) has Increased from 2015(0.68) to 2018 (1.97) in the span of 2014-2018. The doubling time (DT) has rapidly decreased while calculated year wise i.e.2013 (1.01) to 2017(0.35).

Keywords: Scientometric, Relative Growth Rate, Doubling Time, Acupuncture, Authorship Pattern, Activity Index.

INTRODUCTION TO SCIENTOMETRICS

Scientometric is a quantitative measurement of publication patterns of all micro and macro communications along with their authorship by statistical and mathematical analysis." Scientometric is "the measurement of scientific output and the impact of scientific findings on public policy". Some of the areas of Scientometrics application are To identify research trends and growth of information. To estimate comprehensiveness of secondary periodicals. To identify authorship and its trends in documents on various science subjects. To identify users of different subjects, The term Scientometrics were introduced by Nalimov and Mulchenko in 1969. Nalimov and Mulchenko defined

Scientometrics as “the application of those quantitative methods which are dealing with the analysis of science viewed as an information process”. Scientometrics is a wide-ranging field with vague boundaries. It is generic term for a system of knowledge, which endeavors to study the Scientific and Technological system, using a variety of approaches within the areas of Science and Technology Studies (STS). Scientometrics is a “Science of Science’.

INTRODUCTION TO ACUPUNTURE

Acupuncture is a technique in which practitionars stimulate specific points on the body most often by inserting thin needled through the skin. It is one of the practices used in Traditional Chinese Medicine. Acupuncture is a method of inserting fine needle through the skin at specific point especially to cure diseases or to relive pain. The origin of Chinese medicine is a attractive story and acupuncture represents only one facet of their medical system. The first recorded attempt at conceptualizing and treating disease dates back to about 1500 BC during the Shang dynasty. The word “Acupuncture” derived from two words ‘accus’ meaning of needle and ‘puncture’ means insert it. The origin of this therapy can be traced as back as the Stone Age, when stone knives were used to relieve many diseases. The acupuncture is originated approximately 100 BC in china, around the time the yellow 6 emperor’s classic of medicine. The technique of acupuncture rapidly developed during the period of 475 to 221 B.C. acupuncture treatment is first reached to Korea in the 6th century AD, then following reached to Japan through the medical missionaries and then to Europe. In 20th century, as acupuncture spread to the United States and western countries. Acupuncture does not produce long time benefits. Acupuncture is generally safe when using the clean needle technique and single use needles. Acupuncture, along with moxibustion, is one of the oldest practices of traditional Chinese medicine. Most historians believe the practice began in China, though there are some conflicting narratives on when it originated. Academics David Ramey and Paul Buell said the exact date acupuncture was founded depends on the extent dating of ancient texts can be trusted and the interpretation of what constitutes acupuncture.

REVIEW

Zhou, L, et al (2018) have described a Scientometrics study and analyzed publication trends in articles on “disaster medicine”. Data were collected from the Web of Science Core Collection of Thomson Reuters. A total of 564 publications on disaster medicine were identified from 2008 to 2016. There was a mild increase in the number of articles on disaster medicine from 2008 (55) to 2016 (83). Disaster Medicine was published in the majority of articles in the United States, and the leading institute was Tohoku University. F. Della Corte, M. D. Christian, and P. L. Ingrassia were the most prolific authors on the topic, and the field of public health generated the most publications. It was pointed out emergency medicine, public health, disaster preparedness, natural disasters, medicine, and management as the major research hotspots. Hurricane Katrina researched on mechanical ventilation, occupational medicine and intensive care. European journals

deal with the frontiers of disaster medicine research. Overall analysis revealed that disaster medicine studies are closely related to other medical fields and provides researchers and policy-makers in this area with new insight into the hotspots and dynamic directions.

Zacca-Gonzalez, G., et al (2018) the main focus of the this study is to classify the scientific output of the most productive Latin American countries with a aim on the international collaboration and impact. The period of 2003-2013 was taken for the descriptive study based on the SCImago Institutions Ranking (SIR) portal in the medicinal field. The indicator's application was based on documents, citation, and collaboration. End of the study show about the world wide, surgery, cardiology, oncology, neurology and public health as the most productive subjects in medicine; in Latin America is the most profilic title are Public Health, Infectious Diseases, Surgery, Neurology, and Cardiology and Cardiovascular Medicine. The most prolific countries are Brazil,Mexico and Argentina,though the ones having greater impact and more collaboration are Peru, Puerto Rico, and Argentina. The most prolific and evident fields, such as Oncology, Cardiology, and Infectious Disease, are major global health problem involving chronic and emerging diseases. This information could be useful to design pragmatic policies to encourage 9 research in key fields in order to respond better to the health needs of a given populatio.

Krauskopf, E., Garcia, F., & Funk, R.(2017) the purpose of this study was to investigate the association between language and total number of citations found among documents in journals written in English and other languages. They selected all the Under the subject category" Veterinary Sciences" journals were clustered together in the Journal citation Reports 2014 has downloaded all the data registered between 1994-2013 by Web of science for the journals that stated publishing documents in languages other than English they classified each of these journals by quartile and extracted information concerning their impact factor, language, country, published documents, total number of reviews published, percentage of documents published in English. Almost of the journals are multi-lingual. The results of this study suggest that journals considers in using English as the major languages 6 and it will automatically increase citation counts and the impact factor of the journal.

Takahashi, R., & Kajikawa, y.(2017) this study determined CAD research which has been classified and categorized according to disease type and imaging modality in Bibliometric analysis. This classification starts with the CAD of mammograms and eventually progressed to that of brain disease. Moreover, based on this result, it recommended future directions and opportunities for CAD research. Primarily, in contrast to the typical hypothetical approach, the data-driven approach has shown promise. And flowingly, the normalization of the best datasets and an evaluation method is necessary when adopting an algorithm and a system. Third, it discusses opportunities for the co-evolution of CAD research and imaging instruments-for example, the CAD of bones and pancreatic cancer. Fourth, the potential of synergy with computer-aided and clinical support systems is also discussed.

Objectives

The following are objectives of the study:

- To analysis the year-wise publication of Acupuncture Research,
- To know the Country wise Records,
- To analysis the document wise Distribution,
- To analyze the Authorship pattern,
- To determine the degree of collaboration,
- To measure the relative growth rate and doubling time,
- To find out the most productive Keywords,
- To find out the Time Series Analysis
- To determine the Activity Index,

Methodology

The data were collected from the Web of science database by using the topic provision. The research was conducted for the term "Acupuncture", research field selected was Web of Science core journals. The study evaluates the overall literature output over a period of 2014 - 2018. The papers published from 2014 to 2018 by the Medical scientists are accounted as 6257. We arranged in different ways with a view to identify the scientists of Medical Science

DATA ANALYSIS AND INTERPRETATION

Table: 1. Year wise Publication

S.No	Publication year	Records	Percentage
1.	2018	1,349	21.560 %
2.	2017	1,406	22.471 %
3.	2016	1,258	20.105 %
4.	2015	1,314	21.000 %
5.	2014	930	14.863 %

To analyses the yearly output on acupuncture research at world level from 2014 to 2018. There are about 6257 total output on acupuncture research in the year 2014-2018. In the year 2017, the output measured is 1406(22.47%); this is the highest records out of 6257 records. In the year 2014 the output measured is 980(14.86%); this is the lowest records out of 6257 records. The output performance rate is to below 15 Percentage, on 2014. Onwards the output performance is to more than 15 percentages on 2015 to 2018.

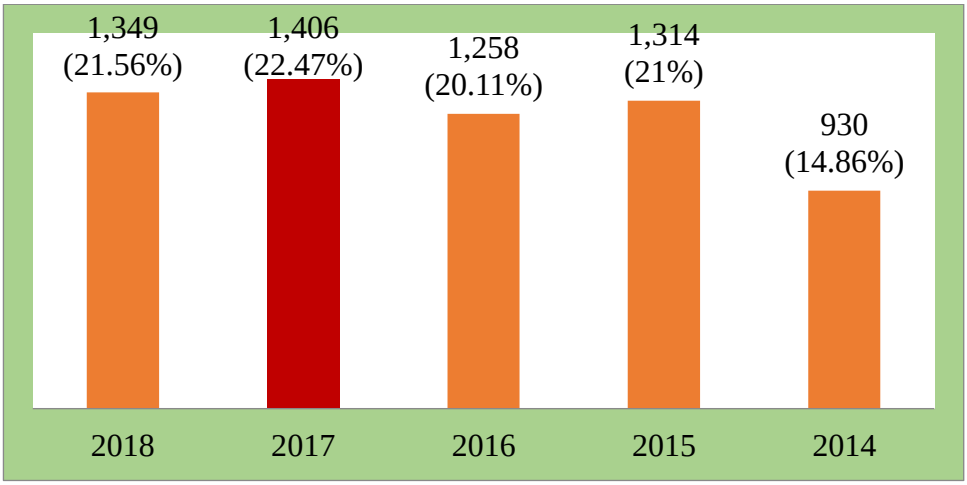


Figure: 1. Year wise Publication of Acupuncture Research

Table: 2. Country wise distribution

S.No	Country	Records	Percentage
1.	China	2,202	35.193 %
2.	USA	1,368	21.864 %
3.	South Korea	620	9.909 %
4.	Germany	327	5.226 %
5.	England	314	5.018 %
6.	Australia	301	4.811 %
7.	Taiwan	250	3.996 %
8.	Brazil	213	3.404 %
9.	Canada	169	2.701 %
10.	Japan	148	2.365 %

The table shows countries wise publication output China is the top ranked with highest records of 2202 and Japan is the last in the list with 148 records of publications. United States America (USA) is the second in the list of countries with 1368 publication output, sharing 21.864% followed by South Korea in third position is having 620 records (9.909%). Germany is the fourth position, and its publication share is 5.226% with 327 publication output, followed by England, Australia, and Taiwan has fifth, sixth and seventh position respectively. And India is in nineteenth place with 62 records in research publication.

Table: 3. Documents with Citation and H-Index

h-index	Documents	Citation sum within h-core	All citations	All articles
32	Article	1916	14543	4305
27	Review	2164	6251	981
7	Editorial Material	135	364	304
6	Letter	57	203	207
5	Proceedings Paper	60	89	27
3	Book Chapter	8	10	8
2	News Item	5	6	96
1	Retraction	1	1	6
1	Meeting Abstract	1	10	250
1	Early Access	1	1	10
1	Correction	2	10	39
0	Data Paper	0	0	1
0	Book Review	0	0	19
0	Biographical-Item	0	0	3
0	Retracted Publication	0	0	1
				6257

Above the table shows the citation and h-index of documentation in the subject of acupuncture medicine. It is found that fifteen types of documents are there. Out of fifteen types of documents, review has the most number of citing papers with 2164 with 27 h-

index. Followed by article 1916 citation and 32 citation, and editorial material has 135 citations with 7 h-index, then another documents are followed below 60 citations with below six h-index. Data Paper, Book Review, Retracted Publication and Biographical-Item are having zero citations and zero h-index.

Table: 4. Authorship pattern

S.No	No. of authors	Frequency	percentage	Cumulative percentage
1	Single author	730	11%	11%
2	Two author	638	10%	21%
3	Three author	745	12%	33%
4	Four author	796	13%	46%
5	Five author	737	12%	58%
6	Above five author	2611	42%	100%
Total		**6257**	**100%**	

The authorship pattern in the acupuncture research publications ranged from single author to above five authors. The category of above five authors has published 2611 records in during the study period, followed by four authored papers published 796 records, three authored papers published 745 records, five authored papers published 737 records, single authored papers published 730 publications and two authored papers published 638 publications.

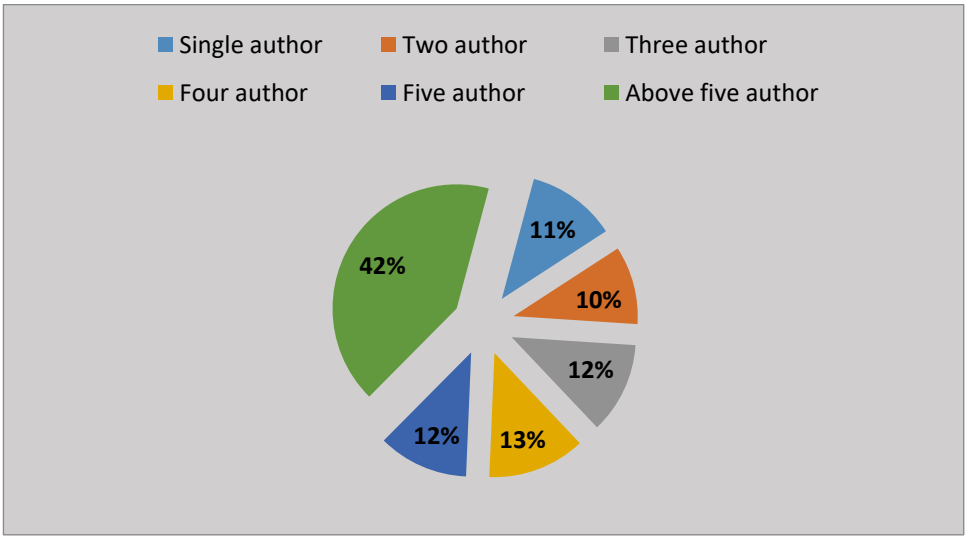


Figure 2 Authorship pattern

Table: 5. Degree of Collaboration

S.No	Year	Single Authors (NS)	Multiple Authors (NM)	Total Authors (NS+NM)	Degree of collaboration (NM/NM+NS)
1	2014	56	874	930	0.94
2	2015	176	1138	1314	0.87
3	2016	153	1104	1257	0.88
4	2017	182	1224	1406	0.87
5	2018	163	1187	1350	0.88
Total		**730**	**5527**	**6257**	**AVRG 0.88**

The table shows the details about the degree of collaboration which indicate tend in single and multiple authors during 2014 – 2018 as shown in Table. The degree of collaboration ranges from 0.88 to 0.94 and the average degree of collaboration is 0.88. The DC is calculated by using the formula K. Subramanian, 1982:

The formula is where

DC = Degree of Collaboration

NM = Number of Multi Authors

NS = Number of Single Authors

DC= NM/NM+NS

DC= 5527/6257

DC = 0.88

In the present study the value of DC is 0.88.

As the result, the degree of collaboration in the study Acupuncture Research is 0.88 which shows the collaboration of multiple authors

Table: 6. Relative Growth Rate (RGR) and Doubling time (Dt)

Year	No. of publications	Cumulative Tot. of publications	Log w1	Log w2	RGR(W2-W1) R(a)	Mean	Doubling time	Mean
2014	1349	1349	-	7.20	-			0.48
2015	1406	2755	7.24	7.92	0.68		1.01	
2016	1258	4013	7.13	8.29	1.16	1.03	0.59	
2017	1314	5327	7.18	8.58	1.40		0.49	
2018	930	6257	6.83	8.74	1.97		0.35	
Total	**6257**					**1.03**		**0.48**

It has been analyzed the growth of publication in acupuncture medicine by Relative Growth (RGR) and Doubling Time (DT). The span of time during the period 2014-2018 has represented 1.03 as mean RGR. Doubling time of this study period is observed as 0.48 for the during the study period 2014-2018. RGR increased from the rate 0f 0.68 in 2015 to 1.97 in 2018. The mean RGR for the 2014-2018 is 1.03. As the doubling same time doubling time decreased from 2015(1.01)-2018(0.35). The mean DT for the 2014-2018 is 0.48. Thus as the rate of growth of research publications was increased and doubling time was decreased.

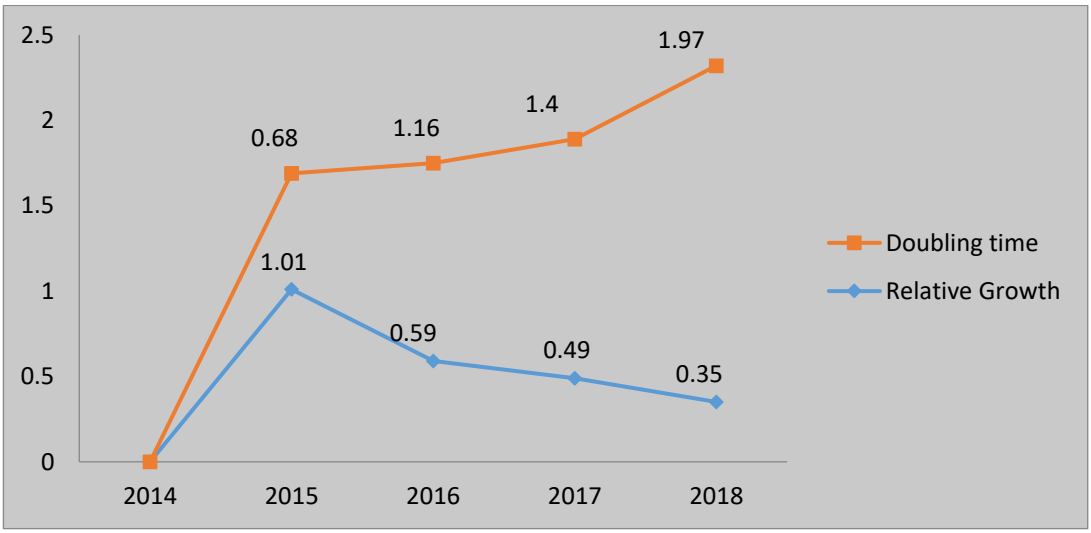
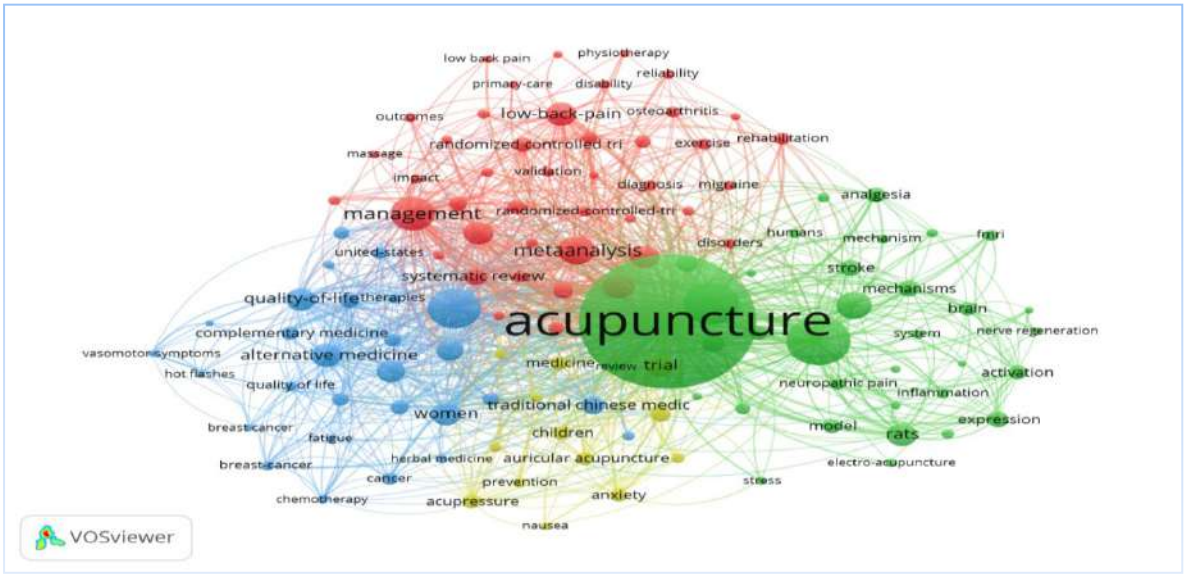


Figure 3 Relative Growth and doubling time

Table: 7. Keyword based classification (Top 10 Only)

S.No	Keyword	Records	Percentage
1	Acupuncture	1375	22%
2	Randomized Controlled-Trial	561	9%
3	Pain	462	7%
4	Electro acupuncture	457	7%
5	Management	441	7%
6	Meta analysis	351	6%
7	Stimulation	329	5%
8	Therapy	270	4%
9	Low-Back-Pain	266	4%
10	Prevalence	253	4%

A few words were repeatedly used by the acupuncture scientists. For this analysis the research has taken top 10 frequently occurring words. The word "Acupuncture" has been repeatedly used 1375 times by the acupuncture research scientists during the study period, Followed by "Randomized Controlled-Trial" used 561 times. The word "Pain" occupies the third position being used 462 times.



Visualization map 1. Keyword based classification

Table: 8. Time Serious Analysis

Year	No. of Publications	X	X^2	XY
2014	930	-2	4	-1860
2015	1314	-1	1	-1314
2016	1257	0	0	0
2017	1406	1	1	1406
2018	1350	2	4	2700
Total	**6257**		**10**	**932**

Straight line equation:

$Yc = a+bX$

Since $\sum X=0$

$a= \sum Y/N= 6257/5 = 1251.4$

$b= \sum XY/\sum X^2 = 932/10 = 93.2$

Estimated literature in 2028 is when X = 2029 – 2019 =10

= 1251.4 + (93.2 x 10) = 2183.4

Estimated literature in 2033 is when X = 2034 – 2019 =15

= 1251.4 + (93.2 x 15) = 2649.4

= 1251.4 + (93.2 x 20) = 3115.4

On the application of the formula of time series analysis and subsequently, from the results obtained separately for the years 2029 and 2034, it is found that the future trend of growth in the study acupuncture research output may take increasing trend during the years to come. The inference is that there is a positive growth at the global level in research output in the acupuncture medicine.

Table: 9. Activity Index

S. No.	Year	Global output	Indian output	Activity Index
1	2014	930	06	153.67
2	2015	1314	08	162.79
3	2016	1257	21	59.28
4	2017	1406	17	81.97
5	2018	1350	10	133.80
Total		**6257**	**62**	**118.30**

Activity Index is the ratio of the country's share in the worlds publication output in the given field to the country's share in world's publication output in all fields.

Mathematically, activity index has identified by the following formula as

$$\textbf{ActivityIndex} = \left[\frac{\frac{Ci}{Co}}{\frac{Wi}{Wo}}\right] * \textbf{100}$$

If the Activity index is =100 indicates that a country's research effort in the given field corresponds precisely to the world average,

If the activity index is > 100 reflects higher than average activity

If the activity index is < 100 indicates lower than average activity.

For Example: 0.1486/0.0967*100 = 153.67

0.2100/0.1290*100 = 162.79

It has been identified the activity index of India during the period 2014-2018. In India most number of publications published in the year 2016 with 21 records and the highest activity index value is 162.79 in the year 2015 and the lowest activity index contributed in the year of 2016 (59.28) in India.

Findings

- It was computed the year wise distribution of contributions and out of 6257 articles, the highest 22.47% of papers were published in 2017 and The lowest number 930 (14.86%) papers were published in 2014.
- The contributions of countries with acupuncture research output, China contributed more number of articles (2202) published.
- As far as citation and H-index are concerned, article is the most cited (14543) documents with having 32 H-index in acupuncture research output during the period 2014-2018.
- Out of the 6257 articles, the major proportion of 42% was contributed by above five authors, and followed by four authors 13%, minimum number of authors contributed by two authors 10% were contributed during 2014-2018.
- The degree of collaboration (DC) among the authors was determined in Acupuncture research. It was very clear that ssingle authored is more than that of multi- authored papers. The degree of collaboration ranges from 0.87 to 0.94 and the average degree of collaboration is 0.88.
- The findings of relative growth and doubling time for research publications of scientists reveal the following facts, the relative growth rate of publications has shown an increasing trend from the started value is 0.68 to 1.97and the average value is 1.03, the doubling time of publications have decreased value started from 1.01 to 0.35 and the average value is 0.48.
- It was observed keyword analysis literature output on acupuncture research during the period of study. In this regard, the prime keyword observed in the study is “Acupuncture” (1375) which reflects 22 percentages of research papers. It is occupied in the first position.
- The results found that the estimated future growth increased as 1251.4 (2018), 2183.4 (2029) and 2649.4 (2034), it clearly explains the progressive trend continued up to estimated year. It is inferred that the rate of growth is relation by the year wise publications of acupuncture research.
- During the study period of five years, the activity index of India value is more than 100 during the period of 2014, 2015 and 2018 with the activity index values of 153.67, 162.79 and 133.80 respectively. The remaining two years had the lower level of productivity in acupuncture publications.

CONCLUSION

The application of Scientometrics analysis computes to scientific publications has highlighted the contribution of institutions, journals, authors, countries and individual researchers. This study deals with the Research productivity on acupuncture research from 2014 to 2018. This data collected from web of science database by using the keyword “ACUPUNCTURE” search provision in science citation index and analyzed from HistCite and Bibexcel software. For mapping the data, VOS viewer software has been used. In the research analysis, it was measured that the highest 22.47% of papers were published in 2017 and the collaborative research has also measured in the field of acupuncture research in terms of literature output. China has maximum number of literature output i.e. 35.19% and it is ranked in the first position. The degree of collaboration (DC) was determined among the authors productivity, the analysis shows the percentage of multi- authored is more than that of single-authored papers and the average degree of collaboration was 0.88. It is concluded that the research of acupuncture medicine has been increasing year by year at substantial rate.

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Summer 8-7-2018

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ONLINE INFORMATION SEEKING BEHAVIOUR OF FACULTY MEMBERS WORKING IN ARTS AND SCIENCE COLLEGES IN MADURAI DISTRICT: A STUDY

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Abstract

The present study has been undertaken to assess the online information seeking behaviour of the faculty members of Arts and Science colleges in Madurai district. A sample of 50 faculties was selected by random sampling method. The well structured questionnaire was distributed among the faculty members to collect data on the availability of online information services, the major information services used, the purpose of online information seeking and the level of satisfaction. The findings of the study reveal that: Most of the respondents (56%) are male faculty members. Majority of the respondents (32%) visit the library once a week. The majority of the respondents (37%) access information at the college library. Majority of the respondents (43%) need/use online information for their career development. (42%) of the respondents are satisfied with the online sources available in the library. Most of the respondents (33%) use Wikipedia. Majority of the respondents (63%) use search engines to look for information. Majority of the respondents (30%) complained about Lack of time as their major problem in accessing online resources.

Key word: Information seeking behaviour, Frequency of library visits, Information access, Use of Online Sources, problem in access.

Introduction

Information is a dynamic and unending resource that affects all discipline in all walks of life whether it is for information support, research and development. Recent advances in technologies and electronics have cast great impact upon Modern society. These advances have provided a capability previously not known and resulted in the improvement of efficiency.

The present era is the era of information and knowledge revolution. The increase in information available on the Web has affected information seeking behaviour. Innumerable types

of information, in a large variety of containers and in many different locations, are all available in one place. In the modern society, the types of information and the media which present them have become manifold and multifarious, offering men and women a vast selection. Information seeking behaviour is the purposive seeking for information as a consequence of a need to satisfy some goal. In the course of seeking, the individual may interact with manual information systems or with computer-based systems. The kind of information required by the user, methods adopted in searching information, environment affected, time spent, problems faced and solutions made, the satisfaction/dissatisfaction arising from the information gathered and the relationship of the user with the system all come under purview of a user study.

"Knowledge is power". Libraries are the reservoirs of Knowledge and this knowledge should not be kept unused rather it should be used optimally. The main purpose of any information System be it an academic library or any other is to develop a comprehensive need based and updated collection and keep it active by disseminating them. Technologies, especially computer and telecommunication technology have revolutionized the field of library and information services. They facilitate collection, storage, organization, processing, analysis, presentation, communication and dissemination of data. With the introduction of new technology, libraries are expected to use various types of technology to provide information, more quickly and in greater volume than before.

Information-seeking

Information-seeking is a form of human behaviour that involves seeking for information by means of the active examination of information sources or information retrieval systems to satisfy the information need, or to solve a problem. In order to acquire information the user has to select information from a particular source, system, channel or service. According to Ellis (1987) his information-seeking process involves the activities.

- Starting
- Chaining
- Browsing
- Differentiating and
- Monitoring

Information Seeking Behaviour (ISB)

With the growth of information deluge, each one needs information of increasing variety, diversity, level, frequency, volume and use. This complex situation appears to be ambiguous and heterogeneous in character as that, information needs of a particular group of users and information flow from a specific/organization are difficult to determine. Again, the use of information is so complex that there cannot be a simple system to cope up with the task of effective retrieval without assessing their specific needs. This situation has given rise to the growing concept of information searching and the manner of determining the pattern of searching is said to be considered information seeking behaviour.

Review of Literature

Meho and Hass (2001) studied on information seeking behaviour of social sciences faculty studying stateless nations. It is a study of government information use by social sciences faculty, in which they interviewed faculty conducting research on stateless nations, in this case the Kurds. The findings were consistent with many earlier social science faculty studies, with some important exceptions. The study is significant because it reveals a frequent use of information technology, with 83% of participants responding they use electronic resources. It is also interesting that access problems are a major issue for selected materials, with 83% of faculty reporting they travel to special collections or archives to locate historical documents.

Majid and Tan (2002) carried out a study among computer engineering students of Nan Yang Technological University, Singapore. A questionnaire was distributed among 200 randomly selected students and 102 students responded. The purpose of the study was to investigate the types of information sources used by the students. The study found that printed materials were the most preferred format among the students. The order of preference of information seeking materials was books, lectures, internet, friends and manuals. The use of databases and electronic journals was low among the computer students.

Balasubramanian and Baladhandayutham (2008) discussed the results of a study on the information use pattern of faculty members of Madurai Kamaraj University in Madurai. Data were collected from seven schools in Madurai Kamaraj University. Results show that one hundred and thirty five respondents (45%) seek information for preparing lectures. Forty four percent of faculty members access more information from Internet. Seventy six percent of

respondents read information materials in English and twenty percent read materials in Tamil. Most of the respondents used Google.com for searching information. They use frequently e-mail for communication. It is found that (25%) of respondents use the Biotech database. Majority of respondents faced the common problem while seeking information i.e. lack of time and unavailability of information.

Ibrahim (2008) reported findings from a survey conducted to measure the use and perception of the United Arab Emirates University (UAEU) faculty members on electronic resources. Questionnaires were sent to a sample of 140 faculty members. Responses were received from 125 (89%) faculty members. Analysis confirmed that frequency of use of electronic resources was low. Reasons cited were lack of time because of the time needed to focus on teaching; lack of awareness to electronic resources provided by the library; ineffective communication channels and language barrier.

Ozoemelem (2009) carried out a study on the use of electronic resources by post graduate students of the Department of Library and Information Science, Delta State University, Abraka A total of 78 questionnaires were distributed to respondents and were successfully retrieved giving a 100% rate of return. There is a low level of skillfulness in the use of ICT among Postgraduate Students. There is a low level of electronic resource experience amongst Postgraduate Students. The internet via Cybercafé is the major facility used to access electronic resources by them. There is a high frequency of usage of electronic resources by both male and female Postgraduate Students. In other words gender gap in electronic resource usage is quite negligible. Issues like large mass of irrelevant information, the need to filter the results from search, download delay, failure to find information, inadequate/lack of search skills, high cost of access, power outages, inaccessibility of some electronic resources, difficulties in navigating through electronic resources and so on are problems encountered when using electronic resources by Postgraduate Students.

Chetan Sharma (2009) highlighted the preferences and importance of online resources among the teachers and research scholars. The main objective of this study is to analyze dependency of the teachers and research scholars on e-resources, the perceived impact of the e-resources on their academic efficiency and problems faced by them while using the e-resources. 67.64% of research scholars of faculty of science and 69.23% of research scholars of engineering

use e-journals for research work whereas 35.29% of science streams and 23.70% of engineering streams use e-journals to update knowledge. Speed of availability and the ease of accessibility of information cause the users to use electronic resources more frequently 49% of respondents are marginally satisfied with online services provided by the library.

Thanuskodi (2010) conducted a study to identify the information channels used by the faculty members of Central Law College, Salem, information sources preferred by them, methods employed for getting the needed information and their library use pattern. Questionnaires were distributed to 64 law faculty members and 56 filled in questionnaires were returned, giving an overall response rate of 87.5 percent. It was found that respondents used various sources for acquiring the needed information. Books were ranked as the most important source for teaching and research purposes, followed by law reports and statutes. Respondents preferred to first consult their personal collection before resorting to other information providing sources and agencies. On the whole, respondents perceived the Central Law College library collections, services and facilities as adequate to meet their information needs effectively.

Sarada (2010) highlighted the various problems and issues involved in handling digital library and have given suggestions to improve the library services to meet the demands of the users. The majority of the respondents (69.4%) use Internet mainly for educational purposes. Comparatively less number of respondents (34.7%) use Internet for entertainment or personal purposes. The majority of the respondents used Internet for consulting technical reports 54.3(%), e-books 42.3 (%) and e-journals 38.5 (%). The most common problems faced by the majority of the respondents while surfing Internet were slow Internet connection delaying in retrieving relevant information 69.4 (%) and difficulty in finding the relevant information 21.3 (%) The majority 70 (%) of respondents felt that the Internet is more useful, preferred, informative, easy-to-use, and less expensive information source that help them in saving their time.

Akhtar (2010) examined the use of electronic information resources and service (EIRS) among the teachers and students of Sir Chhotu Ram Institute of Engineering and Technology, Meerut (UP) India. 120 questionnaires were randomly distributed to the users (50 teachers and 70 students). A total of 100 questionnaires were returned (40 teachers and 60 students) and used for this study. Majority of users, that is, 20(50%) teachers and 30(50%) students use EIRS for

study. More than 60% of users in the Engineering and Technology library are using e-journals as well as e-articles. The majority of users (45%) link through publisher websites, popular search engines and subject web pages. The information display on the computer screen and printed form of document is found to be the most preferred forms for reading articles.

Thanuskodi (2012) aimed at finding the use of e-resources by the post graduate students and research scholars of Faculty of Arts in the Annamalai University. Questionnaires were distributed among the Research scholars and Post-Graduate Students to collect desired data. A total of 200 questionnaires were distributed to the selected sample of Faculty of Arts; 180 valid samples were collected. The study found that the majority of users are aware about the availability of e-resources. The result reveals that 47.78 % of respondents want to access only electronic version whereas only 32.78% users want to read the printed journals but 19.44% respondents want to use both electronic and printed version. Majority of the respondents (76.66%) use e-resources for writing papers.

Ramasamy,Padma& Helan Ranjitham (2018) The present study is undertaken to investigate the use of legal information sources and services by the undergraduate students of Government Law College, Coimbatore, Tamilnadu State, India. It is a descriptive research study which employed questionnaires to collect data from 200 students who are pursing III, IV and V year of undergraduate law courses. The findings of the study reveal that: A majority of 83 students need human rights information and 78 students need academic information. A majority of 62 (93.94%) students know and use textbooks, 50 (75.76%) know and use law books and 49 (74.24%) know and make use of Bye-Laws. Updates of court rules 33 (41.25%) and Statutes 25 (30.12%) are the sources which are not known to most number of IV year students. A majority of them are aware of Internet and legal databases and they make use of such resources. The website of Supreme Court of India is widely known and used among them. A majority of them browse internet, read books/journals, ask faculty members and use mass media to access legal information. Reading books / journals, cyber café, trial and error method and instruction from library staff are the methods used by most of the students to learn to use legal information resources. More than 80% of them know and use JUDIS. Inadequate number of journals, non-availability of latest journals, difficulty in finding relevant information and erratic power supply are the major problems faced by the male students in accessing library resources. A majority of

the students want the library to conduct demos of online legal sources by external experts, expect the library to provide more electronic resources and online legal databases and want the library to provide index to law reports and more current legal materials.

Objectives of the study

The present study was undertaken to examine the online information seeking behaviour of the faculty members working in arts and science college of Madurai district. The objectives of the study are:

- To show the gender-wise distribution of the respondents
- To identify how frequently the respondents are visiting the college library.
- To enlist the Information Access Point by the respondents.
- To identify the purpose of information by the faculty members the respondents.
- To judge the level of satisfaction of the respondents on online resources.
- To know the varieties of online sources used by the respondents.
- To examine the preferred method of reading information online by the faculty respondents.
- To study the problem faced by faculty members in accessing online sources.

Methodology

Research Type

The study undertaken by the researcher belongs to descriptive research study. The researcher has used survey method in his study.

Selection of Samples

The study was carried out Total in 31 Arts and Science colleges affiliated to Madurai Kamaraj University. It was decided to get data from 50 Respondents each from 6 colleges. The respondents are the faculties of these colleges. Accidental sampling method is used for selecting the samples.

Significance of the study

A user study is the means for systematic examination of the characteristics of information behaviour of the users. Progress in information technology has offered today's information seekers different opportunities to access the information resources in variety of formats,

including commonly-available electronic information sources, such as CDROMs, databases, Web-OPACs, and the Internet. In some instances these are replacing the print based information sources as the primary media for the storage and communication of recorded information. The increase in information available on the Web has affected information-seeking behaviour. In the present technology and digital era, information seeking / search studies are necessary to refine our knowledge of information space in web and research database, their design and maintenance, and awareness related issues. In the emerging electronic environment, knowledge about the information seeking behaviour of faculty is crucial for those wishing to help them effectively meet their information needs.

Statements of the problem

The problem under the present study is "Online Information seeking behaviour of Faculty Members working in Arts and Science colleges in Madurai District: a study"

Limitation of study

- The study concentrates on the library online research databases and Internet to measure the information seeking behaviour.
- Only arts and science colleges of Madurai district were included in the study.

Tool for Data Collection

Questionnaire is the tool selected by the research for collecting data from the chosen sample. No open ended question was included. The information required for the study is collected from the faculty of arts and Science College with the help of a structured questionnaire.

Method of Data Collection

The questionnaires were distributed to the faculty members in arts and science colleges by the researcher personally. The queries put forward by the respondents were clarified by the researcher now and then. The duly filled-in questionnaires were collected back from them immediately after they were filled. Out of 300 questionnaires distributed to the respondents, the research was able to get back only 295 duly filed-in questionnaires.

The secondary data required for the study was collected from various sources of information like books, national and international journals, projects, magazines, theses and dissertations etc.

Analysis of Data

1. GENDER-WISE DISTRIBUTION OF RESPONDENTS

Table 1: Gender-wise distribution of respondents

S.No	Sex	No. of respondents	Percentage
1	Male	165	56
2	Female	130	44
Total		**295**	**100**

Interpretation:

Table 1 and Fig. 1 show the gender –wise distribution of the respondents.165 respondents (56%) are male respondents and (130) 44% are female respondents. Thus, male respondents are more than the female respondents under the study.

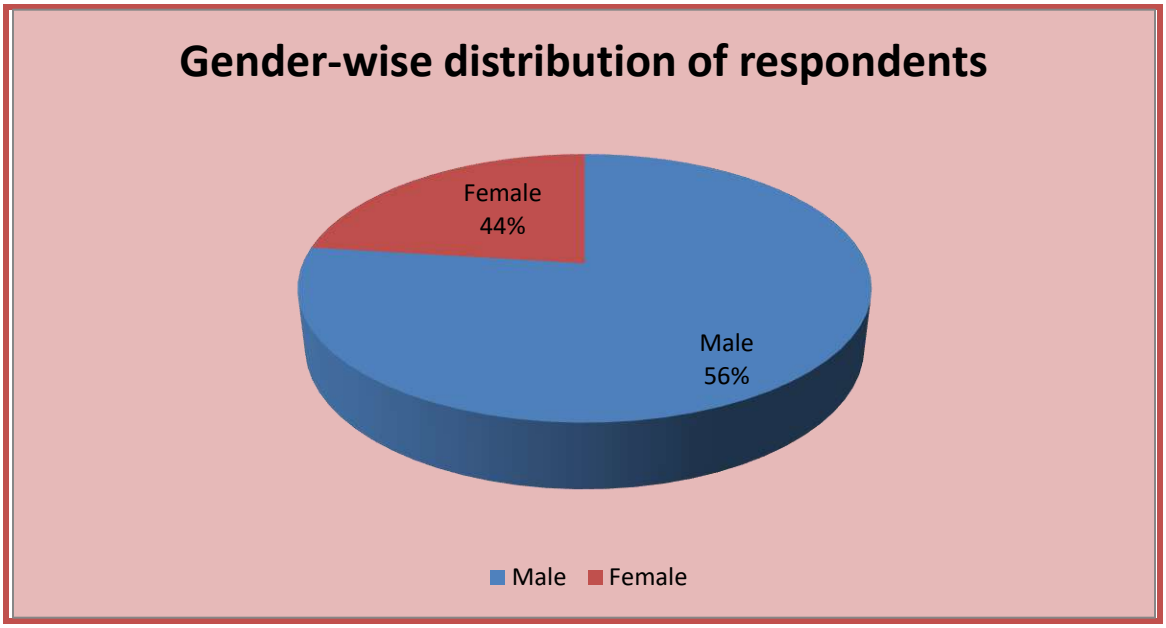


Figure 1: Gender-wise distribution of respondents

2. FREQUENCY OF LIBRARY VISITS

Table 2: Frequency of visiting the College Library

S.No	Frequency	No. of Respondents	Percentage
1	Every day	77	**26**
2	Alternative day	88	**29**
3	Once a week	93	**32**
4	Occasionally	37	**13**
Total		**295**	**100**

Interpretation:

Table 2 and Fig.2 show the frequency of library visits by the respondents. 77(26%) respondents visit the library everyday followed by 88(29%) respondents who visit the library every alternative day. While 93(32%) respondents visit the library once a week, just 37(13%) respondents visit the library occasionally.

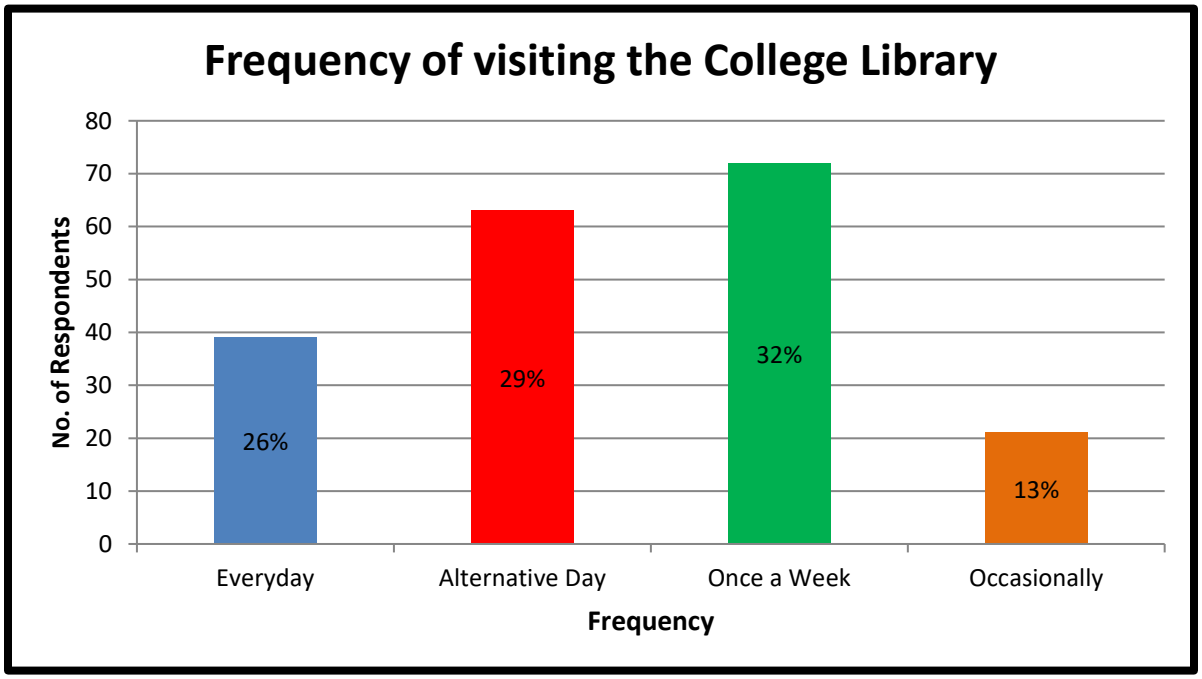


Figure 2 : Frequency of visiting the College Library

3. INFORMATION ACCESS POINTS

Table 3: Information Access Points

S.No	Access Points	No. of Respondents	Percentage
1	College Library	110	37
2	Computer Center	80	27
3	Own Collection	60	20
4	Other Library Collections	45	16
Total		**295**	**100**

Interpretation:

Table 3 and Fig. 3 make it clear that 110(37%) respondents access information at the college library and 80(27%) respondents access information at the computer centres. While own collection is the source for 60(20%) respondents, other library collection is the access point for just 45(16%) respondents.

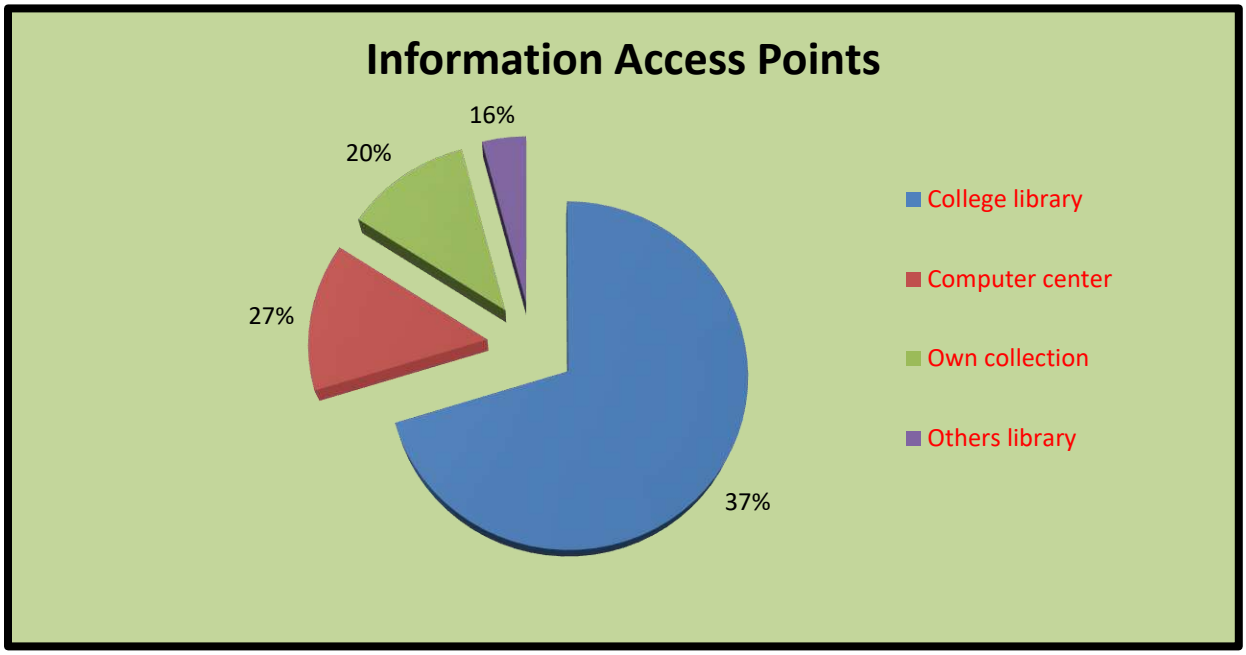


Figure 3: Information Access Points

4. PURPOSES OF SEEKING INFORMATION

Table 4: Purposes of seeking information

S.No	Purposes of seeking information	No. of Respondents	Percentage
1	Career development	127	43
2	Solving of immediate practical problem	55	19
3	Keeping up-to-date	83	28
4	Writing articles/research papers	30	10
Total		**295**	**100**

Interpretation:

Table 4 and Fig. 4 reveal that 127(43%) respondents seek information for their career development followed by 83(28%) respondents who seek information to keep themselves up-to-date. While 55(19%) respondents look for information to solve their practical problems, just 30(10%) respondents seek for information to write articles or research papers.

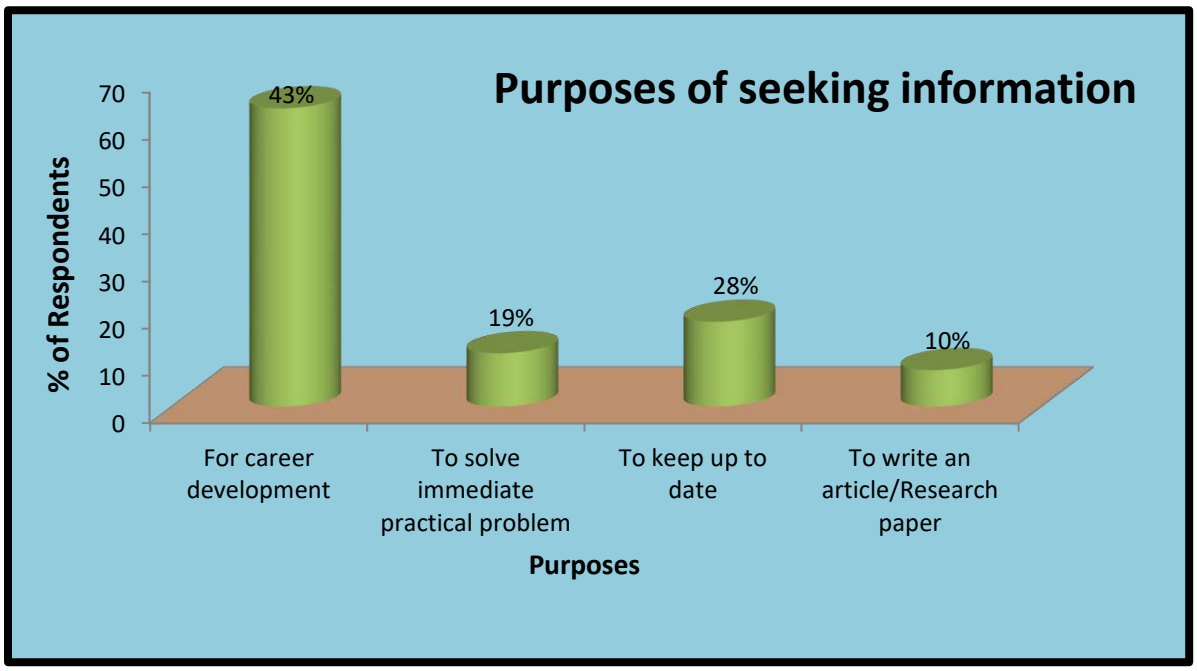


Figure 4: Purposes of seeking information

5. LEVEL OF SATISFACTION ON ONLINE RESOURCES

Table 5: Level of satisfaction on online Resources

S.No.	Level of Satisfaction	No. of Respondents	Percentage
1	Good	65	22
2	Very good	48	16
3	Satisfied	123	42
4	Poor	32	11
5	Very poor	27	09
Total		**50**	**100**

b

Interpretation:

It is understood from Table 5 and Fig. 5 that 123(42%) respondents are satisfied with the kind of online resources available in the library. While 65(22%) respondents feel 'Good' with the available online resources, 48(16%) respondents rate the online resource collections of the library as Very Good,32 (11%) respondents the online resource collections of the library as poor, 27(09%) respondents the online resources available in the library as very poor.



Figure 5: Level of satisfaction on online Resources

5. USE OF ONLINE SOURCES

Table 6: Use of Online Sources

S.No.	Online Sources	No. of Respondents	Percentage
1	E-journals	63	21
2	Database of scholarly articles	42	14
3	Virtual libraries	36	12
4	Wikipedia	97	33
5	Database of thesis/ dissertations	25	09
6	Database of abstracts	32	11
Total		**295**	**100**

Interpretation:

It is inferred from Table 6 and Fig. 6 that 33% (97) respondents use Wikipedia followed by 21 % (63) respondents who use various e-journals. While databases of scholarly articles are used by 14% (42) respondents, virtual libraries are accessed by 12% (36) respondents. The least used online sources are abstract databases 11 %(32) and theses databases 09 %(25).

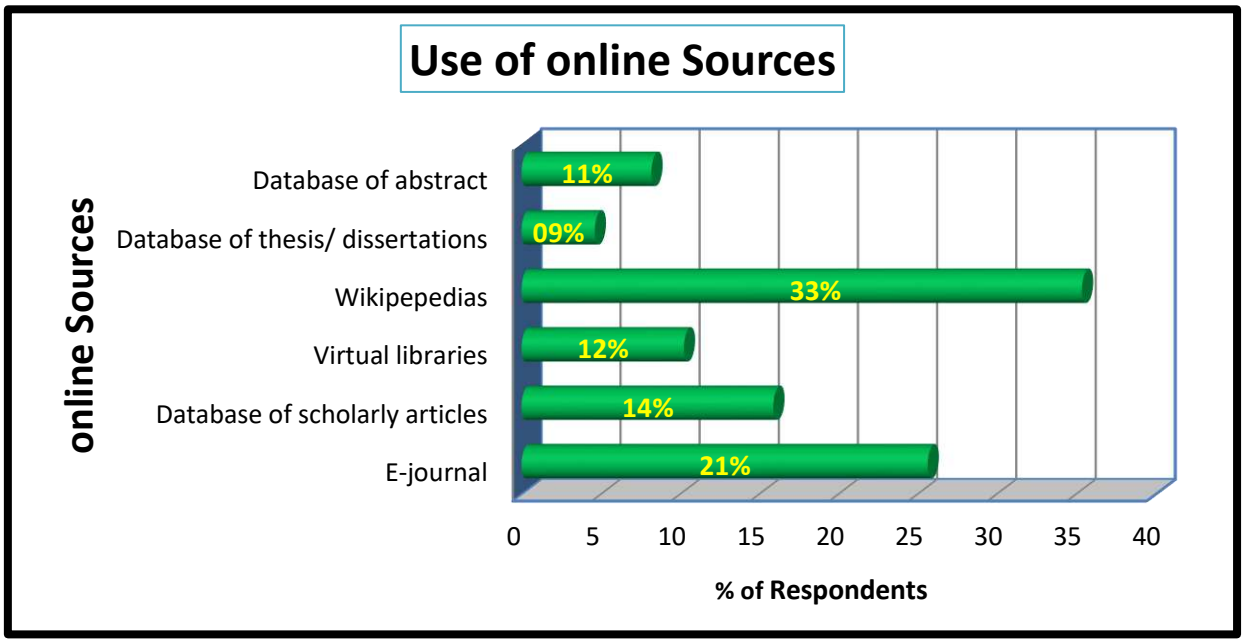


Figure 6: Use of Online Sources

7. METHODS OF ACCESSING INFORMATION ONLINE

Table 7: Methods of accessing information online

S.No.	Methods of accessing information online	No. of Respondents	Percentage
1	Search Engines	185	**63**
2	Typing URL in the Browser	110	**37**
	Total	**295**	**100**

Interpretation:

It is deciphered from Table 7 and Fig. 7 that 63% (185) of the respondents use search engines to get information in Internet and 37% (110) of the respondents access information in the net by typing the concerned URL in the browser directly.

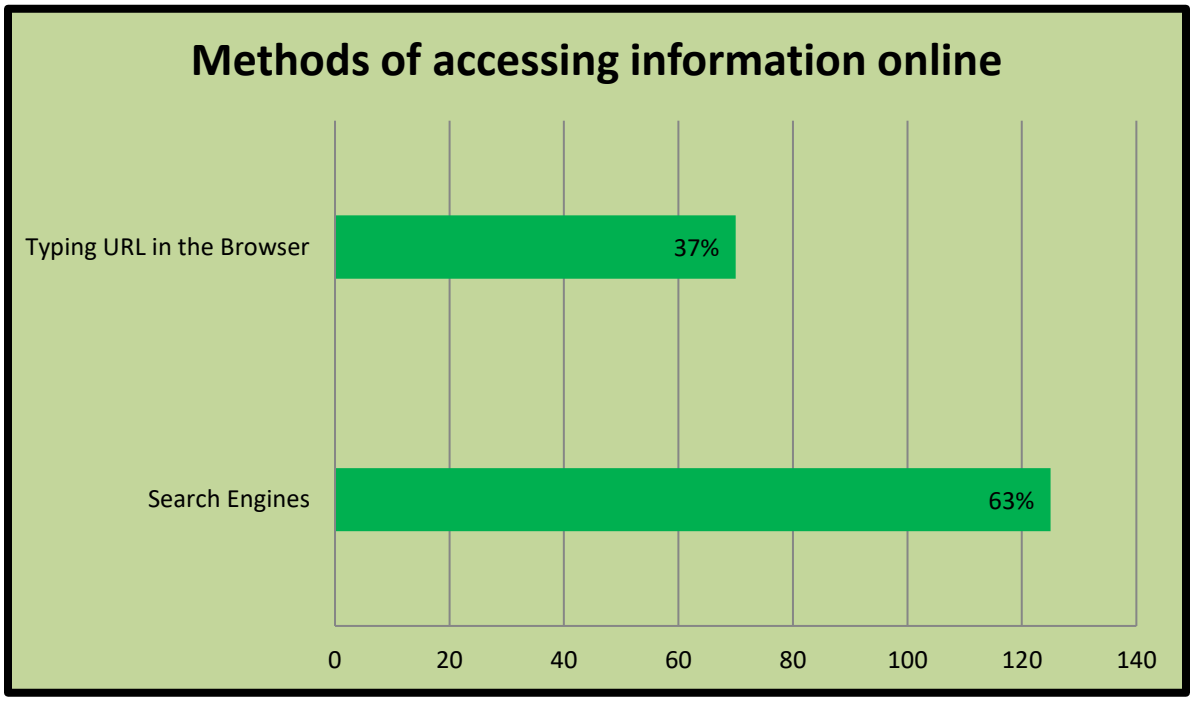


Figure 7: Methods of accessing information online

8. PROBLMES IN ACCESING AND USING ONLINE RESOURCES

Table 8: Problems in accessing and using the online resources

S.No.	Problems	No. of Respondents	Percentage
01	Inadequate ICT infrastructure	63	**21**
02	Lack of time	87	**30**
03	Scattered Information	52	**17**
06	Lack of knowledge in using the Library	41	**14**
10	Less number of required databases	29	**10**
11	Difficulties in understanding English	23	**08**
Total		**295**	**100**

Interpretation:

Table 8 and Fig.8 show the problems faced by the respondents in accessing and using the online resources available in the college library. While Inadequate ICT infrastructure is the problem for 21 % (63) respondents, Lack of time is the problem for 30% (87) respondents.17% (52) of the respondents opined that scattered information is their problem and 14% (41) of the respondents gauged lack of knowledge in using the library is their problem. Non-availability of required databases is the problem for 10 % (29) respondents while English language is a problem for 08 % (23) of the respondents.

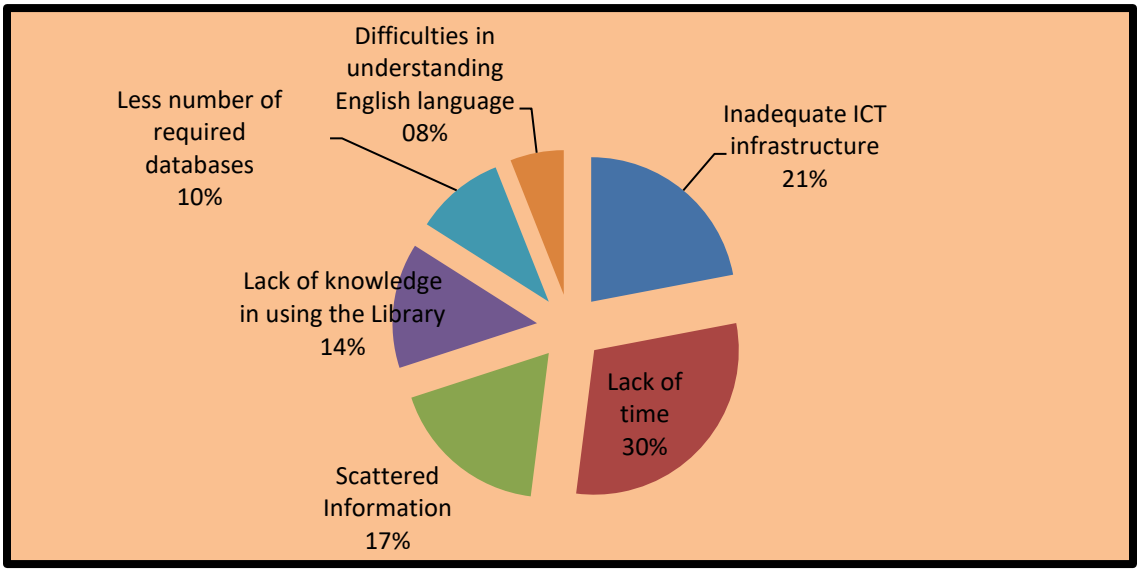


Figure 8: Problems in accessing and using the online resources

Findings

- Most of the respondents (56%) are male faculty members.
- Majority of the respondents (32%) visit the library once a week.
- Majority of the respondents (37%) access information at the college library.
- Majority of the respondents (43%) need/use online information for their career development.
- (42%) of the respondents are satisfied with the online sources available in the library.
- Most of the respondents (33%) use Wikipedia.
- Majority of the respondents (63%) use search engines to look for information.
- Majority of the respondents (30%) complained about Lack of time as their major problem in accessing online resources.

Suggestions

- Since all the respondents use Internet irrespective of many demographic factors like gender, discipline and designation, enough computers should be available in the college library.
- An exclusive fast broadband internet connection should be bought for the library.
- If possible, Wi-Fi access may be enabled in the college / library campus.
- Since most of the respondents use search engines to search for information in the Internet, they should be taught on the availability and use of various search engines.
- More educational databases may be procured for the library.
- Free and open source courseware and websites hosting scholarly videos may be put forward to the faculty' community.
- Experts may be invited from other libraries to introduce the goodness of e-journals among the Faculty members.
- The library should have the modern, latest and up-to-date ICT infrastructure.
- The Faculty members should be taught on the information searching and information evaluation skills so that they will be able to get right information at the right time for right use.

Directions for Further research

The researcher recommends that further research can be undertaken by comparing information seeking behaviour between faculty disciplines - Arts, Science and Professional

Colleges and between students, researcher and faculty members. The study mainly concentrated on the general information seeking behaviour of faculty members towards online resources. Further study can be made using the dimensions like characteristics of individual faculty, information literacy skills, IT Skills, Support and Training, Pedagogy, Psychological factors, Cultural aspects, Discipline and curriculum, Information learning technology, Policies and funding, Organization knowledge and culture and Academic influence.

Conclusion

A research on the analysis of digital information seeking behavior of faculty members of arts and science colleges was a challenging and charming task. The systematic conduct of an opinion-survey revealed many interesting facts to the researcher. The researcher has gained a meaningful guided enquiry of performing a task through this project. The findings of this project will definitely give an insight to the college administrators / college library staff about various aspects of the information seeking behavior of the faculty members. This may help them to devise suitable plans in the direction of renovating the library to meet the demands of the present day mobile generation. This kind of understanding will help the library professionals to devise befitting programmers and make corrective decisions in time to assist the faculty members sail smoothly in the mighty and stormy ocean of overflowing information.

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Mapping of Authorship Pattern and Collaborative Research on Fossil Fuels Publications indexed in A & HCI and SCI-Expanded

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Mapping of Authorship Pattern and Collaborative Research on Fossil Fuels Publications indexed in A & HCI and SCI-Expanded

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Abstract

This study has made an attempt to identify the authors' research performance in terms of publication output and their citations to know about the authorship pattern and analysis, author productivity, author relationship and collaborative research on fossil fuel scientific publications which are indexed in A & HCI and SCI- Expanded during 1989-2016. The necessary data was extracted and the total number of scholarly articles was 943, h-index was 73 and average citations per item was 28.63, the total sum of times cited was 26,997, citing articles was 21,694, without self-citations was 21,324 scores. This paper discusses the authorship pattern; most productive authors; collaborative authors using Degree of Collaboration (DC); highly cited authors at global as well as local level; the Average Authors Per Paper (AAPP); the Average Productivity Per Author (APPA) and different types of scholarly publications on fossil fuels published by the Indian authors during the study period.

Keywords: Authorship pattern, Scientometrics, Bibliometrics, Fossil fuels, Web of Science, Degree of Collaboration (DC); Scholarly communication.

Introduction

According to COBUILD Advanced English Dictionary, "fossil fuel is fuel such as coal or oil that is formed from the decayed remains of plants or animals" whereas Collins English Dictionary says that "any naturally occurring carbon or hydrocarbon fuel, such as coal, petroleum, peat, and natural gas, formed by the decomposition of prehistoric organisms". Further, fuels such as gas, coal, and oil, that were formed underground from plant and animal remain millions of years ago (Cambridge Advanced Learner's Dictionary & Thesaurus). Fossil fuels formed from the fossilized remains of the dead plant which was first introduced by Georgius Agricola in 1556 and later by Mikhail Lomonosov in the 18th century (Novaczek, 2000). Fossil fuels come under non-renewable energy resources that are getting depleted rapidly with time. Energy is the indispensable source for the essential activities in various fields like medicine, agriculture, construction, trade and commerce, transportation, industry etc. on the whole, energy gives the way for the development of a nation.

Scientometrics is one of the measuring techniques in the field of Library and Information Science in order to identify the research growth of scholarly publications such as journal articles,

reviews, conference proceedings, notes, letters etc. further, this method is used to measure the authors' research performance and institutions and countries growth too. According to Dictionary of Bibliometrics, Scientometrics applies "the bibliometric techniques to science and examines the development of the sciences". Van Raan (1997) says that "scientometric research is devoted to quantitative studies of science and technology. It aims at the advancement of knowledge and the development of science and technology; it is also in relation to the social and political question". According to Tague-Sutclifee (1992), Scientometrics is "the study of the quantitative aspects of science as a discipline or economic activity. It is part of the sociology of science and has application to science policy-making. It involves quantitative studies of scientific activities, including, among others, publications, and so overlaps bibliometrics to some extent".

Literature Review

Review of related literature is a part and parcel of any discipline to identify the previous scientists' works in terms of research design, research pattern and research analysis. For the present study, few recent studies have been taken into account, which is apt for it. Narzary and Murugan (2017) measured the authorship and collaborative research in ETRI Journal using scientometric indicators with 939 research papers. The study showed that a good number of publications were found in 2013 and the multi-authored publications were predominant. Murugan and Balasubramani (2012) analyzed the scientometric mapping on Remote Sensing literature at the global level during 1975-2010. The findings showed that out of 59 countries, only top fifteen were selected for research and found that USA was ranked first with (39.8%) publications, followed by UK (10.8%) and India got a third rank (7.8%). A total of 3735 authors published papers and out of it, single author publications were only 17% of the total articles. Two authors (18.94%), 21.04% were from three authors etc, and this study revealed that joint authors contributed more, compared to single authors.

Hydar Ali and Adithya Kumari (2016) examined the authorship patterns in Biodiversity Literature during 1989-2016 with 154654 research articles. The results showed the authorship trend, where solo authored articles declined and collaborative contributions expressed an increased trend and the collaborative index value of 4.50, indicate the popularity in terms of shared research pattern than the single research in biodiversity publications. Kolle (2016) tried to focus the authorship pattern and publication growth in the Indian Journal of Traditional Knowledge using bibliometric techniques to measure the research output during 2007-2015. A total number of 990 research publications were found including four types of manuscripts such as articles, review, editorial material, corrections, and biographical item. The results revealed that the major proportion of research papers were published by joint authors (30.91%) and only a small number of papers (9.80%) were from a single author and noted collaborative research is evident in the journal during the study period. Velmurugan (2018) carried out a study in Nephrology literature produced by Indian Scientists during 2011-2016. It was found that the USA got ranked first and the degree of collaboration was evaluated and the average degree of collaboration was 0.86. The growth rate of multi-authored contributions was more compared to single-authored papers. Singh (2017) examined the authorship and collaboration pattern in Biotechnology with special reference to IBSA countries during 2007-2016. A total of 24,888 research publications were retrieved from Scopus database. For analysis, scientometric indicators such as Collaboration Coefficient, Authorship pattern, and Activity Index were used to measure

the appropriate record count. As a result, multi-authored papers were predominant than solo authorship.

Scope and objectives of the study

The main purpose of this study is to observe the current research trends in the field of fossil fuels which were contributed by the Indian authors. The study undertaken is limited to 25 years from 1991-2016 and as far as the paper is concerned, there is no such a study, which has been carried out for this particular analysis so far. Further, the other objectives are to:

- Analyze the year wise contributions and to examine the different kinds of documents on fossil fuels in India;
- Know about the authorship pattern and to identify the top ten productive authors;
- Evaluate the collaborative authors on fossil fuels using the Degree of Collaboration (DC);
- Find out the top 10 highly cited prolific authors at global as well as local level and
- Identify the Average Authors Per Paper (AAPP) and to know about the Average Productivity Per Author (APPA) on fossil fuels.

Methodology

The data was collected from Web of Science database using the term ‘‘Fossil fuel’’ and refined by Country ‘‘India’’ for the period from January 1989 to December 2016 indexed in SCI-Expanded, A & HCI. But, we retrieved the data only for the year 1991 and 1993 to 2016 and we could not collect any data for the years 1989 and 1992, as there is no available data for these particular years and therefore, we collected a total of 943 research articles for the analysis, except those years. A total number of seven types of bibliographic documents such as articles, reviews, an article in proceedings papers, editorial materials, letters, an article in the retracted publication, and notes were identified. The hiscite bibliographic software is used and the data was transferred to an Excel spreadsheet for further statistical analysis. Moreover, to evaluate the data, simple percentage and other scientometric indicators such as Degree of Collaboration (DC), the Average Authors Per Paper (AAPP); the Average Productivity Per Author (APPA) and software such as HistCite to retrieve the data and VOS viewer for mapping the literature output and trend lines techniques such as linear growth model and exponential growth models were also applied to data analysis in terms of authorship pattern, number of authors, place of authors, number of publications, year wise contribution, types of contributions, and many more features during the period of study.

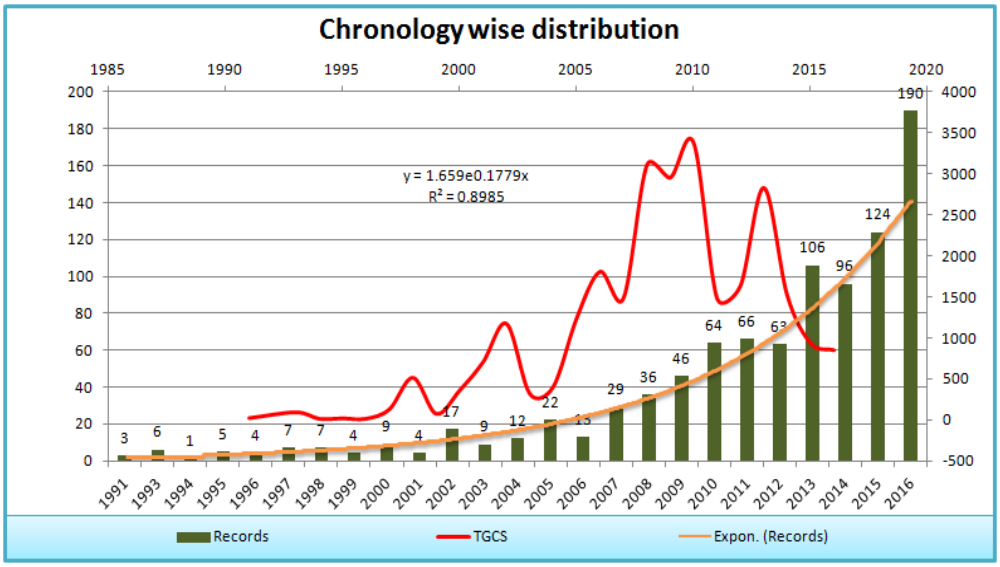
Results and Discussion

Based on the data of fossil fuel literature in India retrieved from the Web of Science (WoS), a total of 943 scholarly papers along with 759 local citations and 26997 global citations were found during the period of 25 years from 1989 to 2016.

Chronology wise distribution

It is inferred from the figure 1, the chronology-wise distribution of fossil fuels publications produced by Indian authors from 1991 to 2016. The publications range was from 1 in 1994 to 190 in 2016. It is shown from the table 1 that the major proportion of 21.1% of research articles was published in the year 2016 and followed by 31.1% of articles were in 2015. The counted citations based on the data and the range was from 6 to 3385 and the huge number of global citations was 3385 in the year 2010. We employed trend line techniques i.e. exponential growth model and found y value is $1.659e^{0.1779x}$ and R^2 value is 0.8985 and it shows the level of growth rate has gradually increased during the study period.

Figure 1: Chronology wise distribution



The ranking order of Authors and their h-index on fossil fuel research

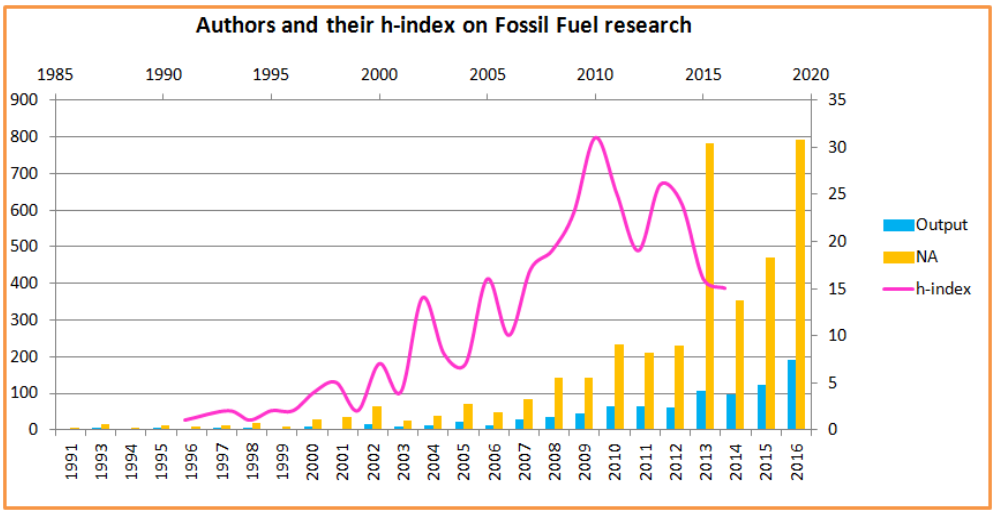
Table 1 and figure 2 shows the ranking of authors on fossil fuel literature output published by Indian authors, a total number of authors and their mean value and also their h-index were computed. In this context, it is analyzed and noted that the range of a number of authors was from 5 to 792 during 1991-2016. The maximum number of authors was found in the year 2016 and the least number of authors was found in 1991 as well as 1994 respectively. It is identified that there was no progressive trend in terms of publications from the year 1991 to 2007 and the growth level has been increased from the year 2008 onwards during the study period.

Further, we have analyzed the ranking of authors and their h-index and the range was from 1 to 31 and the majority of h-index (31) in terms of authors as well as research output was in the year 2010 and the small amount of h-index (1) was in the year 1991.

Table 1: Authors and their h-index on Fossil Fuel research

Year	Total Output	Total no of authors	Mean no of authors	h-index	Rank
1991	3	5	1.67	1	17
1993	6	17	2.83	2	16
1994	1	5	5.00	1	17
1995	5	12	2.40	2	16
1996	4	11	2.75	2	16
1997	7	12	1.71	4	15
1998	7	20	2.86	5	14
1999	4	9	2.25	2	16
2000	9	30	3.33	7	13
2001	4	36	9.00	4	15
2002	17	64	3.76	14	10
2003	9	27	3.00	8	12
2004	12	40	3.33	7	13
2005	22	70	3.18	16	8
2006	13	48	3.69	10	11
2007	29	85	2.93	17	7
2008	36	141	3.92	19	6
2009	46	143	3.11	23	5
2010	64	232	3.63	31	1
2011	66	210	3.18	25	3
2012	63	229	3.63	19	6
2013	106	782	7.38	26	2
2014	96	354	3.69	24	4
2015	124	470	3.79	16	8
2016	190	792	4.17	15	9
Total	943	3844			

Figure 2: Authors and their h-index on fossil fuel research



The ranking order of authors and their citations (top 25)

Prolific authors and eminent scholars and researchers are a very essential source of information in any field of knowledge. It is important to identify the productive authors and their related works which are vital for any research. In this regard, the purpose of the table is to locate some (top 25) most productive authors in the field of fossil fuel literature. A rank list is prepared based on the frequency of scientific publications and citations used.

Table 2 shows the pattern of authors and their records, percentage, local citation score, and global citation score and cited references and ranking of the publications according to their research performance. It is very clear that Kumar A is the most prolific author with 17 research publications. Kumar S and Tiwari S have ranked second with 14 papers each and followed by Sharma MP and Srivastava AK who got the third place with 13 scholarly articles each. According to the frequency of citations, Venkataraman C was ranked first among the top 25 authors and it is found that the local citations score was 80 and global citation score was 1825.

Table 2: Ranking of Authors (top 25)

Rank	Author	Total Records	Total Percent	Total Local Citations	Total Global Citations
1	Kumar A	17	1.8	9	270
2	Kumar S	14	1.5	5	260
2	Tiwari S	14	1.5	21	149
3	Sharma MP	13	1.4	38	881
3	Srivastava AK	13	1.4	28	315
4	Sarin MM	12	1.3	30	318
4	Venkataraman C	12	1.3	80	1825
5	Jain S	11	1.2	12	351
6	Babu SS	10	1.1	25	190

6	Banerjee R	10	1.1	0	70
6	Singh S	10	1.1	14	123
7	Bisht DS	9	1.0	20	118
7	Sharma D	9	1.0	1	99
8	Agarwal AK	8	0.8	16	311
8	Das D	8	0.8	10	435
8	Ghosh S	8	0.8	5	66
8	Kumar R	8	0.8	17	155
8	Lal S	8	0.8	28	543
8	Mandal TK	8	0.8	12	105
8	Moorthy KK	8	0.8	24	182
8	Nagarajan G	8	0.8	7	153
8	Rao PSP	8	0.8	31	355
8	Singh D	8	0.8	18	602
8	Tripathi SN	8	0.8	7	350
9	Abbasi SA	7	0.7	16	354

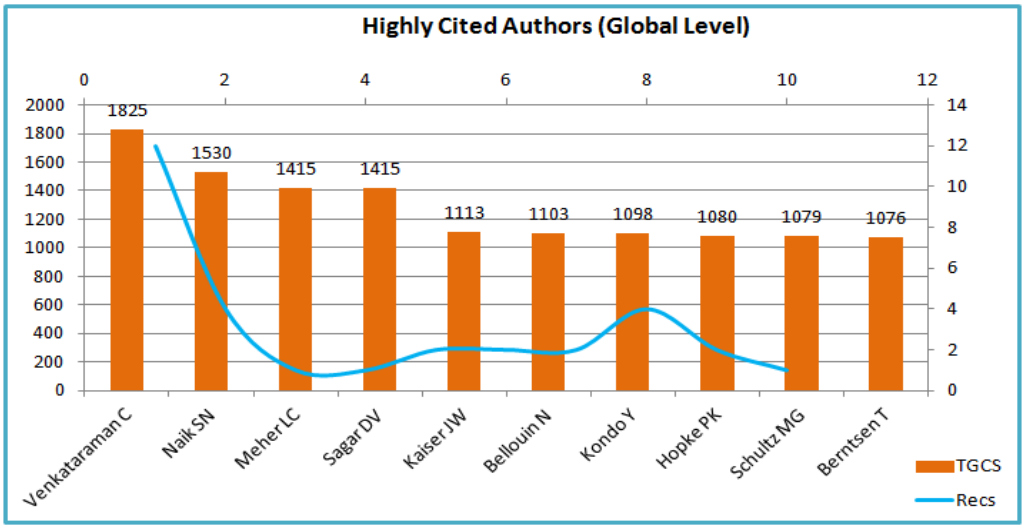
Top 10 Highly Cited Authors (Global Level)

Table 3 and figure 3 shows the highly cited authors in global level fossil fuel research and the data for the analysis made only for the top 10 productive authors. The total records, percentage, citations, cited references etc were counted. Among the top 10 authors, the maximum number of 1825 global citations with 12 research papers was for 'Venkataraman C' from the department of Centre for Environmental Science & Engineering, Indian Institute of Technology, Mumbai, India and followed by 'Naik SN' with 1530 citations got for 4 research articles from the Department of Centre Rural Development & Technology, Indian Institute of Technology Delhi, India and the least number of 1076 global citations received by 'Berntsen T' and the 1076 global citations was for only one paper from the Department of Geoscience, University of Oslo, Norway.

Table 3: Top 10 Highly Cited Authors (Global Level)

#	Author	Recs	Percent	TLCS	TLCS/t	TGCS	TGCS/t	TLCR
1	Venkataraman C	12	1.3	80	8.49	1825	325.69	22
2	Naik SN	4	0.4	28	2.75	1530	145.35	0
3	Meher LC	1	0.1	25	2.27	1415	128.64	0
4	Sagar DV	1	0.1	25	2.27	1415	128.64	0
5	Kaiser JW	2	0.2	16	4.00	1113	278.25	6
6	Bellouin N	2	0.2	16	4.00	1103	271.08	6
7	Kondo Y	2	0.2	16	4.00	1098	273.40	5
8	Hopke PK	4	0.4	18	5.00	1080	272.00	24
9	Schultz MG	2	0.2	17	4.50	1079	270.50	6
10	Berntsen T	1	0.1	16	4.00	1076	269.00	5

Figure 3: Top 10 Highly Cited Authors (Global Level)



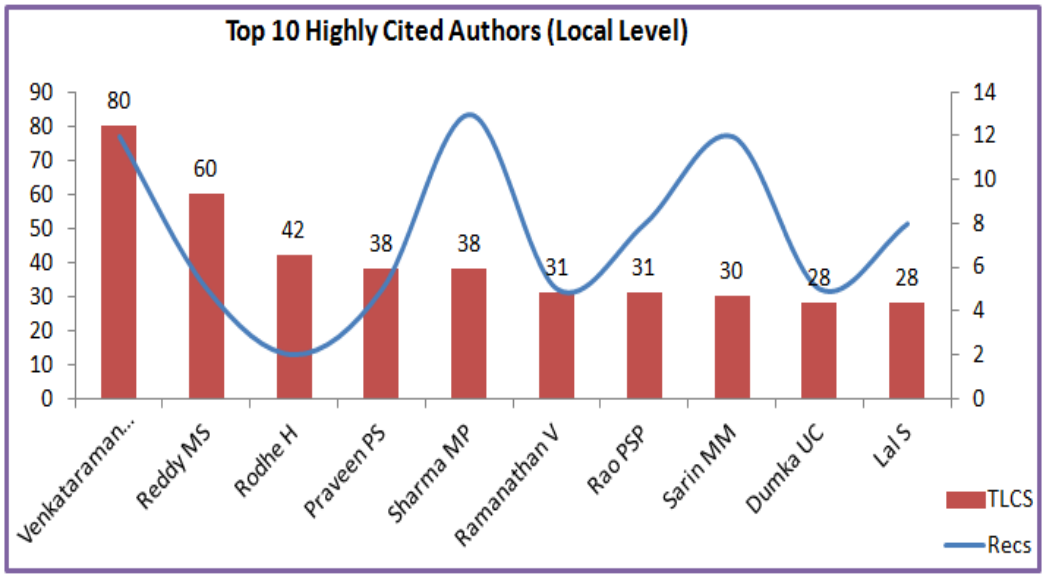
Top 10 Highly Cited Authors (Local Level)

It is understood from the data of table 4 and figure 4 the highly cited authors at local level in fossil fuel publications and found as expected the most productive local citations was 80 with 12 records occupied by 'Venkataraman C' from the department of Centre for Environmental Science & Engineering, Indian Institute of Technology, Mumbai, India. The second productive local citations 60 with 5 research articles received by 'Reddy, MS' from the Department of University Science & Technology Lille, Opt Atmosphere Lab, University of Paris, France. The third productive local citations score 42 with only 2 papers was got by 'Rodhe H' from the Department of Meteorology, Stockholm University in Sweden. The small amount of local citations 28 with 8 records was by 'Lal S' from Physics Research Laboratory in Ahmedabad, Gujarat, India.

Table 4: Top 10 Highly Cited Authors (Local Level)

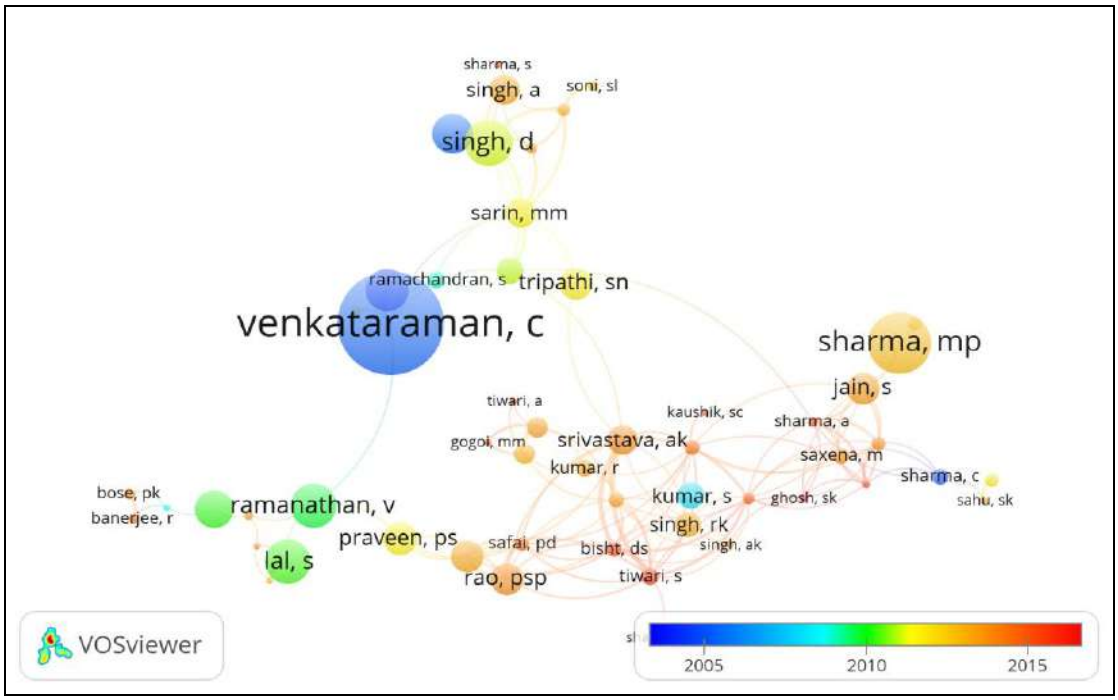
#	Author	Recs	Percent	TLCS	TLCS/t	TGCS	TGCS/t	TLCR
1	Venkataraman C	12	1.3	80	8.49	1825	325.69	22
2	Reddy MS	5	0.5	60	4.03	516	35.99	8
3	Rodhe H	2	0.2	42	4.06	699	59.25	4
4	Praveen PS	5	0.5	38	5.76	359	53.74	14
5	Sharma MP	13	1.4	38	7.86	881	148.98	23
6	Ramanathan V	5	0.5	31	3.32	557	49.86	7
7	Rao PSP	8	0.8	31	4.96	355	62.33	31
8	Sarin MM	12	1.3	30	4.51	318	54.59	25
9	Dumka UC	5	0.5	28	5.49	123	23.10	23
10	Lal S	8	0.8	28	2.61	543	44.98	12

Figure 4: Top 10 Highly Cited Authors (Local Level)

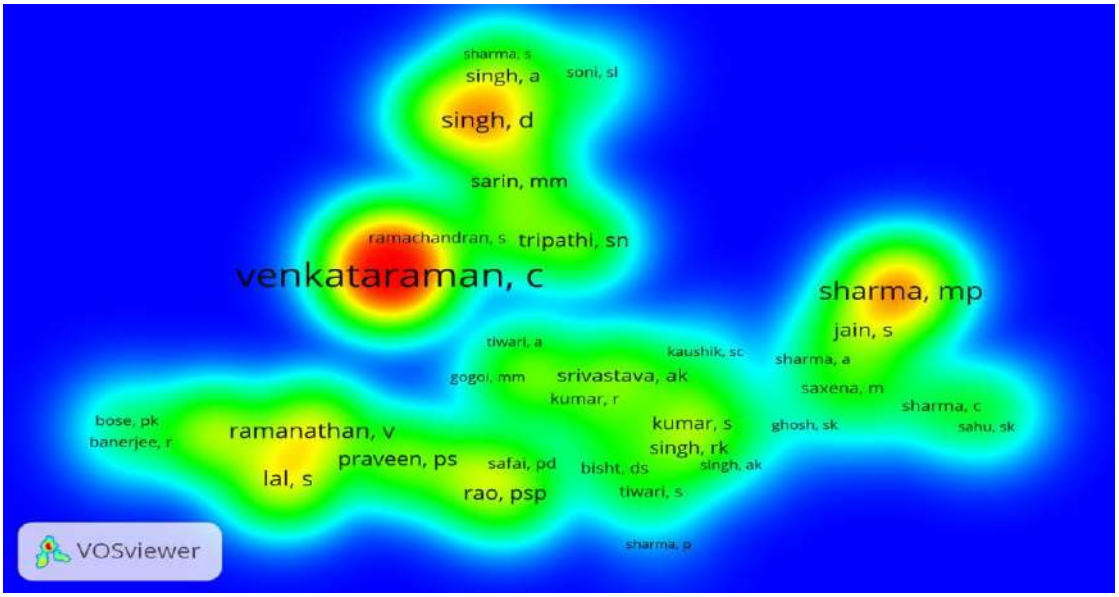


Vos viewer is one of the network-based visual mapping software which is widely used software all over the world for the purpose of projecting the data in the form of mapping. This technique consists of three types such as network visualization, overlay, and density visualization. For this present study, we have taken only two types such as overlay and density visualization mapping for analysis.

Map 1: Overlay visual of authors



Map 2: Density visual of authors



Degree of Collaboration

Table 5 and figure 5 illustrates the degree of collaboration on fossil fuel research in India and it is defined as the ratio of the number of collaborative research papers to the total number of research papers in the discipline during a certain period of time. The formula has been used for the present study and shown below which is suggested by K.Subramanyam.

The formula is $C = \frac{Nm}{Nm+Ns}$

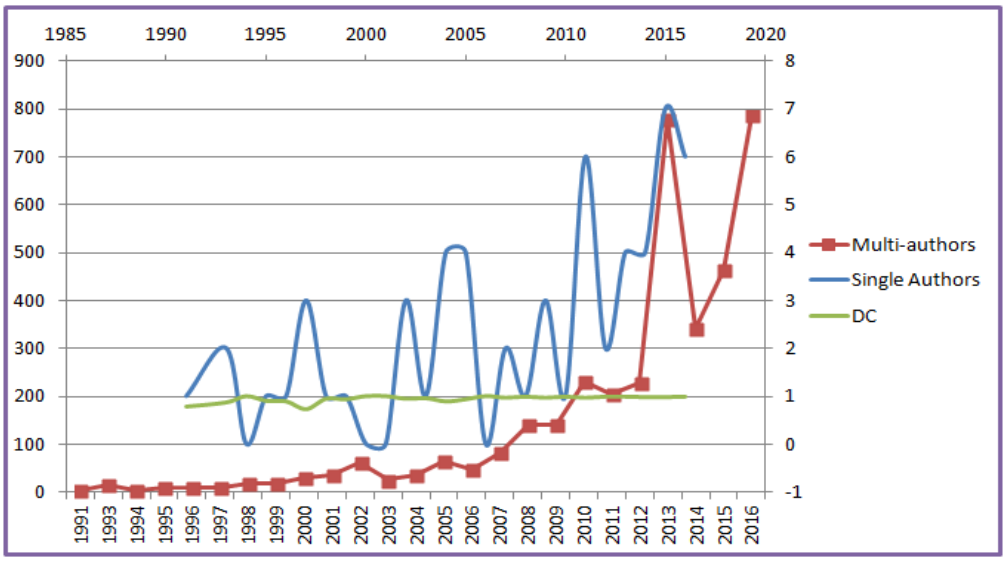
Where,
C – Degree of collaboration;
Nm – the number of multi-authored papers;
N_S – the number of single-authored papers.

Table 5: Degree of Collaboration on Fossil fuels in India

Year	SAs	MAs	DC
1991	1	4	0.8
1993	2	15	0.88
1994	0	5	1
1995	1	11	0.91
1996	1	10	0.90
1997	3	9	0.75
1998	1	19	0.95
1999	1	18	0.94

2000	0	30	1
2001	0	36	1
2002	3	61	0.95
2003	1	26	0.96
2004	4	36	0.9
2005	4	66	0.94
2006	0	47	1
2007	2	83	0.97
2008	1	140	0.99
2009	3	140	0.97
2010	1	231	0.99
2011	6	204	0.97
2012	2	227	0.99
2013	4	778	0.99
2014	4	341	0.98
2015	7	463	0.98
2016	6	786	0.99
Total	58	3786	0.98

Figure 5: Degree of Collaboration on Fossil fuels



The degree of Collaboration (DC) is a prominent area of research in scientometric studies which indicate trends in single and joint authorship from 1989 to 2016. The degree of collaboration ranges from 0.75 to 1 and the average degree of collaboration was 0.98 which clearly represents that its dominance upon multi-authored contributions. Table 5 shows that the Degree of Collaboration (DC) in authorship on “Fossil fuels literature in India”, and found that the multi-authored papers were more than that of single-authored papers.

Author productivity and Collaborative index (CI)

The evaluated pattern of the collaborative index (CI) which is also called as average productivity per author (APPA), has been measured with the total number of scholarly publications and a total number of authors in the field of fossil fuel research in India for a period from 1991 to 2016 except 1992. The range of collaborative index is from 0.11 to 0.6. The maximum range of productivity is 0.6 in the year 1991.

Table 6: Author productivity and Collaborative index (CI)

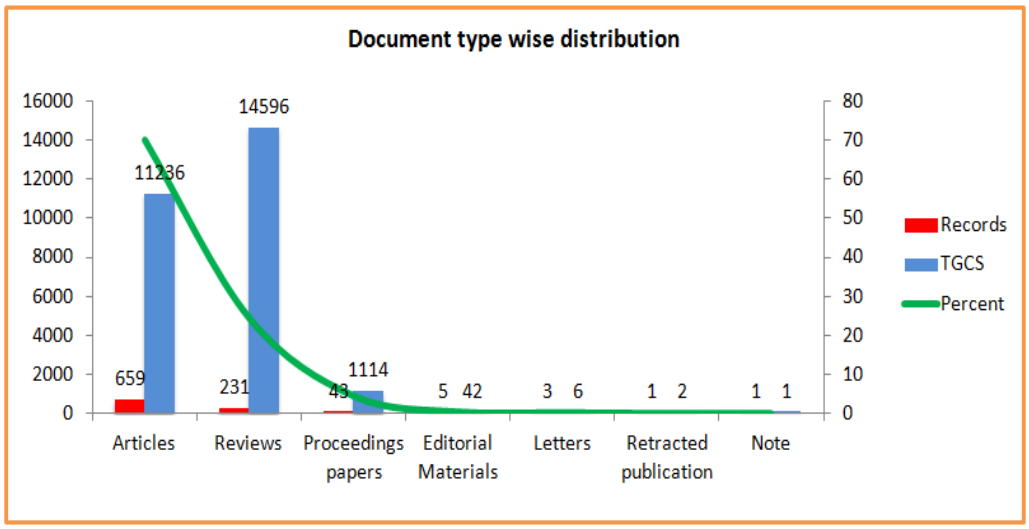
Year	Total number of Papers	Total number of Authors	AAPP*	Productivity per author
1991	3	5	1.67	0.6
1993	6	17	2.83	0.35
1994	1	5	5	0.2
1995	5	12	2.4	0.42
1996	4	11	2.75	0.36
1997	7	12	1.71	0.58
1998	7	20	2.86	0.35
1999	4	9	2.25	0.44
2000	9	30	3.33	0.3
2001	4	36	9	0.11
2002	17	64	3.76	0.266
2003	9	27	3	0.33
2004	12	40	3.33	0.3
2005	22	70	3.18	0.31
2006	13	48	3.69	0.27
2007	29	85	2.91	0.34
2008	36	141	3.92	0.255
2009	46	143	3.11	0.32
2010	64	232	3.63	0.28
2011	66	210	3.18	0.31
2012	63	229	3.63	0.28
2013	106	782	7.37	0.13
2014	96	354	3.69	0.27
2015	124	470	3.79	0.26
2016	190	792	4.17	0.24
Total				

**Average Authors per Paper (AAPP) = Number of authors/ Number of papers.*
Productivity per author= Number of papers/ Number of authors.

Types of contributions

Seven different kinds of documents such as articles, reviews, an article in proceedings papers, editorial materials, letters, an article from retracted publication, and notes were identified. Figure 4 shows that among the seven documents, journals articles are the primary source with 659 (69.9%) records and got placed first. The next productive document was review papers (24.5%), and articles in proceeding papers (4.6%) and placed the third rank. Other items such as the editorial materials (0.5%), Letters (0.3%), article from retracted publication and notes were each 0.1%. The citations were also noted based on the output and found that a huge number of citations at the global level were 14596 based on the review papers and the next prolific numbers were 11236 according to articles.

Figure 4: Document type wise distribution



Findings and Conclusion

- It is found that the major proportion of 21.1% of research articles was published in the year 2016.
- It is noted that the maximum number of authors was found in the year 2016 and the least number of authors found in 1991 as well as 1994 respectively.
- It is identified that 'Kumar A' is the most prolific author with 17 research publications.
- It is noted that a huge number of 1825 global citations with 12 research papers got by 'Venkataraman C' from the department of Centre for Environmental Science & Engineering, Indian Institute of Technology, Mumbai, India, was among the top 10 authors.
- It is measured and seen that the majority of h-index in terms of authors, as well as research output, was in the year 2010 and the small amount of h-index was in 1991.

- ❖ According to the frequency of citations, Venkataraman C from the department of Centre for Environmental Science & Engineering, Indian Institute of Technology, Mumbai, India got ranked first among the top 25 authors and it is found that the highest local citations score was 80 and global citation score was 1825.

- ❖ The degree of collaboration ranges from 0.75 to 1 and the average degree of collaboration was 0.98 which clearly represents the dominance of multi-authored contributions.

- ❖ It is inferred from the analysis of the seven documents, that journals articles are the primary source with 659 (69.9%) records and got placed first. The next productive document was review papers with 24.5%.

It is examined and concluded that on the basis of the previous literature studies, it is found that there are no such studies found in the discipline/topic of 'authorship pattern and collaborative research work on fossil fuels in India' during the particular study period. As a result, in future, this present study will surely help to research scholars, eminent scientists, and academicians to evaluate the current trends, development, and impact of fossil fuels research.

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IOSR Journal Of Humanities And Social Science (IOSR-JHSS)
Volume 24, Issue 5, Ser. 1 (May. 2019) 01-03
e-ISSN: 2279-0837, p-ISSN: 2279-0845.
www.iosrjournals.org

An Evaluative study of Koha, Coral and Vu Find: An Open source software

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Abstract: Purpose – The purpose of the formative study is to bring out the comparative features distinctively of KOHA – Serial management, CORAL database management tool for electronic resources and VuFind. The purpose to evaluate the different open source software and its characteristics with possibility to integrate the best available resources.
Methodology/Design/approach – The paper is based on the qualitative literature available online particularly for CORAL & VuFind. The study is a platform for practical implications of the usage of CORAL & KOHA.
Results/Conclusion/Findings – The study is an attempt to which tries to highlight the distinctive features of KOHA, CORAL & VuFind
Practical implication – This study provides the libraries a programme oriented assessment to prepare and migrate for different software as per the requirements.
Paper type – Evaluative study

Keywords: Open source software, Electronic resource management, Koha, Coral, VuFind

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Date of Submission: 18-04-2019 Date of acceptance: 04-05-2019

I. INTRODUCTION

With the revolution led by ICTs i.e. Information & Communication technologies the quality of functioning of traditional library functions have been enhanced. The term Library automation given ICT has ensured effective management and utilization of library tools and services. And there has been a paradigm shift from manual to digital world with the advent of Open source library automation software. Open source software refers to software created by a community of programmers rather than a single vendor (Blumenthal, 2005). With free access to the source code, there are virtually no limits to what can be done to the software (Williams von Rooij, 2009)

KOHA

Koha is a fully featured, scalable, library management system. It is the world's first free and open source library system. Development is sponsored by libraries of varying types and sizes, volunteers, and support companies worldwide.

The Koha integrated library system includes catalogue, OPAC, Circulation, Member Management and acquisition packages. To install koha for use following configuration is required. It requires a Linux Server, Apache, MySQL, Perl, Root on the server a reasonable level of command with command line and database administration skill. Koha was created by Katipo Communications in 1999 by for the horowhenua trust in New Zealand, and the first installation went live in January 2000.

In 2001, Paul Poulain (of Marseille, France) began adding many new features to Koha, most significantly support for multiple languages. In 2010, Koha has been translated from its original English into French, Chinese, Arabic and several other languages. Support for the cataloguing and search standards MARC and Z39.50 was added in 2002 and later sponsored by the Athens County Public Libraries. In France Paul Poulain co-founded BibLibre in 2007.In 2005, an Ohio-based company, Metavore, Inc., trading as liblime, was established to support Koha and added many new features, including support for Zebra sponsored by the Crawford County Federated Library System. Zebra support increased the speed of searches as well as improving scalability to support tens of millions of bibliographic records. The latest stable release of Koha is 18.11.03.

Coral ERM & its modules

Coral is an open source electronic resources management system. The local developer of Coral Hesburgh libraries at University of Notre Dame gave an expansion to libraries and vendors across the world to add their contribution for future developments.

Centralized Online Resources acquisition and licensing is highly customizable an open source electronic resource management system. CORAL also allows customization MODULE WISE. Depending on the requirements the installation can be done. However, if entire suite is installed, the records are easy to link.

A tiny installation CORAL runs on -

- MySQL 5
- PHP 5 &
- A webserver which is available under GPL v 3 and on GitHub

Comparison of KOHA & CORAL

	KOHA	**CORAL**
	Open source integrated library management software	Open source electronic resource management software.
Modules	Acquisition, cataloguing, circulation, serials, Reporting	Resources, Organisation, License, Statistics, Management
Management of resources	Can manage physical & digital resources – Acquisition, cataloguing, circulation, serials etc.	Can manage Licensing of electronic resources
Management of e-resources	Can manage local e-resources – Acquisition, cataloguing & its access	Can be efficiently managed through the four different modules- Resources, Licensing, Organisation & User statistics & management
Electronic subscription	Cannot be managed	Management of e-resources can be processed through Resource module in CORAL. With the robust database for tracking data& customizable workflow tool
Web services	To write in KOHA are many	To write in CORAL are few
Data model	Can be updated at a low level	Can be easily updated
Integration	Koha and Coral can be integrated. Koha 18.05 or later is needed to use OAuth authentication. Vendors can be synchronized between Coral and Koha.	

In the above emerging approaches tremendous technical processes are involved for libraries. To closely track the perpetual access terms there is a need to design a new roadmap. However, the developers have conceived a ONE ROOF SOLUTION i.e. VuFind. It can also be termed as Catalogue for the next generation.

Villanova University has developed a free access open source simple interface VuFind. The portal allows responsive and bootstrap driven design that is an extension to the patrons of library to search and browse beyond the resources – books, journals, electronic resources, institutional repositories, institutional bibliographies and other resources of library. The software is also modular and highly configurable, allowing implementers to choose system components to best fit their needs. VuFind features multilingual capability, faceted search, browsing capability, organisation and annotation of resources, citations and author bibliographies. The search results page is able to display the live status of a record through the use of AJAX by querying the catalogue at that exact moment. The user is offered suggestions of resources that are similar to the current resource. The user is able to save the resources from both the search results page and from the record view page to their own customizable lists with a very narrow spectrum of results. VuFind has many APIs to interact with the search, data and many other features. The data can be syndicated with other institutions via an OAI server. Searching can be made using vufind's algorithms via OpenSearch. And a complete access to indexed data is available, while interacting with Solr, VuFind's backend search and index engine.

II. CONCLUSION

The present evaluative study is based on the literature available on the very recent advancement in the field of data management. KOHA is one of the best open source library automation for creation of database and for information retrieval. With interoperable modules CORAL has distinctive features for electronic resource management. However, a community supportive VuFind which is offered for free through the GPL open source license is completely a one roof solution and also known as age bracket for the library catalogue. There is no

such major difference in the interoperability functions of KOHA & CORAL for acquisition and management of Electronic resources but for digital repositories, bibliographical resources the library has to adopt different software. Wherein the study brings out the adopting VuFind will render a modular approach to best fit the requirement of each and every library as per the requirement.

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Ritu Nagpal. " An Evaluative study of Koha, Coral and Vu Find: An Open source software." IOSR Journal of Humanities and Social Science (IOSR-JHSS). vol. 24 no. 05, 2019, pp. 01-03.

Learning Disability: Assessment, Diagnosis and Cognitive Scaffolding







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ABOUT THE EDITOR



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Published by
L ORDINE NUOVO PUBLICATION
crrpspublication@gmail.com
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ISBN 938678297-9
9 789386 782977

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SOCIAL SKILLS DEFICITS IN CHILDREN WITH ADHD

P.Nagasharmila
Ph.D Research Scholar, Department of Education, Periyar University, Salem

Dr.G.Hema
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Abstract

A child with ADHD often does not have the skills or impulse control necessary to scan a situation and quickly determine the unsurpassed approach become involved in a social interaction. They lack the ability to correctly perceive, interpret, and process the information from the world around them. The mainstream of individuals with severe or multiple disabilities is a typical social skills because they may lack opportunities for the social interactions that would enable them to develop and practice social skills. Social skills are the behaviours, verbal and non-verbal, that we use in order to communicate successfully with other people. Social skills are governed by culture, values and attitudes. They constantly change and develop all over our lives. Someone that uses social skills to well interacts with friends, family, workmates and strangers is said to have social competence. Being aware that certain settings require greater social skills should help teachers recognize when proactive strategies are required for the child with ADHD. School can be more enjoyable when teachers realize that with a few accommodations and adaptations, these children can be as successful as their peers.

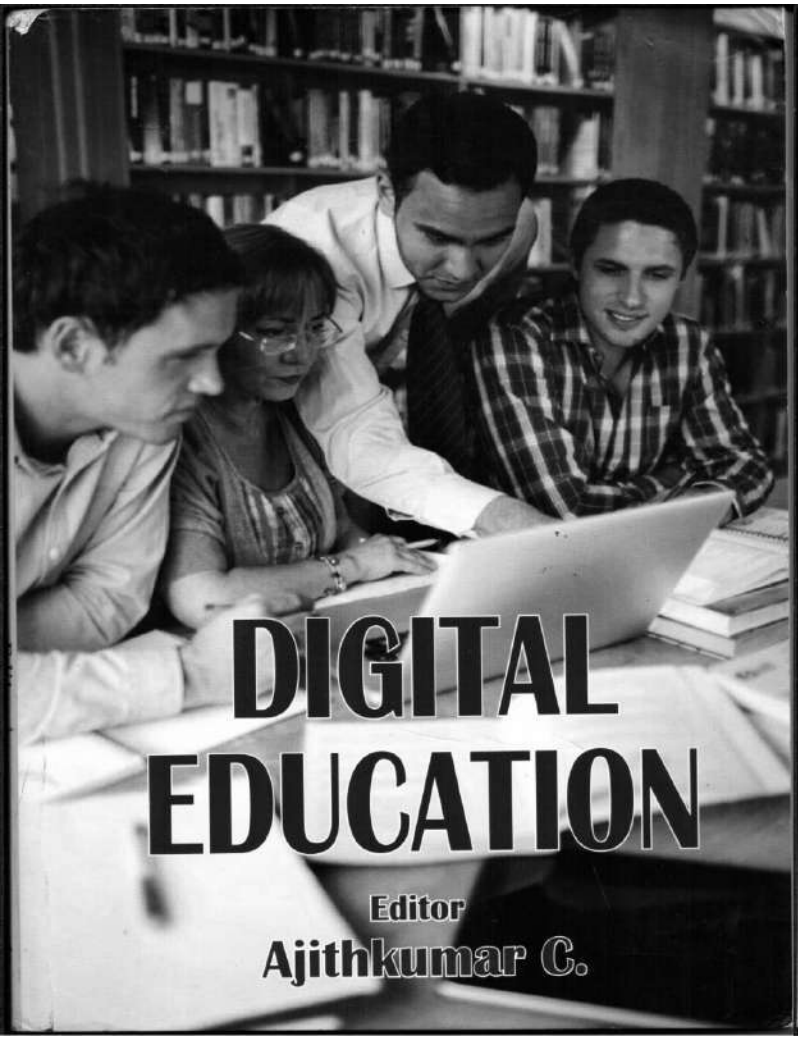
Keywords: *Social Skills, ADHD, Strategies, Practice.*

Introduction

A child with ADHD often does not have the skills or impulse control necessary to scan a situation and quickly determine the preeminent method in the direction involved in a social interaction. They lack the ability to correctly perceive, interpret, and process the information from the world around them. That is why you may see this child run up to a "closed group" of individuals who may be talking to each other and hit someone in the group in an attempt to join the group. The child may not understand initially that the position of the group is a signal that they don't want anyone to join them at the time, nor does he or she realize or have the communication skills to inquire to see if the group is interested in having him or her join them. The consequence, because of developmental delays in disinhibiting behaviour, can result in classmates not wanting to play with the child. The child will often be labelled by peers as a "troublemaker" or worse, by caretakers as a "behaviour problem".

Childhood is the laboratory wherein the child uses trial and error to develop his or her repertoire of social skills (Lavoie, 2005). Social skills are the skills that children have to learn successful interpersonal interactions. They rely on a child's cognitive, behavioural, and communication skills. These skills can be broken down into input, organization, output, and self monitoring (Rothernberg, 2005). Children with ADHD may resist by way of aspects of each of these important skills. To successfully navigate the social skills confusion, children have to intelligent in

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DIGITAL EDUCATION

Editor

Ajithkumar C.

DIGITAL EDUCATION

Editor

Ajithkumar C.

Digital education is the growing trends in the field of teaching-learning. In teaching -learning varied technological devices and software applications have been employed for various purposes that supports either teaching and learning. In the case of teaching, subject contents and concepts are delivered to the leaner through various technological means. This may include mobile devices, computers, tablets, iPod, audio-video gadgets, etc. A more advanced stage of utilizing technology in education is making available the whole course through the digital channels. For example, course offered as MOOC (Massive Open Online Course) fall into this category of digital education. Even courses of smaller duration can also be offered as MOOC. Similarly, courses provided through mobile devices that are accessible anytime and anyplace also fit to the domain of digital education. Mobile learning has revolutionized teaching-learning. Thus, with regard to teaching, multiple options are available for providing learning contents. On the other hand, learning utilizing technology and electronic equipment's is termed as digital learning. Of course, digital learning is a subset of digital education and the way the learning is transforming is one of the paradigms shifts in education.

As mentioned above, the teaching-learning scenario has changed a lot and newer technologies are added to the basket of digital education. Today mobiles are very common and latest technologies like virtual/augmented reality are in place and can be exploited in education. Also, in the internet world, numerous open educational resources of varied types are available and those OERs can also be used along with the teaching learning process. Using the digital devices help both the instructor and leaner in multiple ways. In this book, various digital devices/tools have been discussed and the stakeholders of education can make benefit of it as per their local needs.



Mr. Ajithkumar C. is serving as Assistant Professor in the School of Education IGNOU since 2011. He has completed M.Ed. in Science Education (Mahatma Gandhi University, Kerala), M.Sc. Physics & M.Phil. Education (University of Calicut, Kerala) and PGDDE (IGNOU, New Delhi) and qualified UGC-NET in Education. He started career as Higher Secondary Teacher and has 11 years of experience in teaching. He has published research papers and articles in national and international journals. He has also published an edited book titled 'ICT in Education'.

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Areas of Interest: Science Education, Educational Technology, Statistics in Educational Research, Teacher Education and Higher Education.

₹ 295/-

ISBN 978-93-88316-08-8

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An Overview of Multimedia Technology in Mathematics Education

Mr. R. Rajkumar* and Dr. G. Hema**

Abstract

An effective method for teaching and delivering the content in classrooms is with the help of technology like multimedia. Multimedia is the integration of various medias such as text, sound, graphics, animation and video and are powerful tools for knowledge construction and self-assessment. Effective multimedia recognizes that working memory has a limited capacity to process information. Using multiple channels like audio and visuals increases the overall amount of information the brain can process. Generally, texts may be challenging to process, but with the involvement of both the visual and auditory channels makes it easier. It is recognized that long-term memory organizes information into meaningful chunks called schema. Presenting information in a way that makes use of existing organizing structures (schema) or that helps students organize the information can greatly assist the learner in incorporating information into long term memory. Multimedia also encourage students to feel part of a group, to reflect on their feelings and beliefs about mathematics, to expose students to authentic problem solving and generally build confidence through practice and self-assessment. Evaluation of the resources indicates that it encourages students to value their own mathematical ability and helps to build confidence, while developing mathematical problem-solving skills. The evaluation demonstrated that it is possible to address the affective domain through multimedia instructional strategies and this can complement the primary method of delivering mathematical concepts and promoting problem solving in mathematics.

Keywords: Multimedia Technology, Animation, Video, Instructional Design, Problem solving Competence.

INTRODUCTION

The application of multimedia and network technology in higher education is a reform in the field of education in the twenty-first Century. As a kind of new and advanced teaching mode, multimedia teaching is challenging to the traditional teaching mode (Zhao, 2016). Mathematics has been considered as a difficult subject to master by the students at all levels from primary to University. Students who have low aptitude for mathematics typically as result of their own perception on the difficulty of mathematics or students who have been discouraged by the lecturers who are unable to deliver the subject matter due to lack of teaching skills in an eloquent manner will eventually lose interest in mastering mathematics (Shafie, Shahdan, & Liew, 2010). In recent times many scholars have recommended that all courses be redesigned on a national or international scale based on the characteristics of the multimedia environment (Yuliang Liu, 2004; Bork, 1992; Confrey, 1996; Cuoco & Goldenberg, 1996). However, efficient multimedia integration into the current mathematics instruction has yet to be incorporated in the schools and colleges (Neuwirth, 2002; Robertson, 1998).

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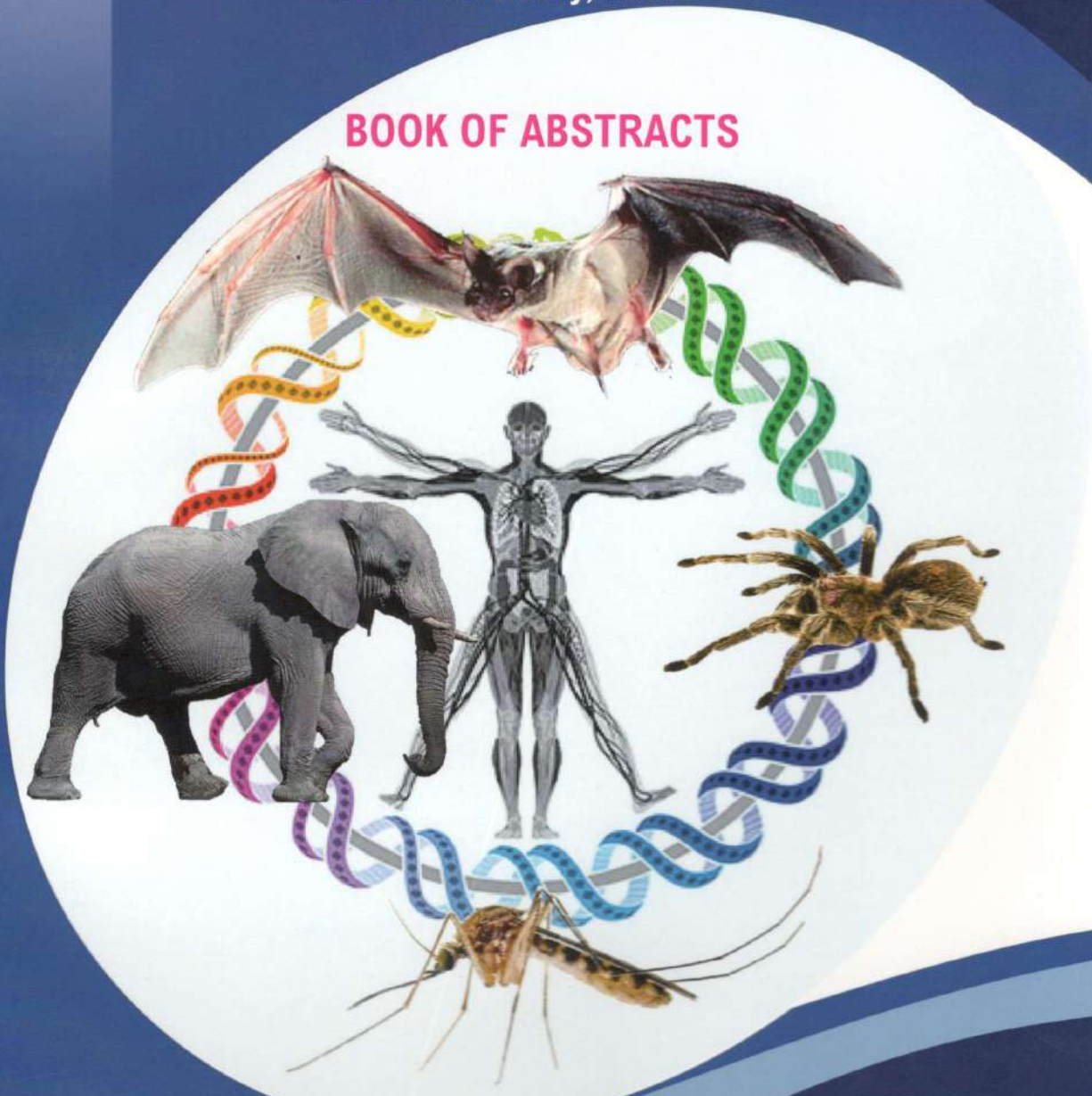
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Int. J. Appl. Comput. Math (2019) 5:21
https://doi.org/10.1007/s40819-019-0605-3

ORIGINAL PAPER

A Stochastic Inventory Model with Two Queues and a Flexible Server

K. Jeganathan[1] · A. Z. Melikov[2] · S. Padmasekaran[3] · S. Jehoashan Kingsly[4] · K. Prasanna Lakshmi[5]

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Abstract
This paper focusses on a perishable inventory model with two stations, namely, station 1 and station 2 with two dedicated servers and one flexible server, where service rates are different with respect to stations and servers. By using matrix analysis method, the joint stationary distribution of the number of customers in station 1 and station 2, the status of the servers and the inventory level under steady state are investigated. Some significant measures of the system performance are obtained. Finally, some intrinsic numerical examples are given.

Keywords Continuous review · (s, Q) policy · Perishable commodity · Heterogeneous servers · Flexible server · Additional service · Balking and multiple vacations

Introduction

In most of the perishable inventory-queueing models, the depletion of inventory is due to the rate of perishability of an item, rate of customer arrival and service rate. Some of the applications for perishable inventory-queueing system can be seen in blood banks, juice extracting industrial units and sustaining milk products in its relevant industries. The queueing-inventory system with service facility was introduced by Sigman and Simchi-Levi [18]. Schwarz et.al [19] discussed an inventory model with service facility and have analyzed the control policies of the type (s, Q), (s, S), $(S-1, S)$ and random reorder inventory policies. Berman and Kim [3] studied a queueing-inventory system with Poisson arrivals, exponential service times and zero lead times. Further, Berman and Sapna [4] discussed the same model with arbitrarily distributed service times. Yadavalli et.al [24] studied a single server retrial queueing-inventory model with two types of customers (high/low priority) in which low

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Published online: 24 January 2019

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Int. J. Appl. Comput. Math
DOI 10.1007/s40819-017-0360-2 ISSN - 2349 - 5103

ORIGINAL PAPER

An $M/E_K/1/N$ Queueing-Inventory System with Two Service Rates Based on Queue Lengths

K. Jeganathan[1] · M. Abdul Reiyas[2] · S. Padmasekaran[3] · K. Lakshmanan[3]

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Abstract The aim of this paper is to investigate a system consisting of a perishable inventory which uses a two-rate service policy following a finite queueing system with a continuous review (s, Q) ordering policy. The service rate is provided to the customers based on the length of the queue. It is assumed that the arrival of a customer into the system follows a Poisson process, the service of an item follows Erlang K phase distribution; the lead time and the life time of an item are both exponentially distributed and balking with the fixed probability is considered. The stationary distribution of the number of customers in the system, server status and the inventory level is obtained by matrix method. The Laplace–Stieltjes transforms of waiting time distribution and nth order moments of waiting time distribution and some important system performance measures in the steady state are derived. Finally, the results of two-rate service policy are illustrated numerically and we studied the convexity of the system which minimizes the total expected cost in the long run.

Keywords Continuous review · Markov process · Perishable commodity · Two service rates · (s, Q) policy · Balking · Erlang K-phases

Introduction

In the earlier studies, research models are based on the economic ordering policy for the items in demand which are stored and issued instantly, if it is available. Harris-wilson [15] was the first person to derive the formula for finding the economic ordering quantity which minimizes the total cost rate under the assumption that demanded items are known and

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Published online: 11 May 2017

ISSN - 2448 - 9883

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CUSTOMER BASED BRAND EQUITY OF SO
- A STUDY WITH REFERENCE TO SALEM

Krishnakumar.K

ABSTRACT

Brand equity is an analytical concept depends upon brand ... and brand knowledge. It also has an empirical relationship ... performance of brand. The present study considers brand loyalty ... brand equity controlling the effects of other common sub-co... awareness, brand knowledge, perceived quality, brand associati... post purchase behaviour. Sample size of the study is 640 respond... Samples are drawn through purposive sampling technique. The data ... questionnaire from the consumers of soft drinks. The results sho... not existed for soft drinks among the customers of Salem District.

Keywords: *Brand association, Brand awareness, Brand equ... Perceived quality, Purchase decision.*

1. INTRODUCTION

Brands are the hearts of most consumer business (Kapferer, 1992). As far as consumers are concerned a brand plays a significant, communicative and informative role. The brand is seen by consumers as a sign of quality and it helps them to make their purchase decision. In the new era of globalized market, brands are the key drivers of economic and market value of a business corporation. Brands are becoming most valuable assets in the changing business scenario due to its tangible and intangible nature. Brands are the basis of customer relationship and it is becoming the most precious asset which a business possesses. It is the wealth generat... connects the corporate ... brand can tie a custom... rational and emotio... loyalty generator ... framework by Keller ... sources of brand equ... identifying what is in the ... through measuring brand ... knowledge is an influenc... identity to a brand among ... Aaker (1996) presented ... framework in his explo... brands. He includes brand ... brand loyalty, perceived ... distinctive brand asso...

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ensions of strong brand. The
provided by Aaker can possibly
knowledge about customers'
to pay for different brands and a
standing of the competitive

LEM STATEMENT

based method is most
convenient for studying
because it is directly linked
behaviour and their
purpose of branding is to
brand among customers by
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es are always having
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of brand. The study
customer based
and to identify the
es attracting the
.

STUDY

from several
accepted methods
are financial

approach, brand extension approach and customer based approach. Each perspective could suggest different parameters and methods to evaluate brand equity. The concept of customer based brand equity has been applied in several product categories in previous researches and produced various kinds of output, but there are very limited research works in the area of fast moving consumer goods. The fast moving consumer goods market is always highly competitive due to the availability of number of alternatives and substitutes. In a highly populated country like India there is a potential market for the fast moving consumer goods. Hence, the researcher has chosen soft drinks in the category of food and beverages. The present study considers brand loyalty as the unique component of brand equity controlling the effects of other *common sub-components such as brand* awareness, brand knowledge, perceived quality, brand association, purchase decision and post purchase behaviour.

4. OBJECTIVES OF THE STUDY

The following are the objectives of the study:

i) To evaluate the product attributes and preferences towards soft drinks; and
ii) To identify the factors influencing customer based brand equity of soft drinks.

5. RESEARCH METHODOLOGY

Both primary and secondary data have been used. A well-structured questionnaire was

used to collect the primary data from the consumers of soft drinks. This questionnaire was tested for its reliability and its *Cronbach's Alpha Co-efficient* was 0.912. So, it is inferred that the questionnaire is highly suitable for the study. The secondary data were collected from the books, journals, magazines and websites. Sample size of the study is 640 respondents in the Salem District. Samples were selected under purposive sampling technique. The data collected from the respondents were analyzed with the help of SPSS. The statistical tools such as percentage analysis, One-sample 't' test, Factor analysis by principal component method and discriminant function analysis has been applied.

6. RESULTS AND DISCUSSION

The first part consists of demographic profile and consumer preference towards soft drinks. The second part vigilantly analyses the consumer-based brand equity with appropriate statistical tools.

6.1 Demographic Factors of the Respondents

Consumers' wants, preferences, and usages rates are often associated with demographic variables (Kotler, 2000). Demographics are easier to measure than any other segmentation variables; they are invariably included in psychographic and socio cultural studies because they add new colour to the findings of the study *(Schiffman and Kanuk, 2000)*.

Table 1: Demographic [illegible] respondents

Gender	**Frequency**
Male	363
Female	277
Total	**640**
Place	
City	136
Urban	295
Semi-urban	68
Rural	141
Total	**640**
Age	
Below 20	23
21 – 25	159
26- 30	124
31- 35	176
36 – 40	81
41 – 45	35
46 – 50	23
51 and above	19
Total	**640**
Marital Status	
Married	425
Unmarried	215
Total	**640**
Educational Qualification	
Up to Hr.Sec	199
Graduate	231
Post Graduate	160
Professional	39
Others	11
Total	**640**
Occupation	
Business	74
Profession	47
Private Employee	209

Source: Primary Data

The above table shows that the demographic details of the respondents. Out of the respondents, 56.7 percent of the respondents are male, 46.1 percent of the respondents residing in Urban areas, 27.5 percent

...respondents are belongs to the age group of ... years, 66.4 percent of the respondents ... married, 36.1 percent of the ... Graduates, 32.7 percent of the ... are private employees, 38.9 ... of the respondents are earns below ... per month and 63.1 percent of the ... are having 4-6 members in their ...

...sumers' Preferences towards Soft ... Drinks

Consumer preference towards soft ... can be understood by various ... such as, brand knowledge, ... attributes, preferred brand of soft ... and span of using particular brand of ... The results of these are presented ...

... One-sample statistics for brand ... knowledge of soft drinks

	Mean	SD	t	Sig.
... very	3.70	1.19	14.98	.000
... very	4.00	.95	26.60	.000
... flavour	3.68	1.05	16.36	.000
...	3.66	.98	17.12	.000
...	3.85	.95	22.62	.000
...	3.50	1.08	11.71	.000

... values of six variables 14.98, ... 17.12, 22.62 and 11.71 are ... significant at *5 percent level of* ... It denotes that the consumers ... in Salem district agreed that the soft drinks are healthy and tasty. They also showed their keen interest on flavour and reduction of thirst. The soft drinks consumers further agreed that, soft drinks provide refreshment and reduce hunger.

Table 3: One-sample statistics for attributes of soft drinks

Variables	Mean	SD	t	Sig.
High carbon dioxide helps for easy digestion	3.81	1.057	19.58	.000
Nutritional contents are very good	3.48	1.155	10.55	.000
It provides strength and energy	3.59	1.120	13.40	.000
It is a very good thirst reducer	3.69	1.054	16.60	.000
Medical grounds accept and recommend soft drinks	3.19	1.247	4.02	.000

The 't' test values of five variables 19.582, 10.558, 13.405, 16.608 and 4.025 are statistically significant at 5 percent level of significance. The customers of Salem district expressed that high corbondioxide helps for easy digestion. Their knowledge over nutritional contents in soft drinks is appreciable. They agreed that it provides strength and energy and it is a very good thirst reducer.

Table 4: Preferred brand of soft drinks

Brand Name	Frequency	Percentage
Coca Cola	48	7.5
Pepsi	58	9.0
Mazza	163	25.5
Sprite	81	12.7
Fanta	133	20.8
Slice	90	14.0
Any Other	67	10.5
Total	**640**	**100**

Source: Primary Data

From the above table it is explored that 7.5 % of the respondents' preference is *Coca Cola, 9% of the respondents'* choice is Pepsi,

25.5% of the respondents like Mazza, 12.7% of the respondents prefer Sprite, 20.8 % of the respondents' choice is Fanta, 14% of the respondents are using Slice and 10.5% of the respondents' preference is any other. Thus Mazza is the most likable brand of soft drink among the customers.

Table 5: Span of using particular brand of soft drinks

Years	Frequency	Percentage
Less than 3	229	35.8
3 – 5	122	19.1
5 – 7	146	22.8
More than 7	143	22.3
Total	**640**	**100**

Source: Primary Data

From the above table it is found that a maximum of 35.8% of the respondents are

consuming
3 years.
drinking
are drinking
22.3% of
brand more
that
variety and
particular brand

6.3 Factors Influencing Brand Equity

Factor analysis with
method is applied to
factors influence in
results of factors

Table 6: Factors influencing customer based brand

Dimensions	Variables / Factors	Factors Loadings
Brand Awareness	**Factor 1: Trait Factors**	
	Appearance of the product creates impact on consumers' awareness	.774
	Brand recognition of the soft drink is due to its performance	.694
	Factor 2: Promotional Awareness	
	I have thorough knowledge of other brands	.836
	I am very much aware about the free gifts and sales offers of the soft drink brands	.672
	Factor 3: Steadfast Recall	
	My soft drink brand is fixed in my mind	.865
	Due to my previous knowledge about soft drink I am able to differentiate the brands	.651
	Factor 4: Proximity	
	My brand of soft drink is available in all areas	.809
Perceived *Quality*	**Factor 1:*Rudimentary Perception***	
	I am satisfied with the quality of the brand	.867
	The ingredients of the brand are good	.658
	Factor 2: Service Orientation	
	The performance of the brand satisfies me	.856
	The quantity of the brand is appreciable	.652

Variables / Factors	Factors Loadings	Eigen value	% variation
Factor 1: Consistency			
More association is due to the utility of the brand	.739	1.560	31.202
The information provided by the manufacturers of soft drink that I use is very consistent and relevant	.734		
My soft drink brand is fixed in my mind	.655		
Factor 2: Memory Recall			
Ads and other promotional activities of soft drink brands which I use very much attracts and impress me	.820	1.506	30.126
So many memorable things are associated with the soft drink brands that I use	.754		
Factor 1: Assortment Decisions			
Price must be proportioned to the quality	.807	3.197	31.966
Particular brands should serve the purpose	.801		
Factor 2: Popular Attraction			
Manufacturer's name and reputation are very important to me	.701	2.321	23.215
Availability is important for my purchase decision	.695		
Factor 1: Constancy			
I am satisfied with the use of my brand	.789	2.693	12.241
I don't want to switch over to other brands if my brand is not available	.717		
Factor 2: Admiration			
I am always in favour of buying brand	.817	2.649	12.043
I don't miss this brand at any cost	.745		
Factor 3: Brand Affinity			
I feel addiction towards the selected brands of each type of soft drink	.840	2.507	11.395
I feel disloyal if I buy other brands of soft drink	.733		
Factor 4: Brand Realization			
I want other to realize the name of the brand	.551	2.439	11.087
I like to have discussion on the brand which I use to others	.740		
Factor 5: Market Bonding			
The selected brands of each soft drink are meant for people like me	.592	2.401	10.914
I have enjoyed using the selected brands of soft drink on various occasions	.673		
I have deep attachment for the brand and the manufacturer of soft drinks	.669		
Factor 6: Rigid Approach			
I feel the brand which I use has no alternative	.719	1.906	8.665
The brand which I use is toppest one	.644		
Factor 7: Customer Acquaintance			
I am happy with the people who use my favourite brand of soft drinks	.921	1.202	5.462

Brand Awareness: Factor analysis by principal component method with varimax rotation has revealed four eigen values as 2.041, 1.821, 1.641 and 1.564. This indicated that the eigen values are greater than 1led to the existence of four major factors with 64.23% of variance. The variable loadings have identified four factors of brand awareness such as Trait Factors, Promotional Awareness, Steadfast Recall and Proximity.

Perceived Quality: Factor analysis by principal component method with varimax rotation has revealed two eigen values as 3.343 and 2.480. This indicated that the eigen values are greater than 1led to the existence of two major factors with 64.70% of variance. The variable loadings have identified two factors of perceived quality such as Rudimentary Perception and Service Orientation.

Brand Association: Factor analysis by principal component method with varimax rotation has revealed two eigen values as 1.560 and 1.506. This indicated that the eigen values are greater than 1led to the existence of two major factors with 61.328% of variance. The variable loadings have identified two factors of perceived quality such as Consistency and Memory Recall.

Purchase Decision: Factor analysis by principal component method with varimax rotation has revealed two eigen values as 3.197 and 2.321. This indicated that the eigen values are greater than existence of two major of variance. The identified two factors such as Assortment Attraction.

Post Purchase Behaviour: by principal component varimax rotation has values as 2.693, 2.649, 1.906, and 1.202. eigen values are greater than existence of seven major 71.807% of variance. The have identified seven factors purchase behaviour such as Admiration, Brand Affinity, Realization, Market Bonding, Approach and Customer Retention.

6.4 Identification of Crucial Elements of Brand Equity

The brand loyalty cluster groups elements as mentioned above as an independent variable in the analysis to its formulation as an independent variable. The 17 elements of brand equity considered as a dependent variable in the context of performing a discriminant analysis. This analysis grouping the crucial variables and groups building the brand loyalty among customers of Soft Drinks. The stepwise Discriminant analysis presented in the following manner:

Tests of equality of group means
elements of brand equity

	Wilks Lambda	F	df1	df2	Sig.
	.536	275.39	2	637	.000
	.770	95.28	2	637	.000
	.875	45.34	2	637	.000
	.871	47.13	2	637	.000
	.335	632.17	2	637	.000
	.639	179.56	2	637	.000
	.732	116.87	2	637	.000
	.911	30.96	2	637	.000
	.447	394.37	2	637	.000
	.750	117.78	2	637	.000
	.603	209.63	2	637	.000
	.507	297.81	2	637	.000
	.768	96.11	2	637	.000
	.656	166.96	2	637	.000
	.425	430.17	2	637	.000
	.700	212.96	2	637	.000
	.402	341.74	2	637	.000

able it is found that all the
brand equity perfectly
customers of Soft Drinks to
nature of loyalty towards the
values of trait factors (275.39),
awareness (95.28), steadfast
proximity (47.13),
perception (632.17), service
consistency (116.87),
assortment decision
attraction (117.78),
admiration (297.81),
brand realization
bonding (430.17), rigid
and customer
acquaintance (341.74) are statistically significant at 5% level of significance.

6.5 Brand Equity of Soft Drinks

As for as the soft drink is concerned, the number of years used is considered as independent variable in performing stepwise descriminant analysis. The other dependent variables considered are brand loyalty and 17 factors of brand equity. The application of stepwise discriminant analysis has given the following results.

Table 8: Tests of equality of group means of soft drinks

Factors	Wilks Lambda	F	df1	df2	Sig.
Trait factors	.998	.373	3	636	.772
Promotional awareness	.996	.931	3	636	.425
Steadfast recall	.997	.531	3	636	.661
Proximity	.996	.879	3	636	.452
Rudimentary perception	.999	.292	3	636	.831
Service orientation	.996	.833	3	636	.476
Consistency	.995	1.032	3	636	.378
Memory recall	.997	.542	3	636	.653
Assortment decision	.995	1.151	3	636	.328
Popular attraction	.986	2.930	3	636	.033
Constancy	.997	.577	3	636	.630
Admiration	.997	.657	3	636	.579
Brand affinity	.998	.422	3	636	.737
Brand realization	.999	.161	3	636	.923
Market bonding	.995	1.068	3	636	.362
Rigid approach	.998	.488	3	636	.691
Customer acquaintance	.996	.857	3	636	.463
Over all	.999	.202	3	636	.895

From the above table it is explored that all the 17 factors of brand equity influenced in deciding the remaining 36.12% of brand equity. The frequent introduction of new varieties of soft drinks continuously dissipates the concentration of customers of soft drinks. It creates wide scale oscillation among the minds of customers because in the present marketing scenario the consumer posses more brand awareness.

It is concluded that the brand equity of soft drink is realized by the customers by all the 17 factors of brand equity. It denotes that due to enormous varieties and the customer's variety seeking nature in soft drinks may cause for any particular factor not involved in building brand equity.

7. CONCLUSION

The Customer Based Brand Equity of FMCG is built by the basic fundamental *building blocks of brand* awareness, brand knowledge, perceived quality, brand association, purchase decision and post purchase behaviour. But the customer based brand equity is sequentially directly built by the formation of brand loyalty also. The outgrowth of brand loyalty emerges in the form of customer based brand equity as a marketing transformation of awareness, knowledge, quality, association, purchase decision and post purchase behaviour. The predominant factors of these elements bring out the elementary regulations in the process of customer perceptions, attitudes and their level of satisfaction of FMCG. As far as soft drinks are concerned, it was [illegible] the factors leading to [illegible] stimulating customer [illegible] Since the customers are [illegible] another brand in the case of [illegible] brand is not available in the [illegible] particular shop where they [illegible] denotes no loyalty. Therefore, it [illegible] that the customers of soft drinks [illegible] to their brand.

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New Horizons of Librarianship in Knowledge Society

Editors

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Today & Tomorrow's Printers and Publishers
4436/7, Ansari Road, Daryaganj, New Delhi - 110 002
Ph : 23242621; 23241021; Fax 23242621;
E-mail: ttpp@vsnl.net, ttppindia@gmail.com
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ISBN 81-7019-589-2 (India)

Published by
Today and Tomorrow's Printers and Publishers
4436/7, Ansari Road, Daryaganj, New Delhi - 110 002 (India)
Ph : 23242621; 23241021; Fax 23242621;

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New Horizons of Librarianship in Knowledge Society (2017) : 97-111
Editors : Amit Kumar and Vinod Kumar Singh
Today & Tomorrow's Printers and Publishers, New Delhi - 110 002

Internet Use Pattern among the Students of Periyar University: A Study

Dr. E.S. Kavitha

Abstract

In this present scenario, internet plays a major role for to dissemination of information. This paper focused on the internet use pattern among the students of Periyar University. The study indicated that more than 90% of the respondents were accessing internet below the age group 25. Around 36% of the respondents were using a desktop device compared with other devices such as Laptop, Smartphone, and Tablet. The majority of the respondents were using google search engine and google chrome browser. Around 65% of the respondents were accessing the internet by daily, and 35% of the respondents for the purpose of accessing the internet to update the knowledge. The Majority of the respondents were facing slow process is a major problem while accessing the internet. More than half of the respondents were satisfied with using the internet. Three respondents from out of ten extremely aware with using SNS.

Keywords: Internet; Periyar University; Web Browser; Search Engine and SNS

1. Introduction

The foundation of the internet was laid in 1969 by the Department of Defense (DOD) of the United States of America. In the present scenario computers have played an outstanding role in everyday life with the growth in popularity and networking of computers. It can easily to inter Co communication between different computers, which leads to evaluation of the internet. With the growth of the internet, the quality, quantity, and variety of information also developed. Today internet is a complete repository of every system of

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- Four out of ten respondents were satisfied with usefulness of internet. Two out of ten respondents were highly satisfied with usefulness of internet.
- One third of the respondents were extremely and moderately aware with social networking sites. It is clearly noticed that every respondent was aware of social networking sites.

9. Conclusion

The study showed that the use of the internet has created a great impact upon college library users for their academic, classroom teaching, assignment and research. It is clear from the study of the younger generation has accepted the internet as a means for accessing to the relevant information for academic and research works, whereas the elderly people are still conversant with traditional resources who are using printed resources available in library, but the volume of frequent usage of e-resources.

This study helps to improve the facilities and services to internet for access to various internet resources/ online access/ web-resources. Periyar university postgraduate students are use the internet for keep them up-to date on the subject of internet. The most students used the internet for, as they are loaded with assignments and learning on their own in the present day competitive academic environment, it is also a major reason of using internet by them. The internet has attracted the attention of the students as an easy source of accessing information. Most of them access internet on at least once in a week.

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Social Responsibility of Educational Institutions in Developing Countries



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Price : Rs.900/-

ISBN 978-93-87593-91-6
9 789387 593916

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Paper presented in the ICSEDC 2018
ISBN: 978-93-87593-91-6, August 2018, pp. 196-198
© TBSRF,www.tbsrf.org/icsedc

A Study on Attention, Cognition and Performance through Motivation

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Abstract - **This paper discusses about the perspective challenges this assumption and in doing so casts motivation in a much more interesting light. In place of the view of motivation as a simple amount of caring, it proposes that there are qualitatively different motivational frameworks, driven by people's beliefs and goals, that affect basic attention and cognitive processes. By doing so, these motivational frameworks can substantially change intellectual performance even among individuals who care very much about succeeding. Interestingly, the incremental theorists' grade advantage was mediated partially through their learning goals and partially through their greater belief in the efficacy of effort, both of which led to more vigorous, mastery oriented strategies in the face of difficulty.**

Keywords: **Motivation, Intellectual Performance, Cognitive Processes, Cognitive Creativity, Mastery Oriented, Divergent Thinking**

I. INTRODUCTION

"Education is not preparation for life, education is life itself"

Cognitive psychology formulation, motivation is not a theoretically interesting or important variable. The assumption typically made is that motivation simply involves caring about a task or wanting a successful task outcome and that once individuals care about the task they will display the cognitive processes (and hence the intellectual performance) of which they are capable. In this view, motivation is a quantity that people have in varying degrees and, if they have enough of it, their intellectual performance will fully reflect their cognitive abilities.

The motivational beliefs and goals people hold affect their attentional processes, cognitive strategies, and intellectual performance, particularly in the face of challenge and setbacks. The evidence from laboratory studies (including electrophysiological studies), field studies, and educational interventions, hope to demonstrate the powerful effects of these motivational variables, their dynamic and malleable nature, and the striking changes in performance that can result from brief, but targeted interventions.

II. MOTIVATIONAL EFFECTS ON ATTENTION, COGNITION AND PERFORMANCE BELIEFS AND GOALS THAT AFFECT PERFORMANCE

Carol S. Dweck Jennifer A. Mangels Catherine has examined the impact of two classes of goals (performance goals vs. learning goals) and of the beliefs that give rise examined the impact of two classes of goals.

A performance goal is the goal of validating one's ability through one's performance, that is, the goal of looking smart and not dumb. In contrast a learning goal is the goal of increasing one's ability, that is, the goal of getting smarter. These goals create very different mindsets, which have seen, many ramifications. Although both goals can be important in achievement settings, some students are overly concerned with performance goals, while others focus predominantly on learning goals. It might be having found that students' theories about their intelligence orient them toward one class of goals or the other (see Dweck, 1999; Dweck & Leggett, 1988). When students believe that their intelligence is a fixed trait (an entity theory of intelligence), it becomes critical to for them to validate their fixed ability through their performance

Performance goals are sometimes defined as competitive goals (wanting to outdo others) or as simply seeking successful outcomes (such as high grades). Have not found these other goals to create the same vulnerabilities as the performance goal of validating ability (Grant & Dweck, 2003; Harackiewicz & Elliot, 1993; Kanfer & Ackerman, 2000). The term performance goals refer to the goal of validating ability through performance.

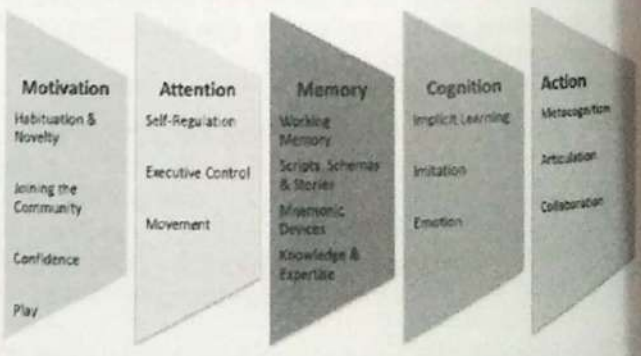


Fig. 1 Motivational Effects on Attention, Cognition and Performance Beliefs

III. MOTIVATIONAL EFFECTS ON ACADEMIC PERFORMANCE

In studies, the students making the often-difficult transition to junior high school were followed (Dweck & Sorich,

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Proceedings of the National Conference on Make in India Mission - A Management Perspective, Sree Saraswathi Thyagaraja College, Pollachi, T.N., 23rd January 2015, pp.200-204

Leading the Way; South is Safer for Women to Work

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INTRODUCTION

The domestic life of women has undergone a sea change by the breakup of the joint family system and other socio-economic factors. This has resulted into many changes in the Indian employee engagement strategies; a major one is the increased participation of women in the Indian industry. Though women are not new to the textile mills, their employment was confined only to one or two departments, viz., reeling, and winding. The recent scenario is different. In the newly started textile mills women are widely employed in almost all the departments and in all the three shifts, round clock almost throughout the year. Being labour intensive, the textile mills of the country, like any other business or industry, was pushed to face stiff challenges of human resources. The welfare of the workers on the one hand and the productivity issues on the other, mills across has now started looking at women workers. The textile mills and garment units situated in South India, particularly Tamil Nadu employ more women than any other textile regions in India.

PROBLEM

As per Factories Act 1948 (Sec. 66), no women is to be required or allowed to work in any factory between 7 PM and 6 AM. With certain stipulated conditions, in writing, the factory inspectorate permits such factories to engage women between 7 PM and 10 PM only. In such case, mills were employing male workers in the night shifts i.e., between 10 PM and 6 AM. This pattern has resulted into absenteeism, social problems, and lot of grievances. As Madras High Court showed green signals to deploy women in the night shifts also under certain guidelines, textile mills, especially in and around Coimbatore district started deployment women workers in the night shifts also. Do the women are comfortable in working in night shifts? Is it working in night shift is a Nightmare for them. This article tries to throw some lime light on this argument.

A very important facet in the jobs of many industries is the night shift. Through most companies have introduced various facilities required to fulfill women professionals' requirements, there are many unique difficulties that arise for women working in night shifts. In fact, some issues like sexual harassment, unsafe nature and constraints on family-care become so critical that many women denounce the idea of night shifts altogether. This article brings about certain aspects stipulated by court law to make the women to work safely and securely.

BACK DROP OF THIS ISSUE

The real threat of working in night shifts lies in possibilities of sexual harassment. Pre-1997 the women facing Sexual Harassment at workplace had to lodge a complaint under Section 354 of the Indian Penal Code 1860, which deals with the 'criminal assault of women to outrage women's modesty', and Section 509 that punishes an individual/individuals for using a 'word, gesture or act intended to insult the modesty of a woman

During the 1990s, Rajasthan state government employee (Bhanwari Devi), who tried to prevent child marriage as part of her duties as a worker of the Women Development Programme was raped by the landlords of the community. The feudal patriarchs who were enraged by her (in their words: "a lowly woman from a poor and potter community") 'guts' decided to teach her a lesson and raped her repeatedly. The rape survivor did not get justice from Rajasthan High Court and the rapists were allowed to go free. This enraged a women's rights group called 'Vishaka' that filed a Public Interest Litigation (PLI) in the Supreme Court of India.

This case brought to the attention of the Supreme Court of India, "the absence of domestic law occupying the field, to formulate effective measures to check the evil of sexual harassment of working women at all work places."

In 1997, the Supreme Court passed a historic and landmark judgment in the Vishaka case laying down guidelines to be followed by establishments in dealing with complaints about sexual harassment. Vishaka Guidelines were stipulated by the Supreme Court of India, in Vishaka and others Vs State of Rajasthan case in 1997, regarding sexual harassment at workplace. The court stated that these guidelines were to be implemented until legislation is passed to deal with the issue.

The court decided that the consideration of "International Conventions and norms are significant for the purpose of interpretation of the guarantee of gender equality, right to

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work with human dignity in Articles 14, 15 19 (1) (g) and 21 of the Constitution and the safeguards against sexual harassment implicit therein.

WHAT IS SEXUAL HARASSMENT?

Sexual harassment includes such unwelcome sexually determined behaviour (whether directly or by implication) as:

a) Physical contact and advances;

b) A demand or request for sexual favours;

c) Sexually coloured remarks;

d) Showing pornography,

e) Any other unwelcome physical verbal or non-verbal conduct of sexual nature. and

f) Any promise to do undue favours at work

Where any of these acts is committed in circumstances where the victim has a reasonable apprehension that in relation to the victim's employment or work whether she is drawing salary, or honorarium or voluntary, whether in government, public or private enterprise such conduct can be humiliating and may constitute a health and safety problem.

It is discriminatory for instance when the woman has reasonable grounds to believe that her objection would disadvantage her in connection with her employment or work including recruiting or promotion or when it creates a hostile work environment.

Adverse consequences might be visited if the victim does not consent to the conduct in question or raises any objection thereto.

Thus, sexual harassment need not involve physical contact. Any act that creates a hostile work environment - be it by virtue of cracking lewd jokes, verbal abuse, circulating lewd rumours etc. counts as sexual harassment.

The creation of a hostile work environment through unwelcome physical verbal or non-verbal conduct of sexual nature may consist not of a single act but of a pattern of behaviour comprising many such acts.

Thus, it is important that the victim report such behaviour as soon as possible and not wait for it to become worse. In some cases, the psychological stigma of reporting the conduct of a co-worker might require a great deal of courage on the part of the victim and they may report such acts after a long period of time. The guidelines suggest that the complaint mechanism should ensure time bound treatment of complaints, but they do not suggest that a report can only be made within a short period of time since the incident occurred.

Often, the police refuse to lodge FIRs for sexual harassment cases, especially where the harassment occurred sometime ago.

EMPLOYERS' OBLIGATION

Internal Complaints Committee and Local Complaints Committee— The Sexual Harassment Act requires an employer to set up an 'Internal Complaints Committee' (ICC) at each office or branch, of an organization employing at least 10 employees.

The government is in turn required to set up a 'Local Complaints Committees' ("LCC") at the district level to investigate complaints regarding sexual harassment from establishments where the ICC has not been constituted on account of the establishment having less than 10 employees or if the complaint is against the employer.

The Sexual Harassment Act 2013 also sets out the constitution of the committees, process to be followed for making a complaint and inquiring into the complaint in a time bound manner.

Interim Reliefs— The Sexual Harassment Act empowers the ICC and the LCC to recommend to the employer, at the request of the aggrieved employee, interim measures such as (i) transfer of the aggrieved woman or the respondent to any other workplace; or (ii) granting leave to the aggrieved woman up to a period of 3 months in addition to her regular statutory/ contractual leave entitlement.

In addition to ensuring compliance with the other provisions stipulated, the Sexual Harassment Act casts certain obligations upon the employer to, inter alia,

- Provide a safe working environment
- Display conspicuously at the workplace, the penal consequences of indulging in acts that may constitute sexual harassment and the composition of the Internal Complaints Committee
- Organize workshops and awareness programmes at regular intervals for sensitizing employees on the issues and implications of workplace sexual harassment and organizing orientation programmes for members of the Internal Complaints Committee
- Treat sexual harassment as a misconduct under the service rules and initiate action for misconduct, and
- The employer is also required to monitor the timely submission of reports by the ICC.

If an employer fails to constitute an Internal Complaints Committee or does not comply with any provisions contained therein, the Sexual Harassment Act prescribes a monetary penalty of up to Rs.50,000. A repetition of the same offence could result in the punishment being

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doubled and / or de-registration of the entity or revocation of any statutory business licenses.

All women who draw a regular salary, receive an honorarium, or work in a voluntary capacity in the government, private sector or unorganised sector come under the purview of these guidelines.

COMPLIANT MECHANISM

- All workplaces should have an appropriate complaints mechanism with a complaints committee, special counselor or other support services.
- A woman must head the complaints committee and no less than half its members should be women.
- The committee should include an NGO / individual familiar with the issue of sexual harassment.
- The complaints procedure must be time-bound.
- Confidentiality must be maintained.
- Complainants / witnesses should not experience victimization / discrimination during the process.

PREVENTIVE STEPS

- Sexual harassment should be affirmatively discussed at workers' meetings, employer-employee meetings, etc.
- Guidelines should be prominently displayed to create awareness about the rights of female employees.
- The employer should assist persons affected in cases of sexual harassment by outsiders.
- Central and state governments must adopt measures, including legislation, to ensure that private employers also observe the guidelines.
- Names and contact numbers of members of the complaints committee must be prominently displayed.

THE PRESENT SCENARIO

Keuuri Singh, VHR, Blue Star Infotech tells us the various problems faced by women working in night shifts, "Women working in night shifts faces multiple challenges. Safety in terms of commuting to and fro from office and a safe working environment are the major concerns as of now. For married women, especially those with children, their family life gets completely disrupted; especially if both the spouses have different working hours.

Some of the steps that can be taken help these women are recited by Neelam Gill Malhothra, Vice President, HR.CSC India. "We at CSC take pride in our women-centric initiatives. Our gender diversity initiatives are recognized by NASSCOM as some of the best in the industry:

Telecommuting (flexi-hours, work-from-home, etc) can do wonders in helping employees strike a balance between their personal and professional commitments; Our sabbatical policy helps new mothers avail additional time-off to meet child-care needs and here too,. we expending telecommuting support; A robust transport system in place to ensure that women employees have a safe commute and fro from work is also essential'.

How do companies ensure that there is no compromise in the area of safety? Rajesh Padmanabhan, Head-HR, Copgemini India, answers, "Ensuring that there are company cabs to drop employees at their residence; having a security guard present in each cab; a thorough background verification check of the cab drivers are some of the mandatory requirements, GPS trackers have added enhanced security measures. It is important to be vigilant and continually evolve from time-to-time'. Manual D'Souza, Chief HR Officer, Serco Global Services elaborates, " the hesitancy of women working in night shifts is mainly the outcome of the societal apprehensions.. It is not considered appropriate for women to work during night shift is mainly the outcome of the societal apprehensions. It is not considered appropriate for women working in night shifts. Like any of their male counterparts, women would not want step back if they see a good opportunity waiting on their career path and give equal competence to it. However, the dynamics are changing now and then. As employees ensure that employers ensure that employee safety is critical, appropriate measures are taken to undergo the concern points".

N Chandramouli, CEO, Comniscient Group summarizes," Women are already burdened with the task of maintain the challenge of work-life balance and more often than not, end up doing much more than men do at home. The situation has to be dealt on a case-to-case basis as many women may have different circumstances and choices and it is the duty of the HR managers to ensure that all these factors are considered in conjunction with the women who are working in late shifts'.

Ms.Nandita Gurjar, Senior Vice President and Group Head-HR, Infosys Technologies Ltd., one of the largest IT companies in India with 12,000 employees and global foot print with operation across 30 countries and 72 cities opines that there are several challenges for working women which include need of flexi timings, variance in work life balance, curbs in working from home, issues of sexual harassment, absence of special support for women with infants etc.,

HIGH COURT GUIDELINES ON NIGHT SHIFT WORK FOR WOMEN WORKERS

In Vasantha Vs Union of India case the honorable Madras High Court pronounced an historic judgment with specific guidelines on deployment of women workers in night

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shifts between 10 PM and 6 AM. After lots of discussion and consultation, the Hon. court decided and made it clear that women cannot be excluded from employment during night shifts when they are being employed in the same establishment during the two days shifts and denial of employment on the sole ground of sex is violence, discriminatory and therefore unconstitutional. Factories Act 1948, under its section 66 (i) (b) prohibit any employer to deploy women workers between 7 PM and 6 AM, the next day. Under certain regulations, like transportation, safety and security of women workers, the Chief Inspector of Factories may exempt this rule and permit the employer to employ women workers up to 10 PM for a prescribed period of time, in writing. As a result of this in creditable judgment the court stroke down Section 66 (i) (b) and declared the said section as unconstitutional and violative of Article 14, 15 and 16 of the Indian Constitution.

While pronouncing the judgment, Justice E.Padmanabhan had also outlined certain guidelines and welfare measures which are to be necessarily complied with during deployment of women between 10 PM and 6 AM.. Those are;

- It shall be the duty of the employer or other responsible persons at the work places or institutions to prevent or deter the commission of acts of sexual harassment and to provide the procedures for the resolutions, statement or prosecution of acts of sexual harassment by taking all steps required,
- The rules and regulations shall be framed by the factory managements relating to conduct and discipline prohibiting sexual harassment and provide for appropriate penalties against the offenders without delay,
- The management should provide appropriate working conditions in respect of work, leisure, health and hygiene to ensure that no hostile environment towards women at work place,
- By way of constituting a Complaints Committee, along with representation of all interested parties in the factory, the employer shall maintain a fool-proof complaint redressal mechanism in the factory itself and said mechanism should ensure time-bound redressal of complaints,
- Complaint Committee should be headed by a women and not less than half of its members should be women, besides a nongovernmental representative in the Committee, who must familiar with the issues of sexual harassment
- The female employees should be allowed to raise issues of sexual harassment in the in Workers Meeting and other appropriate forums,
- The females employees should be made aware their rights, privileges prerogatives by prominently notifying the guidelines on sexual harassment,
- The appropriate authority of the factory or institution should always assist and safe guard the aggrieved individual in terms of support and preventive actions,
- The employer shall provide proper lighting not only inside but also surroundings of the factory and all places where female workers may move out of necessity in the course of their work,
- The employer shall ensure that the women workers are employed in batches, not less than ten per batch,
- Sufficient number of work shed shall be provided for the women workers to arrive in advance and also leave after the working hours,
- Sufficient women security / lady guards shall be provided during the night at the entry point, exit point and in floor areas where women workers are engaged,
- Separate Canteen facility shall be provided for the women workers,
- Separate and exclusive transportation facility shall be provided by the Occupier or the Manager of the Factory,
- Apart from the facilities to be provided under the Factories Act 1948, an additional holiday shall be provided for the women workers during their menstruation period, which shall be a paid holiday for the night shifts,
- The factory should provide appropriate medical facilities which shall be made readily available at the time of urgency by providing telephone connection, where 100 or more women are employed,
- The employer should provide a separate vehicle to meet the emergency requirements such as hospitalization,
- Wherever the factory provides boarding and lodging facilities for female workers, the same should be kept exclusively for women alone which should managed by women wardens, women caretakers and supervisors,
- During the night shifts, not less than $1/3^{rd}$ of strength of the supervisors or shift in charge or foreman or other supervisory staff shall be women,
- The special shall appoint not less than two female wardens per night shift who shall go around and work as Special Welfare Assistants,
- The female workers who work in night shifts and regular general shifts shall have regular monthly meeting through their representatives with the principal employer once in eight weeks as grievance day and the employer shall comply with all just and reasonable grievance,

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- The employer shall send a fortnightly reports to the jurisdictional Inspector of Factories about the details of women employees engaged during night shifts and also send local police stations as well,
- The employer shall be at liberty to employ female workers as a whole or in part during night shift, provided the above guidelines are strictly complied with, and
- The jurisdictional Factory Inspectorate authorities and the Labour Officers shall make periodical visits to industries and institutions in order strictly enforce the above directions.

SOUTH LEADING THE WAY!!

Table 1: Complaints of sexual harassment at workplaces reported to NCW

State	*2010*	*2011*	*2012*	*2013*	*Total*
Karnataka	2	3	1	3	9
Andhra Pradesh	1	3	0	1	5
Tamilnadu	0	1	1	1	3
Kerala	0	0	1	1	2

Table 2: Worst Four

Utter Pradesh	23	20	41	34	118
Delhi	25	23	15	36	99
Rajasthan	5	14	13	10	42
Madhya Pradesh	10	10	9	9	28

Thanks to all these rules and regulation which ultimately accommodates south in general, Tamilnadu in particular, to lead the way for safer workplace for women. The National Commission for Women (NCW) has recorded roughly 115 complaints by women on sexual harassment at the work place every year between January 2010 and December 2013. The only silver lining is that work places in South India recorded very few complaints. *(Times India - 15th Feb '14)*

CONCLUSION

Now we are living in an era wherein women working with judges of Supreme Courts and editor of well known print media were subjected to sexual harassment. With so much sexual misconduct all around, it is worth mentioning that education, knowledge, awareness of moral values must be given by families, schools, universities and even at office levels. People must be made to understand from the very beginning about their moral duties towards society, their inner conscience. Awareness of deeds and their repercussions in life has to be done to curtail wrongful acts. For improving things around and to curb crimes, improve moral values and to impose fear from committing such sins has to be imbibed.

Many organizations are now started focusing on making their workplaces more facilitative with better, improved services, which helped the employees to provide a healthy and conducive environment to work in. Women today demand well-organized offices and such organizations alone catch the fancy of these new-age modern female professionals. To avail their efforts to the maximum possible extent, the employers shall make every effort to strictly comply the above-cited high court guidelines in its true letter and spirits. As such, one can articulate that the present conditions are comparatively safer for women to work willingly and safely.

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EDUCATION FOR SLOW LEARNERS

(UGC-SAP-DRS-II SPONSORED INTERNATIONAL CONFERENCE)

February 24th & 25th 2017

CONFERENCE COMPENDIUM

ANNAMALAI UNIVERSITY

(Accredited with 'A' Grade by NAAC)

DEPARTMENT OF EDUCATION

(UGC-SAP-DRS – II Approved Department)

ISBN 978-93-81236-33-8

DEPARTMENT OF EDUCATION

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SLOW LEARNING: CAUSES AND NEED SUPPORT

G. Devendiran, *Research Scholar (RGNF)*
Dr. G. Hema, *Assistant Professor, Department of Education, Periyar University, Salem-11.*

Learning is an innate urge of every humanbeing. It is a dynamic processirrespective of thedisability one has. It depends mainly upon theenvironmental stimulation, the opportunities andguidance one is able to receive. The process oflearning goes on whether the formal schoolingtakes place or not. But the speed and range of learning are different between one category ofchildren and another.Slow learners usually require some levels ofadditional support to be successful. This paper focuses characteristics of slow learners, their challenges and how to overcome these issues through proper education.

Keywords: Disability, Stimulation and Formal School.

SLOW LEARNING CAUSES, PROBLEMS AND SLOUTIONS

Diana Dipti, *Ph.d Scholar(regular),* **Dr. R. Babu,** *Professor and Dean*
Department Of Education, Annamalai University

School is one of the beautiful and brightest days of a child but at times this is not the reality for every child especially the slow learners. Slow learners are burden for a school and for parents at times .Sitting alone in the garden, no playmates, dying slowly and slowly asking for the help but everyone ignores because am an slow learner. This is a burning issue being faced by the schools, administration, teachers and the educators. A child may be a slow learner for various reasons including: heredity, inadequate brain development due to lack of stimulation, low motivation ,attention, problems, different cultural backgrounds from that which dominates in the school or distracting personal problems. If you have told a child a thousand times and he still doesn't understand then it is not the child, who is slow learner (Walter Barbee) . It is true teachers most of times do lack in the child psychology where less efforts of initiation and encouragement is seen from the teachers. Even their frequencies of teaching strategies do decrease with course of time of employment. The status varies from Govt. School to Govt. Aided and lastly the Private schools. The children's have an bad impact on their career and nature. If the teacher is not creative, bound of knowledge, love and care. This causes a poor behaviour modification and affects the personality of child. In this section we shall see the causes, problems and solutions for the slow learners. We need to join our hearts and hands together work unconditionally for the slow learners as every child has a difficult learning style and pace. Each child is unique not capable of learning but also capable of succeeding.

Key Words: Slow learners, School, Teaching strategies, Teacher, Classrooms, Guidance and counselling, Child psychology.



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The learning and behavioral problems of slow learners should be handled on two levels, intellectually and emotionally. The teachers have the prime duty to help them because the ratio of the learners in classroom is more than the gifted child. In other words, teachers must deal with them using their brains and hearts. With proper methods, techniques and strategies slow learners can be motivated to produce good work and develop a positive attitude towards classroom behavior and learning.

Keywords: Slow learners, teachers support, parents comfort, interventions

SLOW LEARNING CAUSES , PROBLEMS, AND SOLUTION.

A. Raja, *Master of Education, Department of Education, Annamalai University, Annamalai Nagar*

Historically the term slow learners is relatively a new term being used for the type of learners traditionally known as backward pupils in schools. It was evolved and carried by the American educational psychologists for being used to a group of less able students with IQ between 70-85. The students of this group are not considered eligible for receiving special education During the last several years there has been increased interest in the education of slow learners, otherwise known as backward pupils in school. In India, we make use of the term 'Slow learners' as an umbrella term covering fairly large group of students whose rate of learning is slowed down by one or more factors of which, limited ability may be the one. The common factor with all pupils seen was some measure of educational retardation. Slow learners are described by their specific academic weakness.

WAYS OF IMPROVING LEARNING MATHEMATICS FOR SLOW LEARNERS IN CLASSROOM

R. Rajkumar, *Research Scholar (RGNJRF), Department of Education, Periyar University, Salem*
Dr. G. Hema, *Assistant Professor, Department of Education, Periyar University, Salem*

The objective of this paper is to create awareness about slow learners. Learners in this category will exist in almost every class, yet at present a systematic way of identifying and supporting them does not exist. Khan (2008) list out the followings are the causes for slow learners emotional growth, growth, opportunities for learning, absenteeism, defective vision, resource problem, illiterate parents, untrained teachers, busy parents, violence in school, class size, family size, health problem, deprived culture, inadequate teaching staff, poor leadership, methods of teaching, curriculum, transfer of teachers, fear complex, medium of instruction, communication problem.Sullivan has summarized the characteristics of slow learners as follows as Short attention and concentration span, Slow reaction time, Limited powers of self-direction, Limited ability to work with abstractions and to generalize, Slowness to form



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ISBN: 978-93-81236-33-8

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ANNAMALAI UNIVERSITY
ANNAMALAINAGAR - 608 002.
TAMILNADU - INDIA
www.auteachereducation.org
E-mail: auteachereducation@gmail.com

Published by Sri Velan Pathippagam, No. 5 S.P Koil Street, Chidambaram - 608 001.
for Department of Education, Annamalai Unaiversity, Annamalainagar - 608 002.
and printed at Aruna Printers Chidambaram - 608 001.

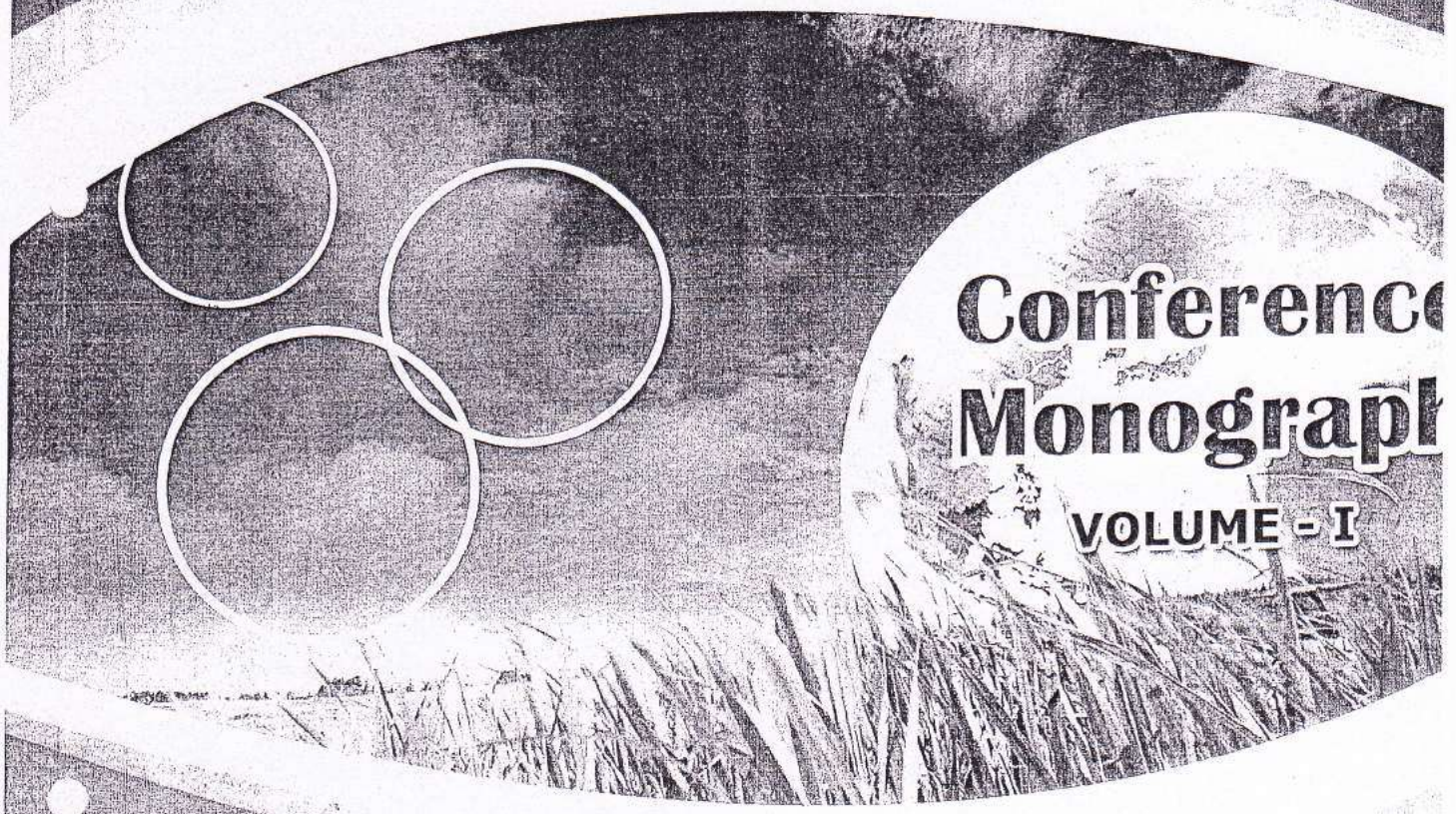
TEACHING SLOW LEARNERS IN MATHEMATICS: INNOVATIVE TECHNOLOGIES AND STRATEGIES

Mr. R. Rajkumar, *Full Time Doctoral Student*
Dr. G. Hema, *Assistant Professor, Department of Education, Periyar University, Salem*

The importance of teaching and learning of mathematics today one of the greatest challenges to a mathematics teacher is teaching mathematics to children who are slow learners. Slow learners are considered to be those children who are of limited intelligence with any or a combination of identifiable dysfunctionalties like attention deficit disorders (ADD), dyscalculia, dyslexia, dysgraphia, dyspraxia, dysnomia, hyperactivity or other related problems. Slow learners are being characterized as functioning at ability significantly below grade level and consistently scoring low on achievement level. Most mathematics teachers have little or no consideration about the needs of slow learners in mathematics classrooms. As part of the means to improve the achievement level of slow learners through new innovative technologies there is not enough time using face to face learning to ensure that these concepts are attained in order to write a high stake examination. It is therefore essential to have such students engaged in diverse processes of constructing their own concept representations. Teachers are encouraged to prepare students to visualize concepts and use new innovative technologies during their study time. It is hoped that with this new technologies and approach to learning that mathematical instruction would be transformed and that as students and teachers move towards a fresh and innovative paradigm shift, students will truly be responsible for their own learning and teachers can act as facilitators and motivational specialist. This paper discuses the definition of slow learners, basic causes of slow learning, identifiable characteristics of slow learners and suggests the use of new innovative technologies and strategies that could best to be used in teaching slow learners. The paper recommends mathematics teachers to use new innovative technologies and strategies in hybrid learning appropriately when teaching mathematics to slow learners.

Keywords: teaching mathematics, slow learners, innovative technologies, strategies

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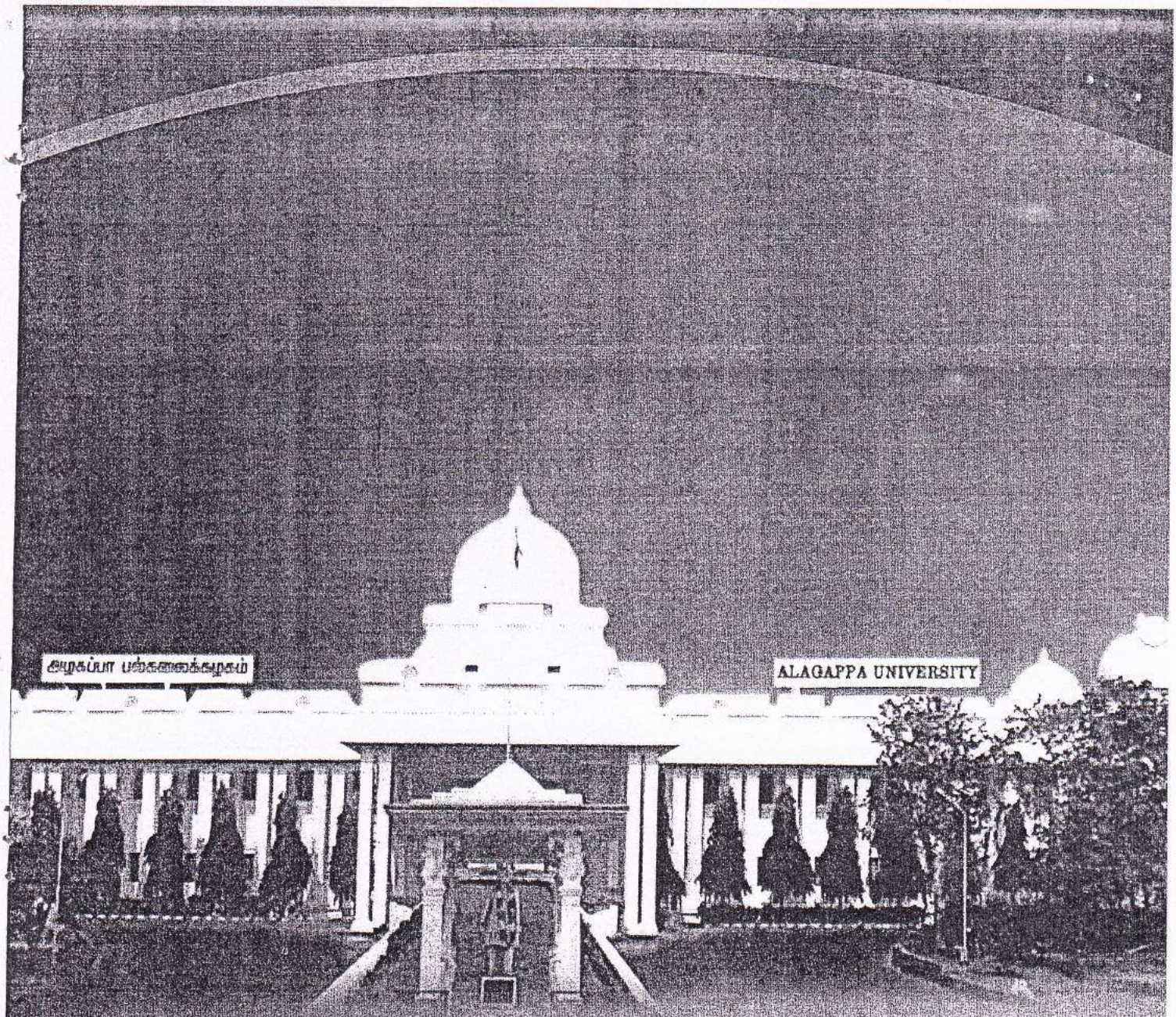


Conference Monograph

VOLUME - I

Editors
Dr. K. GOVINDARAJAN
Prof. G. KALAIYARASAN

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(Re-accredited with "A" Grade by NAAC)
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ISBN 935268151-7
9 789352 681518

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CHANGING THE SCENARIO OF TEACHER EDUCATION THROUGH ICT

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Abstract

To learn and work successfully in an increasingly complex, information society, students and teachers must utilize technology effectively. Within a sound educational setting, technology can enable students to become capable information technology users, information seekers, decision makers, communicators, collaborators, publishers and producers. Teacher education is a programme that is related to the development of teacher proficiency and competence that would enable and empower the teacher to meet the requirements of the profession and face the challenges therein. With the onset and proliferation of Information and Communication Technology (ICT), there is a growing demand that it be included in school education. Teacher education has been structured to orient and sensitize the teacher to distinguish between developmentally appropriate and detrimental uses of ICT. It needs to also equip teachers with competence to use ICT for their own professional development. Aim of this paper is to explore the ICT integrated teacher education program for improving quality of education. In addition, this paper discusses the various types of tools for promoting ICT integration in our classroom.

Key words: Information society, Teacher Education and ICT.

Introduction

ICT is a very broad domain, and affects all aspects of life, the socio-cultural, the political and the economic. Since education is concerned with preparing learners to become responsible citizens, there is a great need for student-teachers to acquire a basic understanding of ICTs, including the Internet. Hitherto, focus has been on basic proprietary software's; however, we need to expose student-teachers to a larger gamut of ICTs, so that they have basic understanding and can develop skills in areas that interest them. Since the adoption of ICTs in education is essentially an educational issue, rather than a technological one, pre-service teacher education policy and program need to be anchored in sound educational perspectives. Curriculum is the primary process of directing teaching towards fulfilling educational aims and digital learning resources (content) and digital learning tools/ processes (software applications) which constitute curricular resources, need to comply with curricular principles. An important principle of education is that curricular resources need to be publicly owned, so that they are freely available to teacher educators, teachers and students without restrictions. In the case of traditional print media (books), the public education system does not use proprietary curricular resources, since that prevents the schools, teachers and students from freely sharing the resources and from customizing and using them as per their local needs.

Role Of Ict In Teacher Education

Teacher Education is well known that the quality and extent of learner achievement are determined primarily by teacher competence, sensitivity and teacher motivation. The National Council for Teacher Education has defined teacher education as "A programme of education, research and training of persons to teach from pre-primary to higher education level".

ICTs stand for Information and Communication Technologies and are defined, for the purposes of this primer, as a "diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information." These technologies include computers, the Internet, broadcasting technologies (radio and television), and telephony. In recent years there has been a groundswell of interest in how computers and the Internet can best be harnessed to improve the efficiency and effectiveness of education at all levels and in both formal and non-formal settings. But ICTs are more than just these technologies; older technologies such as the telephone, radio and television, although now given less attention, have a longer and richer history as instructional tools.

Information and Communication Technologies (ICTs) exemplified by the internet and interactive multimedia are obviously an important focus for future education and need to be effectively integrated into formal teaching and learning, especially in a teacher education institution.

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CONFERENCE MONOGRAPH

ISBN 978-93-5268-151-7

Price : Rs.500/-*

Published by

DEPARTMENT OF EDUCATION
ALAGAPPA UNIVERSITY,
Karaikudi
Email : audepartmentofeducation@gmail.com
Ph : 04562-230207

Printed in India at Lavanya Printers, Thanjavur.

National Conference on New Trends in Teacher Education : Pedagogical, Didatactical, Curriculum Design and Technological Innovations (NTTE-2017), Karaikudi, Tamilnadu edited by Dr. K. Govindrajan & Prof.G. Kalaiyarasan

USE ICT IN TEACHING LEARNING MATHEMATICS IN PEDAGOGICAL ASPECT

Mr. **R. Raj Kumar**, Research Scholar, & **Dr. G. Hema,** Assistant Professor,
Department of Education, Periyar University, Salem 636011.

Abstract

This paper will focus only pedagogy aspects of ICT enabled Mathematics Classroom. ICT encompasses all those gadgets that deal with the processing of information for better and effective communication. In education, communication process takes place between teachers, students, management and administrative personnel which requires plenty of data to be stored for retrieval as and when required, to be disseminated or transmitted in the desired format.We think that the resulting thematic model may be of value in helping others, such as prospective teachers, teacher educators, and curriculum developers; to better understand the considerations shaping teachers' use of new tools and resources. Nevertheless, we are conscious that a casual reading of this model of successful ICT use could easily misinterpret it as an overly optimistic and excessively deterministic portrayal.Decisions about when and how ICT should be used to help teach mathematical facts, skills or concepts should be based on whether or not the ICT supports effective teaching of the lesson objectives. The use of ICT should allow the teacher or students to do something that wouid be more difficult without it, or to learn something more effectively or efficiently. The National Council for Educational Technology in 1995 published Mathematics and IT: a student's entitlement, which listed six major ways in which ICT can provide opportunities for students learning mathematics. Learning from feedback, Observing patterns, seeing connections, working with dynamic images, exploring data, teaching the computer are the Opportunities for exploiting the power of ICT.In this paper our goal was to articulate a pedagogical aspects on successful ICT use.

Keywords: ICT, Technology, Pedagogy, Mathematics, Teaching, Learning

Introduction

ICT encompasses all those gadgets that deal with the processing of information for better and effective communication. In education, communication process takes place between teachers, students, management and administrative personnel which requires plenty of data to be stored for retrieval as and when required, to be disseminated or transmitted in the desired format. The hardware and software like OHP, Television, Radio, Computers and related software are used in the educational process. However ICT today is mostly focused on the use of Computer technology for processing the data. Now a days important to understand the opportunities that ICT offers and to beaware of the ways that it can enhance the teaching and learning of mathematics, before considering what ICT is available or how a particular piece of software might be used within a mathematics lesson.

ICT resources are not a solution for all eventualities. In some situations they will be the best way to convey or consolidate a new concept, but notalways. ICT needs to be planned carefully into departmental schemes ofwork so that students make good progress. Teachers can check whetherthe use of ICT is appropriate by asking whether it will:

- ☐ allow students to investigate or be creative in ways not possible otherwise;
- ☐ give them access to information not otherwise readily available;
- ☐ engage them in the selection and interpretation of information;
- ☐ help them to think through and understand important ideas;
- ☐ enable them to see patterns or behaviours more clearly;
- ☐ add reliability or accuracy to measurements;
- ☐ enhance the quality of their presentations;
- ☐ save time, for example, spent on measuring, recording or writing.

Aspects of Teaching and Learning Mathematics through ICT

There are three aspects of teaching and learning mathematics that mightbenefit from using ICT: (i.e.) pedagogy, mathematics and organisation.

This paper will focus only pedagogy aspects of ICT enabled Mathematics Classroom.

A two day National Conference on New trends in Teacher Education : Pedagogical, Didactical, Curriculum Design and Technological Innovations (NTTE 2017)



Conference Monograph

VOLUME - II

Editors
Dr. K. GOVINDARAJAN
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IMPACT OF MOOCS ON TEACHING LEARNING MATHEMATICS: OPPORTUNITIES, CHALLENGES AND RECOMMENDATIONS

Mr. **R. Raj Kumar**, Research Scholar, & **Dr. G. Hema,** Assistant Professor,
Department of Education, Periyar University, Salem 636011.

Abstract

Improving mathematics and statistics instruction continues to receive attention around the globe, and many efforts have been made to design professional development for teachers to develop their content and pedagogy, typically on a small local scale. Online courses can expand the reach of professional development and the teachers involved, fostering communities beyond school or district lines. Indeed, with advances in technology and interest in offering alternatives to traditional professional development the number of online professional development opportunities has increased. Massive open online courses, or MOOCs, are praised for providing a free education to people across the world. But they have a misty record in terms of their overall effectiveness, particularly in light of their low student completion rates. The idea of a Massive Open Online Course (MOOC) has attracted a lot of media attention in the last couple of years. MOOCs have been used mostly as stand-alone, online courses without credits. However, some researchers, teachers, colleges, and universities have attempted to utilize MOOCs in blended format in traditional classroom settings. The rise of MOOCs has been one of the most significant developments in mathematics education in recent years. These massive open online courses are free to users and cheaper to deliver for providers, offer opportunities for flexible learning, and open up mathematics education to a potentially vast audience. It is no wonder they have been lauded as potential game-changers. MOOCs have also delivered courses that could not fit into the school timetable, courses where take-up would not be enough to justify a teacher-led class, supplementary courses, and preparation for higher education courses, courses in independent learning skills or simply as a way of broadening the curriculum also.

Keywords: MOOCs, Mathematics Education, Online Education

Introduction

Information and Communications Technologies (ICT) today imply profound social transformation, one which needs to be engaged by education. One of the main concerns of the education system is the integration of technologies and media resources into the teaching-learning process as well as the need for a critical analysis to be undertaken into the importance of these resources in our world. MOOCs stand for Massive Open Online Courses. These are free online courses offered by universities around the world (e.g., Stanford, Harvard, and MIT) to anyone who has access to internet. Several popular MOOC providers have emerged, such as Coursera, Udacity, EdX, and NovoEd that collaborate with universities to offer MOOCs on their platforms.

MOOCs For Mathematics Education

MOOCs introduce the pedagogical dimension into the higher education discourse. While "math wars" have led to many changes in the school curriculum, most University and college teachers engaged in mathematics teaching are barely aware of current pedagogical thinking and findings, and in my experience, the managers if mathematics in pedagogical matters at all - are just regurgitating some half-digested constructivist arguments and popular myths, usually exhibiting a lack of comprehension of the issues involved. Apart from offering better structured courses, supplemented with advanced simulation tools that aid learning, MOOCs can open a door to advanced cognitive tutors, introducing all level mathematics teachers to more efficient ways of teaching students from disadvantaged backgrounds.

Mathematics Online Platform

Three major paradigms are used by designers of current mathematics tutors, Computer-aided assessment (CAA), Computer-aided instruction (CAI) and Intelligent Computer-Aided Instruction (ICAI). The CAI type tutors still represent an overwhelming majority of hundreds of mathematics software packages that can be found or found advertised on the web. A good example of CAA is mathematics, which

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EMERGING ISSUES AND CHALLENGES IN EDUCATION IN INDIA

Edited by
Dr.S. BALAKRISHNAN
Dr.K. GOVINDARAJAN

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I am happy to learn that Vinayaka Mission University, Puducherry and VERGAL (Roots) Educational Trust, Madurai, reputed educational institutions have jointly conducted the International conference on "Emerging Issues and Challenges in Education in India" in a grand manner on 16th April, 2015.

It is really commendable to not about the proceeding of the conference had focused on five major areas viz. (1) Innovating teaching methodology and strategies in Education. (2) Education in the Glodblized Era, (3) Growth and Development of Education, (4) Educational Philosophy and (5) English Language and Education. I hope that the Book highlighting the aspects of the conference will be an eye opener for everybody, particularly in the Educational Faculties.

I take this opportunity to compliment the activities of the Vinayaka Mission University, PUducherry and VERGAL (Roots) Educational Trust. Madurai for opening new vistas in the domain of Educational Kingdom.

N.Rangasamy
Chief Minister
Government of Puducherry

Published by
VERGAL PUBLICATION
Tamil Nadu - India

ISBN 938510915-4
9789385109157

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WOMEN EDUCATION IN INDIA

Dr. K. Dhanalakshmi

Associate Professor, Department of Education, Periyar University, Salem-636 011,
dhanalakshmik75@gmail.com

Introduction

Education plays a vital role in giving human beings proper equipment to lead a gracious and harmonious life. Education is a fundamental means to bring any desired change in society, which is an accepted fact throughout the world. This can be attained only if schools become real centers of learning. Education not only helps in the development of personality of the child but also determines his future. Recent psychological research has shown that favorable attitudes towards life develop in the earliest stages of child growth. It gives solution for any type of problems. Through education we promote values and good habits and awareness towards corruption, terrorism and disease. They get knowledge and discriminate which is wrong and which is right with the help of education. Men and Women are just like the two wheels of a Society both the wheels must be equally strong to run smoothly.

Need of Women Education

Women comprise approximately half of the population in the world. But the hegemonic masculine ideology made them bear a lot as they were denied equivalent opportunities in different parts of the world. The augment of feminist ideas has, however, led to the marvelous development of women's condition in the society throughout the world in recent times. Access to education has been one of the most urgent and important demands of theses women's rights movements. In the present era, the Indian society has established a number of institutions for the educational development of women and girls. These educational institutions aim for immense help and are concerned with the development of women. In the modern society, women in India have come a long way. Indian women is at par with men in all kinds of tasks like reaching the moon, conquering Mount Everest, and participating in all fields. All this is possible just because of education and the profound impact it has had on women.

Women Education in India

It is very important to know the historical background, if we are to make a study of status of women in India. It is not easy to find answers for questions like when did women start losing their status or who was responsible for this situation. The position that women occupied in the medieval and later the colonial period is of utmost importance. Women were never put on high pedestal in the Shastras.

ISBN: 978-93-85109-15-7
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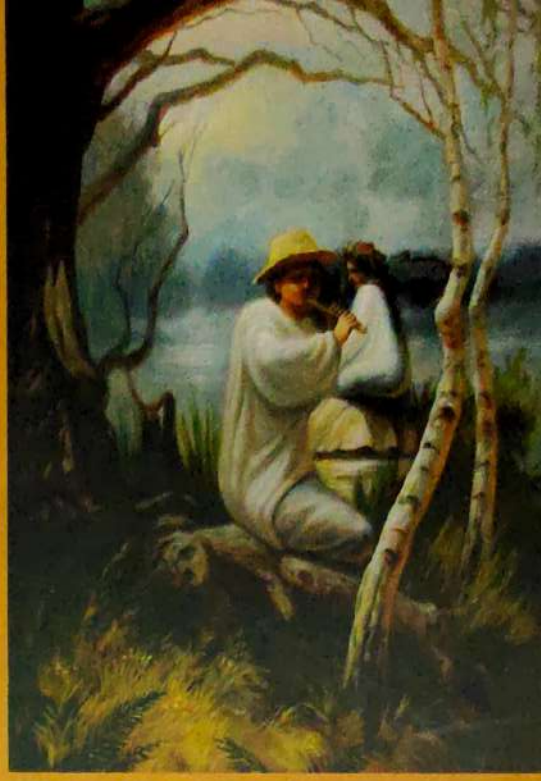
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ISBN: 978-93-85399-55-8

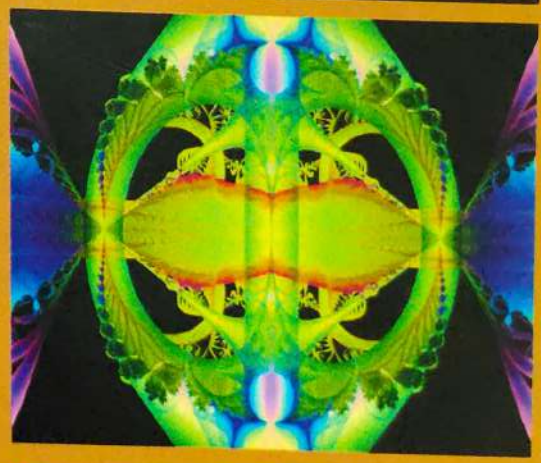
Publisher
SHANLAX PUBLICATIONS
61, 66 T.P.K. Main Road, Vasantha Nagar
Madurai - 625003
Mob: 9942366483
email: shanlaxpress@gmail.com
web: www.shanlaxpress.com

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ABOUT THE BOOK

The prime objective of the Seminar, 'New Dimensions in Language and Literature'is to foster the understanding of various authors, their works, themes, theories and approaches to literature and innovative ideas and methods to learning and teaching of English as a second language.

Language is the primary tool for communication. It plays a vital role in the society and represents diverse aspirations and needs of the society. English is acclaimed as the global language in all perspectives providing wide space and opportunities to its users.Literature represents new hopes and ideas of men and women, and connects people of different races, religion and culture.

In the postmodern era, there exist numerous literatures like Postmodern Literature, Postcolonial Literature, Common Wealth Literature, Canadian Literature, Afro-American Literatureand Diasporic Literature with diverse themes and theories. The research scholars and academicians started to approach literary works with various aspects that include feminism, socialism, formalism, eco criticism, psychology etc.

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This book attempts to bring forth as in-depth analysis of the literary scenario of literatures written in English and also as a language of teaching and learning at various levels of education. The book also attempts to wade through a bewildering literary maze and to highlight not merely the literary figures of the age and their celebrated works, but also the reasons out the merits of the pinnacle of genius.

ISBN 938510901-4
9 789385 109010

VERGAL PUBLICATION
Tamil Nadu - India
philo.balki@gmail.com

Eco-Critism in Anita Desai's *Fire on the Mountain*

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II-M.A
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Periyar University, Salem

K. Sindhu
Assistant Professor
Department of English
Periyar University, Salem

...nita Desai is one ofthe few Indian writers in ...glish in the post colonial era, constructs Nature ...his fictional works by using interweaving ...nds, experience, myth and culturalHistory. In ...e of her works, the setting shows a pen picture ...physical environment andHuman interaction ... it, especially the feminine characters. But ...e examining the criticaloutputs on her works ...realize that we have yet to investigate his ...s from eco-critical pointof view to establish her intrinsic concerns about ...ronmental calamity and man-natureinterface.

The term 'Ecocriticism', which began in the mid of1990s is a study of ...elationship between literature and the natural environment. It has fostered ...n attitudes towards the environment as expressed in natural writing. ...environmentalist is concerned with the global threats revolving around ...ciety.

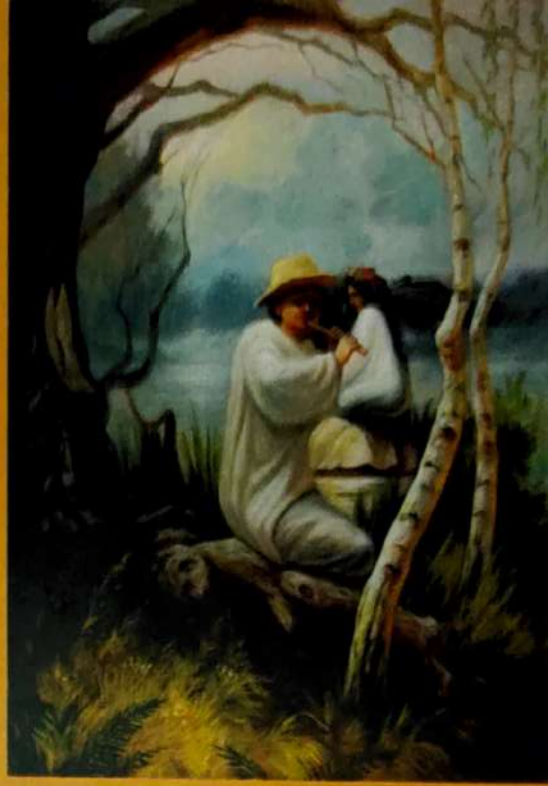
Therefore, every effort has been made to realize the future plans of ...in every discipline.From the beginning of human civilization, Nature has ...iewed as a primary source of living and income, there was no end for ...ion of natural resources, as a free gift of nature it has been used and ...d the way one likes to use it, as a result it has been gradually fading away ...ural settings. Ecocriticism is an interdisciplinary area, nature and ...re have always shared intimate relationship, it is quite evident in the ... early poets and other writers who have driven away tremendous ...of strength and fulfilled their quest for life. Now the literary critics have ...look at the relationship between the nature and society and have text ...textualized in their writings. In this way the terms have become quite ...and very important today, like 'Ecology' and 'Ecocriticism'. My Paper ...toexamine on how the importance of nature has been viewed as an ...heme in Indian literaturein the present context.

...As we read the novels of Anita Desai, we find the connections between ...nd man,

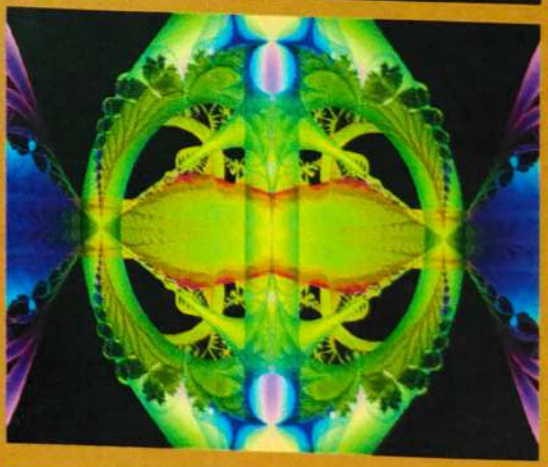
...y, in *Fire on the Mountain* .An eco-criticalapproach brings out the ...nce of the environment to the major themes in her

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Issues in Testing Language Skills

S.Nisha
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Periyar University
Salem

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Assistant Professor
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Salem

ELT Methodology Issues in language testing ntroduction – need for testing Why testing people n language? Info on people's language ability – ften useful, sometimes necessary. Universities, rganisations, workplaces - cannot take people ithout testing their abilities. In schools, teaching nstitutions - people need feedback on how they have rogressed, what they have achieved, plus info on chievement of learner groups also needed in order or right, rational educational decisions to be made. Testing necessary, however, lot of bad, poor testing practice exists, causing a lot of scepticism about it. esting – difficult, as no perfect teaching method, no perfect testing method ither, still, can be improved, we need to strive for it. Basic concepts Backwash ffect: effect of testing on teaching and learning. If a test is regarded important, reparation for it may dominate much teaching and learning activities. Can be armful or beneficial. A number of conditions need to be met by tests to achieve eneficial backwash. Validity: Related to test purpose: What is the test going to e used for? A test: valid if it precisely, accurately measures what it aims to easure. Reliability: Technical term, related to the quality of test scores: Are the ctual scores an approximate estimation of the testees' true abilities. A reliable est measures consistently, on a reliable test a person will get more or less the ame score, no matter what day they take it.

On an unreliable test, score may be considerably different, depending n when SS sit for it. Sources of unreliability: features of test itself, way it is ored. Features of test: unclear instructions, ambiguous questions, items sulting in guessing on behalf of test taker. Difficult, but possible to eliminate ost of these features. Scoring as a source of unreliability: if same test is given tally different score by different markers, or different score by same marker different occasions. Often - compromise between validity and reliability. If gh validity needed, reliability is bound to be lower. Validity - a crucial concept: hile a valid test also has to be reliable, a reliable test may not necessarily be lid at the same time. Kinds of tests and testing According to the kind of formation sought, gained by various test types, we distinguish Proficiency sts: Designed to measure ability in a language, regardless of training testee ay have had in the language. Not based on content or objectives of a language

ISBN : 978-93-85109-01-0

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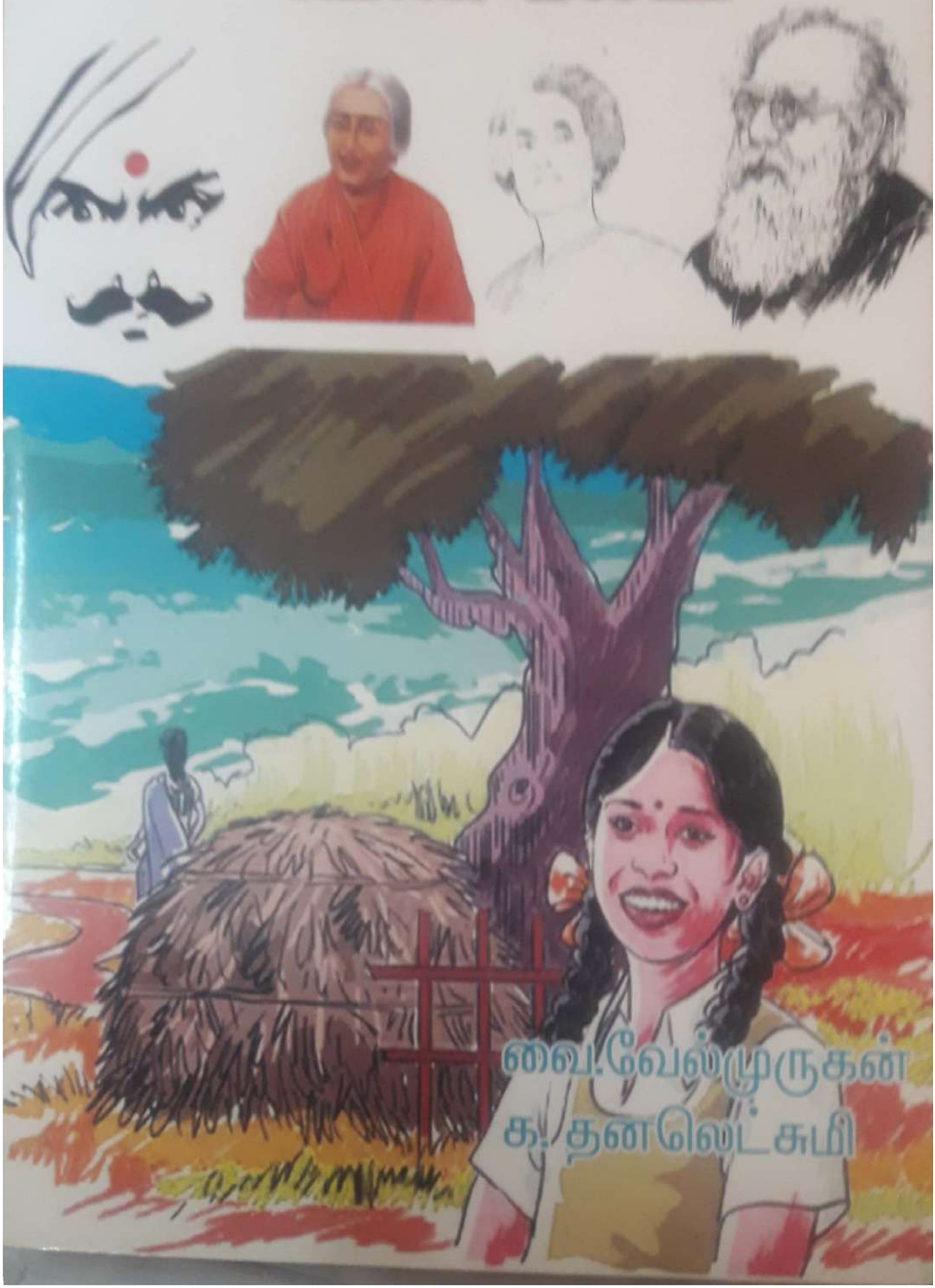
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ISBN 938510901-4

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VERGAL PUBLICATION
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COASTAL ZONE MANAGEMENT

Global Perspectives, Regional Processes, Local Issues

Edited by
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David Menier, K. Kumaraswamy

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A STUDY ON TECHNOLOGICAL ADVANCEMENTS IN BUSINESS AND AWARENESS ON CONSUMER PROTECTION

Dr.M.Suguna
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Periyar University, Salem.

ABSTRACT

India is a largest consumer populated country in the world next to China. Each and every citizen of India is a Consumer for verity of products and services and consumer awareness, expectation and satisfaction are the most important factors playing in buying decision. Therefore, a business organization is in the position of providing better quality of goods and services and ensure that the consumer rights are prevail and protection from unfair trade practices. It is no doubt that the modern business organizations facilitating sufficient services and timely solution for consumer with applying advanced technology. Particularly, in India there is tremendous growth in technological advancements in business after the introduction of New Economic Policy 1991. The NEP 1991 strategy of Liberalization, Privatization and Globalization (LPG) is entirely changing the traditional business environment to electronic business environment. The modern technological developments have no doubt that it made a great impact on the quality, availability, and safety of goods and services. But the fact of life is that the consumers are still victims of unscrupulous and exploitative practices. Exploitation of consumers assumes numerous forms such as adulteration of food, spurious drugs, dubious hire purchase plans, high prices, poor quality, deficient services, deceptive advertisements, hazardous products, black marketing and many more. In addition, with revolution in information technology newer kinds of challenges are thrown on the consumer like cyber crimes, plastic money etc., which affect the consumer in even bigger way. However, it has been realized and rightly so that the Consumer protection is a socio- economic programme to be pursued by the government as well as the business as the satisfaction of the consumers is in the interest of both. In this context, the government, takings initiatives to protect the consumers' interests and rights through appropriate policy measures, legal structure and administrative framework. In this juncture the researcher aimed to conduct a study on **"Technological Advancements in Business and Awareness on Consumer Protection"**. This paper aims to evaluate the Technological Advancements applied in the present scenario and to study the awareness on consumer protection among consumers. To attain the objectives of the study both primary and secondary data is applied and primary data collected through a well structured interview schedule. To select respondent, convenience sampling technique is applied and 150 samples were collected. To analyze the data, simple percentage analysis is applied to establishing demographic profile of the respondents and chi-square test is used to test know the significance of association between socio-economic profile and factors of awareness on consumer protection. Finally this researcher paper concluded that the emerging business is moving towards satellite based advanced technology with ample features and there is a lower level of awareness among consumers on consumer protection facilities available in India.

Key Words: Consumer, Consumer Protection, Technological Advancements, e-commerce, internet commerce.

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First Impression: 2019

© Globalization, Innovations in Technology and Consumer Protection

ISBN: 9788194079736

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Published by

DEPARTMENT OF COMMERCE

PERIYAR UNIVERSITY

Salem - 636011 TamilNadu, India

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Conference Proceeding

An International Open Access Journal
UGC and ISSN Approved | ISSN 2349-5162

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SOCIO-ECONOMIC POSITION OF DISABLED ENTREPRENEURS IN SALEM CITY

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1. Introduction

The economic development of a nation depends on its industrial development. The industrial development is based on the entrepreneurial competencies of the people. So, the national economic growth involves active involvement of each and every people. At the same the disability/disabled entrepreneurs are also involved in the part of the economic development activities. An entrepreneur is one of the most important segments of economic growth. India has witnessed high economic growth rates in the past two decades and there has been a remarkable increase in the per capita income. Many initiatives are undertaken to improve the economic growth. Unfortunately many sections of the Indian population still remain economically deprived. Though disabled persons constitute a small part of the Indian population, only few disabled are grown in relative numbers. So, many problems to face by disabled entrepreneurs in the society. Particularly disabled people face psychological, educational, employment and social problems. However, disabled entrepreneurs who are considering establishing their own business face many problems that a non-disabled person will not endure and therefore require training programs that are tailored to their particular needs. This paper examines the background to people with disabled entrepreneurs becoming self-employed and identifies what can be done to help them via entrepreneurship education and training. The spirit of self-confidence among disabled entrepreneurs through self-employment and utilize their wisdom and experience gained through professional training and education for their development.

2. Concept of disability

When most people think of the word "disability" they immediately imagine someone in a wheelchair. But there are many types of disability. People with a disability may include: people who are blind or partially sighted; people with learning or intellectual disabilities; people who are deaf or hearing impaired; people with a physical disability; people with long-term illnesses; people with mental health or psychological difficulties; and people with an acquired brain injury. Disabilities are an umbrella term, covering impairments, activity limitations, and participation restrictions.

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Impairment is a problem in body function or structure; an activity limitation is a difficulty encountered by an individual in executing a task or action; while a participation restriction is a problem experienced by an individual in involvement in life situations. Thus, disability is a complex phenomenon, reflecting an interaction between features of a person's body and features of the society in which he or she lives.

3. Disabled population

TABLE 1

Disabled Population by Type of Disability India

Type of Disability	Persons	Males	Females
Total	2,68,10,557	1,49,86,202	1,18,24,355
In seeing	50,32,463	26,38,516	23,93,947
In hearing	50,71,007	26,77,544	23,93,463
In speech	19,98,535	11,22,896	8,75,639
In movement	54,36,604	33,70,374	20,66,230
Mental retardation	15,05,624	8,70,708	6,34,916
Mental illness	7,22,826	4,15,732	3,07,094
Any other	49,27,011	27,27,828	21,99,183
Multiple disability	21,16,487	11,62,604	9,53,883

Source: Census Report 2011

The above table shows the disabled population in India as per census 2011 (2016 updated). In India out of the 121 crore population, 2.68 crore persons are disabled which is 2.21% of the total population. Among the disabled population 56% are male and 44% are female. In the total population, the male and female populations are 51% and 49% respectively. Majority (69%) of the disabled population resided in rural areas. In the case of total population, 69% are from rural areas while the remaining 31% are resided in urban areas.

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4. District-wise population in Tamil Nadu

District-wise differently disabled population in Tamil Nadu as per the Census 2011 is given in Table 2.

TABLE 2

District wise Differently Disabled Population in Tamil Nadu

DISTRICT	VI	HI	LD	MR	MI	MD	OTHERS	TOTAL
Chennai	10506	27273	14146	5495	2716	4780	25148	90064
Coimbatore	5985	15605	10452	4141	1385	3531	11353	52452
Cuddalore	5604	12202	9225	3625	825	3109	8042	42632
Dharmapuri	2903	5978	7381	1953	547	2366	4155	25283
Dindigul	3038	9973	7287	2769	837	2467	6582	32953
Erode	3930	8417	9793	2874	1185	3155	6007	35361
Kancheepuram	7242	17046	15082	5619	1739	4707	17626	69061
Kanyakumari	2820	7597	8720	3249	1660	2863	8443	35352
Karur	1601	3099	4475	1342	469	1365	1691	14042
Krishnagiri	3081	7324	7473	2232	528	2208	5845	28691
Madurai	5462	11339	11530	4384	1275	3271	9587	46848
Nagapattinam	3244	6024	7577	2974	1103	2726	4575	28223
Namakkal	3177	6322	8033	2231	596	1992	3994	26345
Nilgiris	1115	2161	2566	1016	317	860	1985	10020
Perambalore	1079	3203	2199	833	202	778	2092	10386
Pudukkottai	2614	5485	6128	2453	831	2524	4443	24478
Ramnad	2462	6359	5222	2230	692	1822	4645	23432
Salem	4822	9702	13639	4019	1140	3751	6595	43668
Sivakangai	2411	6227	5993	2235	692	2190	4374	24122
Thanjavur	3592	8048	9970	3981	1403	3350	5968	36312
Trichy	4460	8376	11139	4381	1283	3480	7157	40276
Theni	1857	5913	5140	1811	498	1607	4150	20976
Thiruvarur	3030	7562	6173	2041	778	2022	4670	26276
Thiruvannamalai	4524	9453	9790	3374	860	3333	6838	38172
Thiruvallur	7296	21857	13144	4961	1344	4969	20978	74549
Thirunelveli	5302	11840	14600	5195	1822	4183	8605	51547
Thoothukudi	3751	7366	8903	2988	1302	2472	4588	31370
Virudhunagar	2864	6604	8276	2927	839	2745	4559	28814
Villupuram	6324	14694	15994	4256	1175	4583	11507	58533
Vellore	6408	14645	15586	5535	1603	5362	12019	61158
Ariyalur	1790	4162	3733	1116	317	1294	2664	15076
Thiruppur	3111	8462	7872	2607	1001	2931	7507	33491
TOTAL	127405	300318	287241	100847	32964	92796	238392	1179963

Source: Census 2011

5. Statement of the problem

Disabilities are the part of every human condition. Almost everyone will be temporarily or permanently impaired at some point in life. Most extended families have a disabled member, and many non-disabled people take responsibility for supporting and caring for their relatives and friends

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with disabilities. Now a day, most of the disabilities to be create an accidental activity so that the accidently person also comes under in the disability category. Every disability has faced the moral and political issue of how best to include and support people with disabilities. This issue will become more acute as the demographics of societies change and more people live to the world. That the type of disabilities most of them doing anywhere working in employee only not an employer because they faced so many problem and also not an aware the welfare schemes. Basically they are living mainstream of the society see the disability first and see the person afterwards which makes confidence issue for disabled entrepreneurs. There are also problems to external facilities and support that limit the ability of disabled persons to participate on equal basis for instance in access to information on business development, communication and infrastructure. Should these problems not to be removed and the disabled entrepreneur according the right business environment, then the situation will continue getting as a country may not realize some of its vision 2030 goals.

6. Objectives of the study

1. To analyze the factors influencing disabled person become an entrepreneurs.
2. To analyze the social position of disabled entrepreneurs.

7. Research methodology

This research is conducted in Salem district. The research is descriptive and realistic in nature, uses both primary and secondary data. The primary data were collected from the respondents through well-structured questionnaire. The researchers used snowball sampling technique. The ssecondary data were collected from books, journals and internet. A sample of 50 respondents was selected. The collected data were classified and tabulated accordingly for descriptive and inferential analysis to meet the objectives of the study.

8. Analysis and interpretations

TABLE 3

Factors Influencing the to become an Entrepreneur

S.No	Factors Influencing	No. of Respondents	Percentage
1.	Parents	12	24.0
2.	Friends and relatives	09	18.0
3.	Self motivation	28	56.0
4.	Training institutions	01	02.0
Total		50	100.0

Source: Primary Data

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From the above table it is inferred that the 56 per cent of the respondents are influenced by self-motivation, 24 per cent of the respondents are influenced by parents, 18 per cent of the respondents influenced by friends and relatives and 2 per cent of the respondents influenced by training institutions to start the business.

TABLE 4

Impact on Social Position

S.No	Asset Generation	No. of Respondents	Percentage
1.	House or land	02	04
2.	Vehicle	25	50
3.	Luxury product	04	08
4.	Nothing to Purchase	19	38
	Total	50	100

Source: Primary Data

From the above table it is inferred that the 50 per cent of the respondents acquired vehicles, 38 per cent of the respondents are not purchased anything, 8 per cent of the respondents acquired luxury products and 4 per cent of the respondents purchased house or land.

9. Conclusion

The study concludes that most of the disabled persons are doing small types of business. Disabled entrepreneurs say that most common their problems are: transport (ramp) problems, economic, social and psychological, etc. The findings reveal that disabled entrepreneurs living with physical disabilities experience some affliction in to run a business activities for insufficient of startup capital. The researcher interviewed 50 disabled entrepreneurs living with disabilities. Only three respondents said that no problem for to start and run the business activities because their family is so wealth. The government can provide more incentives to empower their development activities.

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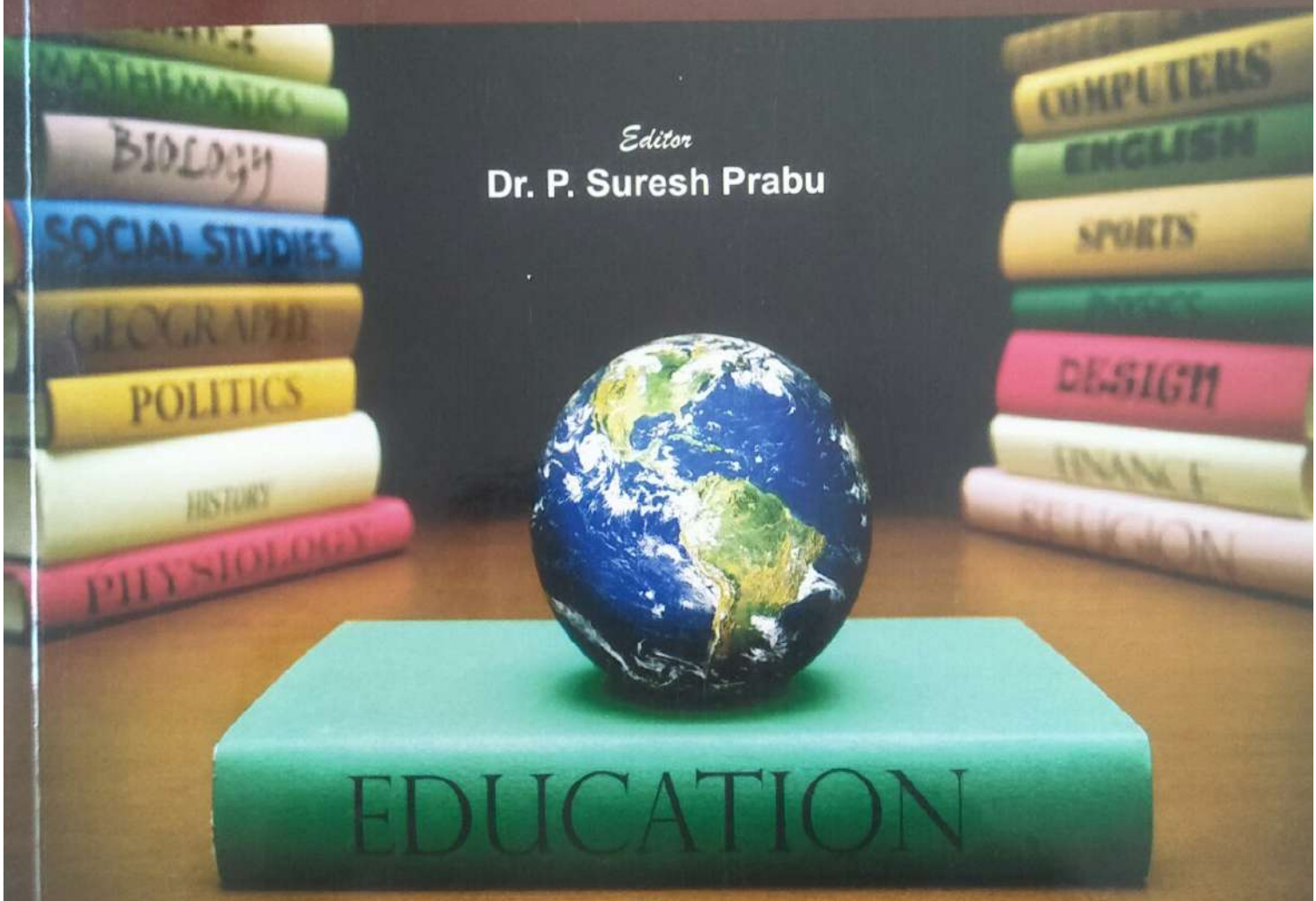
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Proceedings of the National Seminar on

Performing and Reforming in Teacher Education for Social Changes

7th & 8th March, 2019



Editor

Dr. P. Suresh Prabu



KSR COLLEGE OF EDUCATION

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May 2019

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ISBN: 978 - 93 - 86659 - 23 - 1

Printed and Published by
P. Duraisamy
Hikey Media
9, Saiva Muthiah 2nd Street,
Royapettah, Chennai - 600014, Tamil Nadu.
www.hikeymedia.com

VOL 2 | SPL ISS 11 | APR 2018 | E-ISSN 2456-5571 UGC APPROVED JOURNAL: 44274

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SUPPRESSION OF FEMALE PSYCHE IN DORIS LESSING'S *THE GRASS IS SINGING*

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Abstract

Women have been looked down by the male dominant society throughout History due to the patriarchal construction of the society. Doris Lessing is one of the precursors to write about female struggles during 1950s. The Grass is Singing is her debut novel. The novel depicts the real status of women in nineteenth century and also the female psyche, caught in the clutches of race, class and gender of the time. The novel is set in south Rhodesia (now Zimbabwe). The novel clearly portrays the race and class politics among the people in the country.

The protagonist, Mary Turner was neither happy nor contended after her wedding with Dick Turner which the paper throws light on. She was either filled with fear or suppressed feelings. The suppression affected all the aspects of her life. Miss Turner, an economically independent woman never got acquainted with wedding thoughts but she became a victim to the same due to social constrains. The paper also analyses the independence, desires, mind frame, infancy, economical degradation and insecurities both pre and post wedding.

Keywords: *Suppression, Race, Gender, Class*

Introduction

Female gender is looked upon as a weaker sex and as a secondary sex, which has no power to think and act according to their will. They are suppressed socially, culturally and psychologically. Womens' decisions are based on the condition and freedom provided by the male dominant society because gender is looked upon as a social construct and not as biological sex alone.

The dominating community forgets to concentrate on the biological evolution of an individual which deny them to be compassionate towards their fellow beings who are different in colour, caste, religion, economical status and other differences.

The Grass is Singing is one such novel which encompasses the varied notions of race, class, gender, status, thoughts and desires. The novel which won the Nobel Prize in 2007 is taken for study.

Suppression of Female Psyche in Doris Lessing's *The Grass is Singing*

Mary was never happy as a child. She faced struggles because her father was a drunkard and never made his family happy. They were economically poor. The family moved to different places even before Mary went to school. She entered a boarding school and felt happy to stay away from home and she never thought of returning back to her home.

At the age of sixteen, she left school and started working. Till the age of thirty she stayed as an independent happy woman without suppression or struggles. She was happy and did not have the urge to get married. But she was forced by her society to get married. She decided to get married when she was nearing thirty as she overheard the insulting remarks of her spinsterhood by her own friends.

This was the conversation she listened to, while her face burned and her hands went clammy.

'She's not fifteen any longer: it is ridiculous! Someone should tell her about her clothes.'

'How old is she?'

'Must be well over thirty. She has been going strong for years. She was working long before I begun to working, and that was a good twelve years ago.'

'Why doesn't she marry? She must have had plenty of chances.'(Lessing 40)

VOL 2 | SPL ISS 9 | APR 2018 | E-ISSN **2456-5571** UGC APPROVED JOURNAL: **44274**

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E-ISSN 2456-5571

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BODHI
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An Online, Peer-Reviewed, Refereed and Quarterly Journal with Impact Factor
Vol: 2 Special Issue 9 April 2018 E-ISSN: 2456-5571

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Academic Excellence in research is continued promoting in research support for young Scholars. Multidisciplinary of research is motivating all aspects of encounters across disciplines and research fields in an multidisciplinary views, by assembling research groups and consequently projects, supporting publications with this inclination and organizing programmes. Internationalization of research work is the unit seeks to develop its scholarly profile in research through quality of publications. And visibility of research is creating sustainable platforms for research and publication, such as series of Books; motivating dissemination of research results for people and society.

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A BALANCE BETWEEN HOPE AND DESPAIR IN *A FINE BALANCE* BY ROHINTON MISTRY

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Abstract

This study analyses the balance between hope and despair in A Fine Balance by Rohinton Mistry. The major four characters in the novel are taken up for analysing the balance of hope and despair in their life. These characters are from varied backgrounds and place but somehow living in the same flat due to economic reasons. Each of them represent both hope and despair in various situations. Though they are facing many failures, cruel punishments, suffering, death, illness and poverty, they never loss their hope. In spite of having many reasons for despair, they never give up their hope. This novel is set in Indira Gandhi's India and more specifically during the Emergency period which is called the darkest phase of India. Here Mistry focuses on how the ordinary poor people are facing problems, injustice, and sufferings by the misrule and arrogance of people in power. Even the human rights are violated for the people which includes mass sterilization and demolition of slums that leads to despair. The attempt is being made in this paper to show how the characters help, support and give hope to one another amidst the horrors of political turmoil and Emergency. This paper also emphasis on the character Maneck Kohlah, who at last failed to maintain his hope and commit suicide while Ishvar Darji, Om and Dina Dalalare well balancing it. As the title of this novel suggests, the characters are excellent in maintaining their balance between hope and despair which is portrayed simultaneously in the situations where they have chat, laughter and hope in their face in spite of their hardships and pain.

Keywords: *Hope, despair, Emergency period, political turmoil, sufferings.*

Introduction

Literature is one of the most interesting and significant expressions of human life. There are many different literatures in the world based on the country, language and cultural group. They are called national literatures. Similar to national literature, which defines its identity and country's culture, the people of Diaspora have their own literature. That is called Diasporic literature. Diasporic literature is particularly the works that are written by authors who live outside their native land but these works are associated with native culture and background.

The Diasporic people are using writing and literature as a platform to express their feelings, opinions, experience and problems. In the 20th century, the Indian diasporic literature got a worldwide recognition especially by the works of famous Indian descents like V. S. Naipaul, Jhumpa Lahiri, Kiran Desai, Rohinton Mistry and Salman Rushdie.

Rohinton Mistry is an Indian born Canadian writer. He immigrated to Canada in 1975 and studied at the University of Toronto. His notable works are *Such a Long Journey, Family Matters* and *A Fine Balance.* He won Commonwealth Writers Prize in 1991 and 1996 and Man Booker Prize in 1991 and 2002. In 2012, he was awarded Neustadt International prize for Literature.

A Balance between Hope and Despair in *A Fine Balance* by Rohinton Mistry

Firstly this paper focuses on the character Ishvar Darji who represented hope till the end eventhough he led a painful tormenting life. Since his childhood, he faced discriminations in his village on the basis of castism. In his childhood, he and his brother Narayan were punished brutally by the high caste school teacher for touching the slate and chalk. They were beated harshly and ill treated by the teacher who called it blasphemous because the

chamaars are not supposed to touch the slates according to the caste system. After this incident, his father Dukhi did not leave the boys in the village to torment in castism. He sends them to his friend Ashraf, the tailor in the town to learn the tailoring. His father showed them the rays of hope. Ishvar and Narayan give hope to the entire chamaar people.

Ishvar lost all his family members who were burnt alive in the hut for asking the right to vote. Though he could not bare the loss, he makes up his mind and gives hope and support to his nephew Omprakash. He takes his nephew Om with him to the city to practice the trade. When one door of opportunity is shut, he never hesitates to knock another door. His hope made him to see the light in his path of darkness. From the beginning till the end Ishvar stood behind Om and gives hope to him. One could say Ishvar is Om's hope.

During the time of partition, Ashraf's family being a Muslim was in great danger. Muslims were killed by the Hindus. When the Hindu men carrying crude weapon who approaches the door of Ashraf to attack them, Ishvar came forward to help them by acting as if they are the owners of the shop. Ishvar risks his life to save them. Ishvar's great help during the time of danger gives hope to Ashraf and his family.

In the city they are sewing for Dina Dalal who had a business with Au Revoir Export Company. When the company demand more dresses with in a short time Ishvar give hope and confidence to Dina. He said "Hahnji, don't worry, Always top quality production on time" (76). His words give hope to Dina. So that Dina felt that her days of toil and trouble were ending.

His nephew Omprakash lost all his patience when Dina asked them to act like a servant to the rent collector to safeguard her flat. Om became impatient and hopeless because of his situation. Ishvar encouraged Om to never give up his hope. He said "There is lots of opportunity in the city, you can make your dreams come true. Believe me, it will get better" (91).

Omprakash had faced many cruel incidents in his young age. His entire family was burnt alive in the hut which affected him so badly. Unlike Ishvar, he was very pessimistic in his talk and life. Ishvar supported and helped him to overcome his situation. When he grew up, Om became a symbol of hope to Ishvar. Whenever they discuss about Om's marriage, Ishvar expresses full of joy and hope to others. His words give hope to Dina and Om.

Unfortunately, when Om was forced to do sterilization by the upper caste members of his village during the time of Emergency, Ishvar gives hope to Om to a great extent that it can be cured with latest medical treatments and assure him that still he is eligible for marriage. He and his uncle support and give hope to one another in all hardships. Eventhough he became a beggar he was more humorous and made Dina laugh every day.

Another character is Dina Dalal who is active and stubborn in this novel. Whenever Dina's brother Nusswan tried to control her she stood adamant and firm in her rights. Though she widowed just three years into her marriage, she never had the idea of getting remarried despite her family urgings. She is a woman of self-reliance and tried to preserve her independence and dignity. She tried haircutting, embroidery and sewing to safe guard her income and flat. Her attempts showed her great hope in all her hardships. Her courage and confidence is expressed in situations when she thought "The road towards self-reliance could not lie through the past" (56).

Ishvar and Maneck gives confidence and hope to Dina in all her difficult situations like her household problems, rent collectors threat, demand from the export company. With all the hope they gave her she thought "My bleakest hour, has now become the happiest" (401). She never gives up her hope and worried for her life even though it is sad. She said "I never like to

look back at my life, my childhood, with regret or bitterness" (427).

Maneck is another important character who is quite different from other characters. His approach towards life is hopeless and his words are more philosophical and sad. When he was at grade four, he was sent to boarding school. This separation affected Maneck's childhood and deteriorated his relationship with his parents. He felt betrayed because of the separation. Later on, he begins to separate himself from his family purposely.

His longing, nostalgia and separation from his parents affected him greatly and changed his attitude towards life. He said "Memories were permanent. Sorrowful ones remained sad even with the passing of time, yet happy ones could never be recreated - not with the same joy" (336). He never expressed any hope in his words. Though he has love, caring, concern and nostalgia for others he does not want to accept that in a positive way. He felt bad for Avinash, Dina's past and the poor condition of Om and Ishvar and thought "No amount of remembering happy days, no amount of yearning and nostalgia could change a thing about the misery and suffering - love and concern and caring and sharing come to nothing, nothing" (336).

When they discuss about Om's marriage he expressed his hopelessness may be out of his control, he suddenly said "Everything ends badly. It's the law of universe" (466).This showed his hopelessness towards the life.As he said, he commits suicide out of despair and lost all the hope in his life. It is important to mention that Maneck's life is so comfortable and good when comparing with the painful and tormenting life of Dina, Ishvar and Om. They never give up their hope.

Conclusion

This paper presented how the characters in *A Fine Balance* have balanced between hope and despair in various situations. This theme is relevant and suitable to humans of all times. Each individual is unique and his problem is unique. We have to maintain a balance between hope and despair in all the hardships. As Desmond Tutu said "Hope is being able to see that there is light despite all the darkness" (*Essay: on Hope Writing Creative Nonfiction*).We can overcome all the hardships with our hope. The characters Dina Dalal, Ishvar and Omprakash are the good representations of hope who are excellent in balancing their life between hope and despair unlike Maneck. This paper tried to show how the government misrule create injustice to the poor people and made them feel despair. That is the people in power are the reason for the poor peasants despair and failure. This situation is prevailing in the country like India. So this paper will helps the reader to understand the problem between Government misrule and common help which leads to despair and also encourages the reader to have a hope during those problems. A person with hope can overcome and solve any problem with positivity. Hope promotes perseverance, courage and confidence to our life.

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VOL 2 | SPL ISS 9 | APR 2018 | E-ISSN 2456-5571 UGC APPROVED JOURNAL: 44274

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Karunya
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ENGLISH LANGUAGE AND LITERATURE (ICELL-18)

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Vol: 2 **Special Issue 9** **April 2018** **E-ISSN: 2456-5571**

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Academic Excellence in research is continued promoting in research support for young Scholars. Multidisciplinary of research is motivating all aspects of encounters across disciplines and research fields in an multidisciplinary views, by assembling research groups and consequently projects, supporting publications with this inclination and organizing programmes. Internationalization of research work is the unit seeks to develop its scholarly profile in research through quality of publications. And visibility of research is creating sustainable platforms for research and publication, such as series of Books; motivating dissemination of research results for people and society.

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Vol.2 Special Issue 9 April 2018 E-ISSN: 2456-5571

ANTHROPOMORPHISM IN YANN MARTEL'S *LIFE OF PI*

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Abstract

This paper discusses anthropomorphism in Yann Martel's Life of Pi. It is an effort to the contribution of thinking human relationship towards animals, especially wild animals by outlining the aspect of anthropomorphism. It portrays how a man is adapting himself to consider a wild animal as his friend after his ordeal. Anthropomorphism is the major theme of the novel Life of Pi, which refers to projecting human characteristics onto something that is not human, such as a deity, an animal or an object. In psychology, anthropomorphism is viewed as a natural tendency. It is also the way of treating a god, an animal or an object, considering it as a human. Projecting human traits on animals is fascinating. The non-human animals are not portrayed with human physic but they are represented as talking animals. Sometimes their attitudes and behaviors seem like actions done by humans. But, in Life of Pi, anthropomorphism is not portrayed in this aspect. The portrayal of anthropomorphism is depicted between the major characters in Life of Pi. They are Pi Patel, a teenage boy and Richard Parker, a Bengal tiger who had survived for about two hundred and twenty seven days in a lifeboat. Pi called the animal with a human name as 'Richard Parker' in this novel. He treats the four hundred and fifty pound Bengal tiger as if the animal is human in some way. Anthropomorphism can be focused as how a human communicates with animals considering it as another human being or as a friendly companion.

Introduction

Canadian literature has its own vitality. It has acquired a great authority in literary field among the Common wealth countries. It enjoys a global reputation with its background which had been started with native Canadians, evolving from a group of British and French settlers. Canadian literature has experienced a number of difficulties in its enrichment. It took decades of struggle to portray Canadian experience in literary works.

Yann Martel was born in 1963. He is a Quebecer, meaning a French Canadian. He writes in English even though his first language is French. He has acquired a degree in Philosophy at Trent University. During his adulthood, he has worked as tree planter, dish washer and security before turning to writing. He has travelled to Mexico, South America, Iran, Turkey and India. His spouse is Alice Kuipers who is also a writer in Canada.

Martel became popular after his second novel *Life of Pi* (2001). He had won the prestigious Man Booker Prize for *Life of Pi* in 2001 and Hugh Maclennan prize for fiction in 2001. He likes to use animal characters in his works and he wants to portray animal characters with anthropomorphic aspect. He wanted to tell that everyone has certain thoughts about who is a dentist but everyone does not know that a rhinoceros could be a dentist.

The term 'anthropomorphism' is derived from a combination of two Greek words, 'anthropos' and 'morphe' which means human and form respectively. This term was coined by a Greek philosopher, Xenophanes (570-480 BCE) in order to project human form on Gods. Later, in the mid 1700s, the term started to project on animals and other objects.

In *A Dictionary of Literary Terms and Literary Theory*, J.A. Cuddon defines anthropomorphism as "the attribution of human characteristics to non-human entities or concepts, for example animals, inanimate objects or abstract ideas or forces" (40-41).

The portrayal of anthropomorphism is ubiquitous in the field of literature, especially in mythological stories, folktales and fairy tales. In religious and mythological stories,

Vol.2 Special Issue 9 April 2018 E-ISSN: 2456-5571

THE IMPACT OF PARTITION IN AMITAV GHOSH'S *THE SHADOW LINE*

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Abstract

This paper focuses on the impact of partition with quotation in Amitav Ghosh's novel The Shadow Lines. The focus is also given to the mob violence and emotionalism of the human race due to partition. Partition divided India in two but could not really divide the memories and moods of the people. Victims are witness the problem suffers in physically and mentally due to partition In Amitav Ghosh's novel The Shadow Lines. Partition caused many blood sheds, murder and brought ruin to both sides of the border.

Keywords: *Partition, Border and Boundaries, Communal riots, Violence, Political freedom, Nationalism.*

Introduction

Amitav Ghosh is a prominent Indian American author, He is one of the most celebrated authors in Indian English, has won many national and international awards for his fiction that is keenly intertwined with history. He is one of most significant literary voices to emerge from India in recent decades, and has contributed to the development of ideas on the postcolonial in particular. His fiction is characterized by strong themes of humanism, cosmopolitanism, communalism, colonial power and history.

The Shadow Lines deals with the concerns of our period, the search for identity, the need for independence, the difficult relationship with colonial culture. It magnificently interweaves fact, fiction and reminiscence. It is a continuous narrative which replicates the pattern of violence not only of 1964 but also of twenty first century.

This novel reconstructs and recapitulates major historical and far-reaching events such as the Swedish movement, the Second World War, the partition of India, the communal riots of 1963-64 in Dhaka and Calcutta, the India-Pakistan War and the fall of Dhaka from East Pakistan and the creation of Bangladesh. In the novel the past, present and future coalesce and melt together erasing any kind of demarcations. The text also deals with the concerns of contemporary period such as the search for identity, political freedom, communal frenzy, nationalism, the need for independence, the difficult relationship with colonial culture. It magnificently interweaves a critical study of fact, fiction and reminiscence. The text intersects personal memory, family love and public history. In *Re-defining Social-Political Identities in Amitav Ghosh's The Shadow Lines*, Akhil Yadav tells.

Amitav Ghosh, a versatile writer, story teller of postmodern Indian Literature in English. *The Shadow Lines* (1988) prove his abilities to gain an insight into the meaning and narrative technique of the novel. The story of the novel exposes the psyche of new born nation against the parental country, on the basis of religion and politics. It's complex novel focus on the facts of history and post-partition era of India. Ghosh depicts the social psyche through the multiple characters. (*Indian Scholar* 348)

Partition is not Solution but Beginning of New Problem

Partition is a change of political border. No country has benefited from partition, people's lives were endangered. Everyone knew about the instance of violence that happened during partition. The partition of India has led to millions of people migrating or fleeing from one side to the other. Most of the people chose to

ISSN INTERNATIONAL STANDARD SERIAL NUMBER
ISSN-2321-7065

IJELLH

International Journal of English Language, Literature in Humanities

Indexed,Peer Reviewed (Refereed) Journal

UGC Approved Journal



Volume 6, Issue 11, November 2018

www.ijellh.com

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Unscrolling the Reality of the Hard Facts in Grimm's Children and Household tales

Abstract : Fairy tales often include different cultures and ways of doing things. The aim of this paper is to explore the myriad depths of fairy tales and the unfathomable meanings and implications which arise from subsequent readings. In spite the vicious and gory depictions of certain fairy tales, the ultimate aim was empowering children with the underlying strength for facing and overcoming life's hardships. Though debates and controversies have shrouded certain violent fairy tales, the ultimate aim was to instill awareness within children to alert them to the disasters they were likely to encounter in the real world. In weaving complex and violent themes within stories, the authors tried to encompass the deep rooted evil within society. These tales,

often hyperbolic in nature due to the gory descriptions, can be viewed as the stepping stones for children to confidently into the 'big bad world'. Keeping children away from all forms of violence make them vulnerable since they are wrapped in a cocoon of safety and fantasy. This would be detrimental to a child's health emotional development and thus the author's use of violence can be a justifiable means to an end.

Keywords: Grimm, fairy tales, children, mutilation,cannibalism.

Most of Grimm's fairy tales are filled with violent and horrible thoughts. Although, the tales had a happy ending, most of their tales pictured the violence as some type of usual cultural doings. Grimm's tales were tales collected from ancient German people by Grimm brothers. However, it was not written as they narrated, Grimm brothers brought out their own thoughts in their writings. Degh stated that, "But the statement of the marker is not altogether true because the stories were more adapted than written, and some were adapted (or written) by the brothers, some by others".(Degh 83).

It can be because they thought the growing children should know everything that was happening around them. In fact, it is the reality that the Grimm portrayed in his fairy tales. Maria Tatar says that most of the children prefer Grimm's fairy tales even though it is packed with horrible incidents. She inquired as to how children could like such violent stories. She also points out that "…murder, mutilation, cannibalism, infanticide, and incest that fill the pages of these bedtime stories for children".(Tatar 3). Tolkein's in his On Fairy Stories says "A stable plot still leaves much room for variation. Skillful raconteurs can take the same story line and give it

unique twists and turns. The tone may vary from one tale to the next, and the hero may be presented in different lights". (Tolkein 110).

Though they are meant to be scary, they are examples of danger continuously witnessed in this era as probably predicted by them or maybe existed in those days. As pointed out by Maria Tatar, currently murder for love or lust, mutilation as revenge, cannibalism, infanticide, incest all prevail in our society. In fact most of the people have become accustomed to such incidents. Grimm brothers most likely wanted their future generations to be aware of the coming era and hence desisted to remove the violence from their tales. Most certainly this will alert the children from the darker society they are growing up with.

People of today's world are selfish, and wealth is more important for them than any relationship. They run behind money and luxury, thus they are unable to spend time with their family. However, all parents instinctively want their kids to have better lives than their own. It is as natural as hungry birds feeding their fledglings. However in this decade materialism have distorted those instincts and hence our new generation are unaware of many things that they are supposed to know.

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ISSN INTERNATIONAL STANDARD SERIAL NUMBER
ISSN-2321-7065

IJELLH

International Journal of English Language, Literature in Humanities

Indexed,Peer Reviewed (Refereed) Journal

UGC Approved Journal



Volume 6, Issue 11, November 2018

www.ijellh.com

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Unscrolling the Reality of the Hard Facts in Grimm's Children and Household tales

Abstract : Fairy tales often include different cultures and ways of doing things. The aim of this paper is to explore the myriad depths of fairy tales and the unfathomable meanings and implications which arise from subsequent readings. In spite the vicious and gory depictions of certain fairy tales, the ultimate aim was empowering children with the underlying strength for facing and overcoming life's hardships. Though debates and controversies have shrouded certain violent fairy tales, the ultimate aim was to instill awareness within children to alert them to the disasters they were likely to encounter in the real world. In weaving complex and violent themes within stories, the authors tried to encompass the deep rooted evil within society. These tales,

often hyperbolic in nature due to the gory descriptions, can be viewed as the stepping stones for children to confidently into the 'big bad world'. Keeping children away from all forms of violence make them vulnerable since they are wrapped in a cocoon of safety and fantasy. This would be detrimental to a child's health emotional development and thus the author's use of violence can be a justifiable means to an end.

Keywords: Grimm, fairy tales, children, mutilation,cannibalism.

Most of Grimm's fairy tales are filled with violent and horrible thoughts. Although, the tales had a happy ending, most of their tales pictured the violence as some type of usual cultural doings. Grimm's tales were tales collected from ancient German people by Grimm brothers. However, it was not written as they narrated, Grimm brothers brought out their own thoughts in their writings. Degh stated that, "But the statement of the marker is not altogether true because the stories were more adapted than written, and some were adapted (or written) by the brothers, some by others".(Degh 83).

It can be because they thought the growing children should know everything that was happening around them. In fact, it is the reality that the Grimm portrayed in his fairy tales. Maria Tatar says that most of the children prefer Grimm's fairy tales even though it is packed with horrible incidents. She inquired as to how children could like such violent stories. She also points out that "…murder, mutilation, cannibalism, infanticide, and incest that fill the pages of these bedtime stories for children".(Tatar 3). Tolkein's in his On Fairy Stories says "A stable plot still leaves much room for variation. Skillful raconteurs can take the same story line and give it

unique twists and turns. The tone may vary from one tale to the next, and the hero may be presented in different lights". (Tolkein 110).

Though they are meant to be scary, they are examples of danger continuously witnessed in this era as probably predicted by them or maybe existed in those days. As pointed out by Maria Tatar, currently murder for love or lust, mutilation as revenge, cannibalism, infanticide, incest all prevail in our society. In fact most of the people have become accustomed to such incidents. Grimm brothers most likely wanted their future generations to be aware of the coming era and hence desisted to remove the violence from their tales. Most certainly this will alert the children from the darker society they are growing up with.

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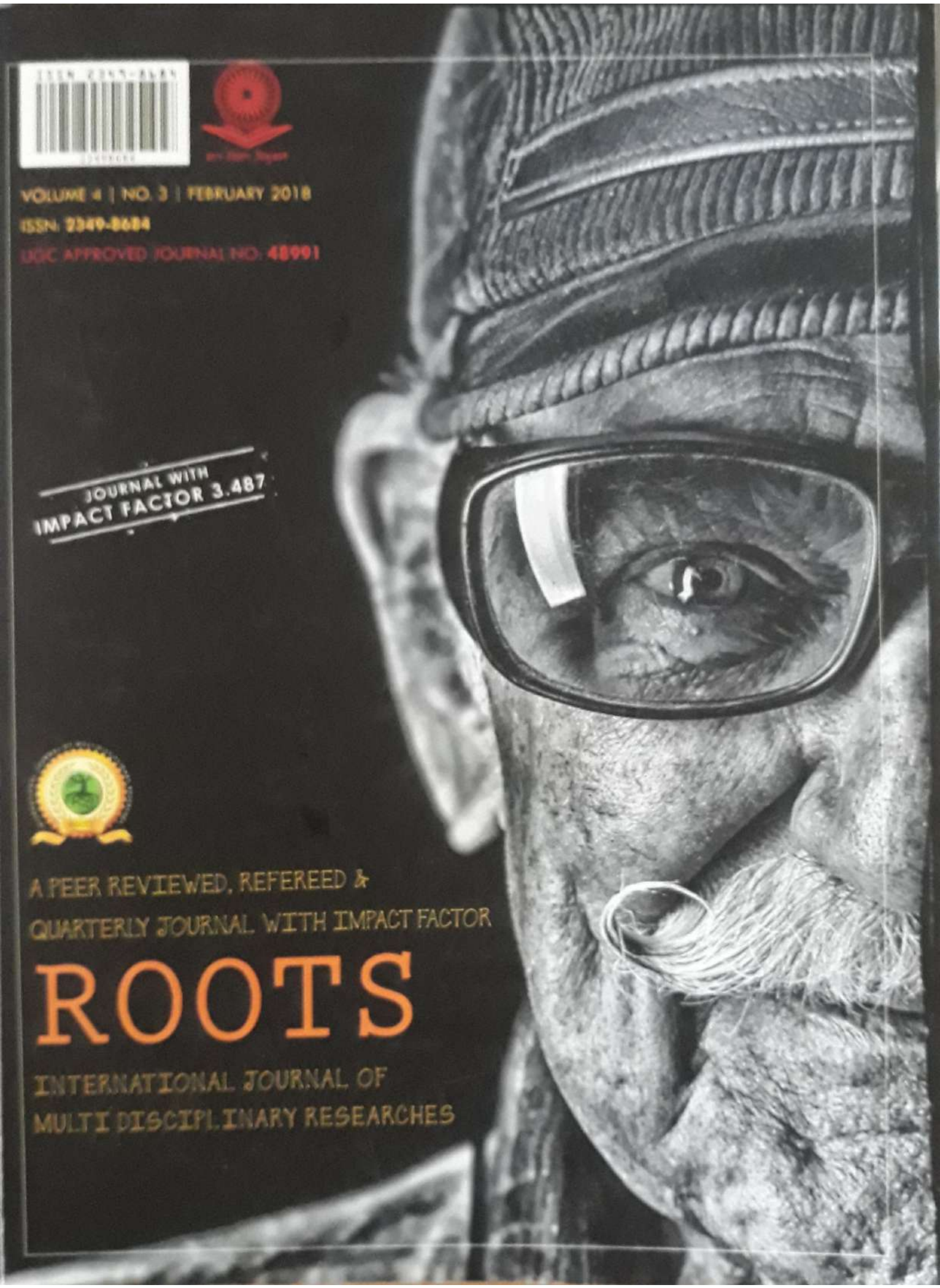
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VOLUME 4 | NO. 3 | FEBRUARY 2018
ISSN: 2349-8684
UGC APPROVED JOURNAL NO: 48991

JOURNAL WITH
IMPACT FACTOR 3.487



A PEER REVIEWED, REFEREED &
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A STUDY ON THE FACETS OF RACE IN HARPER LEE'S *GO SET A WATCHMAN*

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Abstract

Racism is a belief in the superiority of one race over another. It is based on the discrimination and prejudice towards people based on ethnicity. This is due to the misconception of one another. If everyone understands about others culture, religion and respect as human there will be no misconception of race. This kind of racial discrimination is rooted from long ago and prevails even now. Literature never fails to project the above said issue. One of the prolific American writers Harper Lee's Go Set a Watchman pictuarises the racial discrimination in Southern America during 1950's. The characters such as Atticus, Alexandra and Hester feels that black people are different from others. They suggest that black people should not get same privilege as given to white people. Jean Louise who visited her hometown saw many changes that people of her hometown has changed into racist. This study examines in all the aspects such as politics, economy, family patterns and education

Literature is a faithful depiction of life. It is influenced by social, political and cultural phenomena and movements throughout history. Race and race relations play a significant role in literature in social and political issues for centuries. It is clearly said in the following lines that "People need to free their minds of racial prejudice and believe in equality for all and freedom regardless of race. It would be good thing if all people were treated equally and justly and not be discriminated against because of race or religion or anything that makes them different from others" (Parks).

Every writer attempt to picture life according to his/her perception of the same with an artistic output. One of the prolific American writers of the twentieth century is Harper Lee. She is known by her pen name Harper Lee. She is widely known for her *To Kill a Mockingbird*, which was published in1960Lee was a member of the literary honor society and the Glee club. After her first novel, she became popular in United States. She was awarded Presidential Medal of Freedom for her contribution to literature in 2007, received from George W Bush. This is the highest Civilian award in the United States. Her famous novels are *To Kill a Mockingbird* (1960) and *Go Set a Watchman* (2015).

Go Set Watchman deals with Scout's childhood, her adult romance with Henry, racism and daily rhythms of life in a small town Maycomb. Her first novel *To Kill a Mockingbird* depicts the growth of extraordinary circumstances in the 1930s in the Southern United States. The story covers a span of three years, during which the main characters undergo significant changes. It was published on July 11, 1960. *Go Set a Watchman* is a novel which tells the story of an adult Scout returning to visit Maycomb from New York City. This novel discusses about racism in Southern America and how white people saw African Americans during 1950's.

According to Paul, *Go Set a Watchman* was written to reflect the racism during 1940s in the 1950s in Southern America. Scout who had moved to New York and had been immersed in the modern thinking that segregation was wrong. In 1950s and 60s a black person was literally a second class citizen. The title was taken from Isaiah 21:6. This novel screams challenging our consciousness about racism and reminds us that no person is an island especially in Alabama in the 1950s. Harper Lee's reflection in this book is Scout and this is how she felt when she returned home from New York to Alabama. Lee in her book has said that all are hypocrites in different ways and our attitudes too race is one of the oldest forms of our prejudice against our fellow man. (Paul)

Heather Birrell expressed his views that the novel *Go Set a Watchman* focuses on a 26 year old Jean Louise, who has returned to her hometown of Maycomb to visit her father Atticus. While in Maycomb, she learns of Atticus's and Hank's involvement in the Citizen Council, an organization devoted to maintain the racially segregated status of the town. This book has been described as a more complex, perhaps more cynical to take on race relation than its predecessor. (Birrell)

Elements of racism are depicted in *Go Set a Watchman* by Harper Lee in all the aspects such as economic life, political, family patterns and education. This novel mainly represents, Atticus as an aging racist who has attended a citizen council's meeting and holds

ISSN / 2320 - 4494
RNI No.MAHAUL03008/13/1/2012-TC

Power of Knowledge

An International Multilingual Quarterly Refereed Research Journal
(UGC Approved Journal Sr.No.45681)

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Volume II - 8th January, 2018

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Revisiting a Resilient Adolescent: A Trait Approach on Horton Foot's *Convicts*

Dr. S. Boopathi

Asst. Professor, *Dept. of English, Periyar University, Salem-11*

Introduction:

In whatever endeavour one may involve oneself, knowledge of human nature cannot be kept on the sidelines. Literature has its basis in the interest in human nature as does psychology. The enigma called man has occupied the thoughts of philosophers from ancient times. The fact that he is still an unsolved puzzle makes the study of him all the more interesting. After the advent of psychology there have been any numbers of attempts to say the final word on the species called Homo sapiens. The ultimate aim of every new theory in psychology is to analyse, understand and classify the complexities of human personality which differs from person to person and situation to situation. So far, no single theory of psychology has been able to state with certainty any governing law of human personality on the lines of say Newton's law of gravity or those of motion. The intrigue and enigma continue.

No theory of personality can be said to be more or less valid in comparison to others. Each is important and has validity in its context. The theories from psychoanalysis to socio-cognitive perspectives, focus on changes and challenges of childhood and adolescence. Broadly they fall into two categories– emphasising unconscious motifs and beliefs or attaching importance to the development of conscious self. Some value the human effort in transcending while others concentrate on the control by the environment. With a few exceptions these theories tend to overemphasise a particular aspect of personality rather than arriving at a holistic perspective. Definitive answers about personality are not provided by these theories and it must be admitted that no theory can succeed hundred percent in this regard. But trait psychology does give us knowledge about personality which is more tangible and recognisable by comparison. *The Gale Encyclopedia of Psychology* points out that trait is "characteristics that differ from one person to another in a continuous and consistent way." "Traits include such personality characteristics as introversion, aggressiveness, generosity, nervousness, and creativity. Systems that address personality as a combination of qualities or dimensions are called trait theories" (Strickland 649).

According to Gordon W. Allport, considered the father of trait psychology, the characteristic patterns of behaviours are determined by the organising force of personality within the individual. Trait in his opinion is "a neuropsychic structure having the capacity to render many stimuli functionally equivalent, and to initiate and guide equivalent (meaningfully consistent) forms of adaptive and expressive behavior" (Carducci 261). Allport's and Cattell's trait theories are too broad and complex to comprehend whereas Eysenck's theory is too small to cover all the domains of personality. The Big Five Trait theory, a product of collective effort by psychologists, goes a long way in overcoming the limitations of other theories. It is a balanced theory as it incorporates the positives of the various theories of personality. The Big Five has engaged the best minds in the field of psychology and among them the notable ones are Paul Costa Jr and Robert McCrae. The present study employs their model for analysis. The Big factors of personality are Extraversion, Agreeableness, Openness, Conscientiousness and Neuroticism. Originally, this model was designed based on analysis of the words used by people in describing personality in everyday language, the lexical approach to personality as suggested by Goldberg and Norman. Assessing one's personality with the help of words uttered by him/her or by others about a person has been in practice in psychological research for a long time. The best example is the analysis of literary

ISSN 2349-8684
23498684

UGC Approved Journal
J.No. 48991

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International Journal of Multidisciplinary Researches

A Peer Reviewed, Refereed & Quarterly Journal with Impact Factor

Vol : 4 No : 1 August 2017 ISSN : 2349-8684

Now Roots International Journal of Multidisciplinary Researches with **IMPACT FACTOR 3.487**
According to 2016. Scientific Quality, Editorial Contextual and Journal Citation Reports Released by International Institute of Organized Research (I2OR)http://www.i2or.com/pif.html

Edited by
Dr. S. BALAKRISHNAN

ROOTS
INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCHES

A Peer Reviewed, Refereed and Quarterly Journal with Impact Factor

Vol: 4 **No: 1** **August 2017** **ISSN: 2349-8684**

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Academic Excellence in research is continued promoting in research support for young Scholars. Multidisciplinary of research is motivating all aspects of encounters across disciplines and research fields in an multidisciplinary views, by assembling research groups and consequently projects, supporting publications with this inclination and organizing programmes. Internationalization of research work is the unit seeks to develop its scholarly profile in research through quality of publications. And visibility of research is creating sustainable platforms for research and publication, such as series of Books; motivating dissemination of research results for people and society

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A RESILIENT ADOLESCENT: A TRAIT APPROACH TOWARDS THE MAJOR CHARACTER OF HORTON FOOTE'S ROOTS IN A PARCHED GROUND OF VIKRAMLALL

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Abstract

Trait theories treat personality as a unique combination of qualities thus making it multidimensional while most other theories fail in this regard by fitting individuals into a single category. A fertile land to test the different dimensions of personality is found in the prolific American playwright, Horton Foote's plays. The aim of this study is to find out the innate traits of the protagonist of the play Roots in a Parched Ground through his patterns of behaviour in the given context.

Keywords: *Trait theories, Horton Foote, Roots in a Parched Ground, Dimensions of personality, Resilience.*

Trait theories describe the conscious and concrete aspects of personality in direct terms. At the same time, they reject the unconscious and abstract explanations of human behaviour. Trait theories are based on verifiability by observation or experience rather than on abstract concept or pure logic. These theories use straightforward terms like friendliness, gregarious, adventurous, active etc. The interconnectedness of traits shapes the patterns of one's personality.

Foote's writing is the proof that all great American literature is not all about journeys and adventuring beyond madness. Foote picturises what can be perceived by looking deeper into life and how change and loss can be coped with. His plays especially deal with the consequences of the scattered American Dream. Foote does not paint a negative image of America. Instead he projects a hard reality which everyone must accept and understand. Analysing such plays gives a deeper insight into the working of the human mind in testing situations.

In *Roots in a Parched Ground* (*RPG*) the protagonist Horace Robedaux is the centre of attention. He is a young boy of twelve who finds himself wedged in between the quarrelling paternal and maternal families as his parents have been separated for a long time. Horace is projected as a pleasant and humble boy the fact of which can be witnessed in Horace's first conversation with his cousin Minnie. His respect for others and obedient nature are shown here. He readily obliges when Mrs. Robedaux asks him to inform the Thorntons to stop playing music. "Horace will you please go over there and ask in heaven's name they cut out that noise? Your father is in there fighting for his very life and the least noise is a torture to him." Horace replies: "Yes Ma'am (He goes out)" (*RPG* 9). Humility, obedience, and respectfulness are the components of modest behaviour and facets of the trait of agreeableness. Modesty is crucial in making one's self.

Modesty is a mode of self awareness that requires one to recognize that one is both defined by social standards of success and irreducible to these assessments. Modest people communicate this self-understanding through behaviour motivated by the desire to ensure that their accomplishments do not cause pain to others. (McMullin 783)

It is the essential quality of an agreeable person. Foote never misses a chance to project his characters' minute details which strengthens his portrayal and makes it authentic. Horace's gentleness and good nature are not only witnessed in his own dialogues but it can be inferred through the people who live around him. One such instance is Mrs. Robedaux's assessment of the Thorntons. It is hinted that Horace is a person with potential to turn out to be a good character and Mrs. Robedaux hopes that he will not be tainted by traits demonstrated by the Thorntons.

Being very young, he does not realise the value of education. The important factor behind his lack of motivation is the indifference and total lack of his interest from his maternal side. Out of respect for elders he agrees when they advise that education does not matter. But at the same time when his ailing father advises him that he should catch up with his studies, Horace without hesitation makes a promise to attend school regularly. One of the main reasons for Horace's skipping of classes is the Thorntons' ignorance about the importance of education. It is the major barrier in Horace's education. Horace finds himself under

challenging circumstances. Caught between the competing opinions he finds it hard to decide whom to follow—Thorntons who are uneducated but well off or Robedauxes who are educated but economically weak. Foote seems to present Horace as a boy who accepts and does whatever he is asked to do by the elders of both his maternal and paternal families. Throughout the play he is never seen objecting or disobeying anyone in any situation. He is dominated by the compliance facet which leads a person to surrender his/her will to others. "Compliance is a type of social influence where an individual does what someone else wants them to do, following his or her request or suggestion. It is similar to obedience, but there is no order – only a request"

(McLeodhttp://www.simplypsychology.org/compliance.html). The characteristics of compliance are seen in Horace from the beginning till the end of the play.

In the middle of Act I, Horace's father dies after having been confined to bed for a long time. But Horace does not express any emotions and it is not clear what he feels about the loss. He simply does his job as usual even on the day of his father's death. Though he has respect for his father, he does not express his feelings or thoughts about the loss. Horace's behaviour is unusual which is a result of him lacking in the trait of openness This explains why Horace cannot give expression to his emotions. Following his routine even on the day of mourning may prompt us to answer whether Horace is callous or whether he can feel sympathy for others. Facets of agreeableness are present in Horace but owing to the near absence of traits of openness he keeps his emotions and feelings to himself. It is possible to surmise that it may be due to the constant advice of two families who are least concerned about knowing Horace and what his predisposition and preferences are. His apparent lack of expressiveness need not mean he is insensitive. In his interactions with his relations he knows what the other is feeling which goes to show that Horace is a person with good capacity for empathy.

In the end of the first act of the play, it is revealed that the reason behind Horace's irregularity to school is that he has been discouraged. He has never been motivated positively regarding education. Terrence is aware of Horace's condition. "Horace doesn't like school. He's discouraged and has gotten behind. His father and I told him he shouldn't be. I'll help him as long as I'm here. . . . ." (*RPG* 59)

The second act of the play begins with the sense of anticipation as to how far Horace would keep the promise he has made to his dying father, that he will attend school regularly. Foote is careful to show how those who want him to be educated play no constructive role to make him do so. Terrence cannot help him due to illness and the friends of his father are quite busy with their own work. Horace receives no help from any quarters. The beginning of Act II brings forth Horace's characteristics of competence and achievement striving. Even in the absence of anyone to initiate and help him Horace does not give up his hope and wants to study law. In life, people do strive after goals with some failing it and others succeeding. Under testing circumstances a person, that too a boy of twelve, must give up in all probability but Horace persists in striving despite discouragement and hope's refusal to show its face. But he never lets hope go. It is a known fact that hope is the propelling force in everyone's life. As a trait hope is dominant in Horace. Hope is defined as "a cognitive set that is composed of a reciprocally derived sense of successful (a) agency (goal-directed determination) and (b) pathways (planning of ways to meet goals)" (Snyder 570).

Hope arises in a person who does positive thinking, a facet of extraversion. Every single hope in life is shaped and kept alive by positive thinking. Horace is positive and asks his grandfather Mr. Thornton to help him catch up in his studies. Here again Horace meets with disappointment as Mr. Thornton replies that neither he nor his son can help him in studies as they themselves are under-educated. But Horace does not lose heart as he is governed by the trait of extraversion. In the course of the play, Horace comes to know that his mother is going to marry a man from Atlanta. This motivates him to rejuvenate his hope. Positive thinking comes to the fore again. It is obvious that Horace's wish to pursue law is genuine and that he would never let go of an opportunity to honour his father's wish.

Horace's filial feelings and commitment are strong indeed. He is motivated in this respect by the trait of conscientiousness. Foote has presented the gradual development of the protagonist's positive thinking into competence and achievement. His resolve to attend classes is evident in the lines given below.

LARRY. Why do you fish so early these days?

HORACE. So I can get to school.

LARRY. How come you started going to school so regularly?

HORACE. Because my mother has married again a man that works for the L&N Railroad in Houston They're

coming here tomorrow and I'm going back to live with them and go to school in Houston. I wanted to learn all I could before then so I wouldn't be too far behind in Houston. (*RPG* 76)

Self awareness plays a crucial role in Horace's transformation. In the climax of the play, things seem to have undergone a change. Horace is in his spirits and is ready to go to Houston and learn law. But Horace's expectation is to be frustrated as his uncle Albert offers him a job in a plantation store to help him out.

Even as Horace regains fully the motivation to pursue studies, the situation at home turns contrary to his intention. Everyone at his home is convinced that Horace does not have interest in studies and that he prefers to work. Surprised at their attitude Horace pleads, "I've been going to school lately, Grandma. I haven't missed a day in three weeks" (RPG 79). But Horace is not even listened to and there seems to be total agreement on his being fit for work. There are also little lectures on the positives of hard work. Horace interventions go in vain. At one stage he mumbles "I kind of want to go to Houston and live with you mama" (*RPG* 80). Picking up determination Horace finally expresses his intention.

A boy of twelve struggles much to express his interest. Others, including his mother, have their own concerns and are not willing to accommodate Horace's wish. In addition to the blow that he cannot go to Houston, his stepfather further discourages him by claiming that the law profession is not a good choice. He exaggerates by declaring that many lawyers are starving to death.

On realising his situation, Horace does not react as boy of twelve is wont to but remains composed and silent. Soon after this incident, Horace is seen on the river bank smoking a pipe. There comes Lloyd a boy of his age who queries. "There's singing over at your house. (He takes out a pipe too. and begins to smoke) why aren't you up there with the rest?" Horace replies: "Too noisy, too many people. I like it down here where it's quiet" (*RPG* 83).

Horace's response to Lloyd's question reveals that the former has what can be called depth of character. It is obvious that everyone in the play has problems. Instead of coping with them they prepare to distract themselves with singing. But Horace on the other hand is brave enough to confront the problem and make sense of his situation. In other words, he has good capacity for introspection. At a surface level it might be argued that Horace is depressed which is a sign of neuroticism. There may be depression in Horace and the situation may warrant a neurotic response. But Horace does not react in the expected way but goes to the riverside to contemplate his condition which is suggestive of mental and emotional maturity.

It is always hard to accept changes that we do not like. Even adults do this and get themselves entrapped. But Horace is ready to accept his condition and reconcile himself. Foote often gives instances of Horace coping with and adapting himself to new circumstances. The following conversation between Horace and Lloyd is quite revealing.

LLOYD. You're not going back to school?

HORACE. Nope.

LLOYD. What are you going to do?

HORACE. Going out to the Gautier's plantation with my uncle and work in the store.

LLOYD. How much will he pay you?

HORACE. My grub, all the tobacco I want, and four bits a week.

LLOYD. You're on your own now.

HORACE. I'm on my own. (*RPG* 83-84)

Ben Brantley's observation on this conversation in The *New York Times* is very pertinent.

I'm on my own,' the other answers, staring straight ahead. He is 12, and his father has just died. He is not kidding. He is also absolutely right. This sun- clouding moment of perception, in which all-American idyll takes on a mortal chill, occurs in the opening chapter of what promises to be the great adventure of this theatre season. (http://www.nytimes.com/2009/11/20/ theater/reviews/20orphan.html.NOV. 19, 2009)

Horace's answers to the questions demonstrate determination and self reliance. These qualities are associated with the conscientiousness trait, especially the combination of competence, self-discipline and deliberation facets. Horace's replies make it clear that he is a thoughtful person who brings his emotions and feelings under his cognitive scanner. Calm and composed he is not demonstrative and his replies to Lloyd's questions carry a quiet dignity. Self-pity and complaining that follow such situations are totally absent in Horace. Lloyd asks him "Last time I talked to you, you were going on about studying law in Houston." Horace's response is free from complaining. "I've changed my mind I would not care for a city, I decided. I'd miss my fishing" (*RPG* 84-85).Further, he is not afraid to make a choice and accept responsibility for himself. Comprehending that he receives no support for his idea to continue studies, he makes the next choice that incidentally is also not against his heart's desire. He cannot now honour his father by keeping up the promise to study

Studies may not materialise but the will to honour his father is very much there. He is determined to buy a tombstone for his father. Yet again the trait conscientiousness is at work in Horace. Horace immediately looks for ways to fulfill the next best wish to buy a tombstone for his father's grave. A striver after goals and achievement he starts enquiring about the cost of a tombstone. Scared though, he has set his mind on the next goal. Foote ends the play on an optimistic note. Tyler seems to be aware of the possible attitude in Horace when he asks him: "Where are you off to?" Horace replies without a trace of perturbance or turbulence."Going uptown to look for empty whiskey battles" (*RPG* 87). He is not a quitter but an adventurer who will always persist.

Achievement striving is the driving force behind Horace's hope. It remains so even at the end of the play. Horace is left in a society where money is more important than education and there are no choices for persons like him to make in the matter of education as it cannot be done without parents' support. Foote does not indulge in deliberate glorification of his protagonist. It is simply a question of how a boy of twelve manages circumstances where work and money are considered more important than the wishes and dreams of an individual. In presenting the life of a little boy, Foote excels in characterisation. The play gives a vivid picture of what happens when a rich family becomes poor, especially to the younger generation. The rootless younger generation is presented with stunning authenticity by the playwright. Horace is presented as a boy who tries to find his roots in both maternal and paternal families. But failing in his attempt he finds his own way to live. His personality is highly influenced by both agreeableness and conscientiousness traits. Horace is dominated by the facets of source traits like trust, compliance, modesty, tender- mindedness, competence, dutifulness, achievement striving, self- discipline and deliberation. Some bahaviours are dominated by single trait and others by two or three facets together. These traits are the guiding force for or the basis of the skills he displays on various occasions in his life. Agreeableness and conscientiousness are the major contributors in forming the basis for the skills employed by Horace to negotiate his life and the experiences it throws in his path. With the help of these identified skills he could administer himself as a resilient adolescent.

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Vol.1 Special Issue 12 July 2017 ISSN: 2456-5571

DEVELOPING READING COMPREHENSION THROUGH ACTIVITIES FOR CHILDREN WITH *ADHD*

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Abstract

The present paper explores the process of teaching English to children who have difficulties in learning languages due to their attention deficit and hyperactivity disorder. When a child has ADHD, they may have language learning disabilities. A child's academic success is often dependent on his or her ability to attend to tasks and teacher and classroom expectations with minimal distraction. Such skill enables a student to acquire necessary information, complete assignments, and participate in classroom activities and discussions (Forness and Kavale, 2001). When a child has ADHD, they may have language learning disabilities. Not all ADHD children hyperactive problem some children have shorn memory span, impulsive problem and inattention on required task. Impulsive person fails to have good behaviour and relationship with his/her friends and teacher. This behaviour often affects their academics. Usual way of classroom teaching will not be applicable for children with ADHD. Special kind of activity teaching will be effective for them. Teacher should teach them according to their area of interest. Researcher did pilot study for 15 days in order to find kinds of learners. As result two kinds of learners were audio visual learners and kinesthtic learners. There are totally 12 children from 7th and 8th grade. Six of them are audio visual learners and other six are kinesthetic learners. Researcher took respective children's subject poetry as learning material. Researcher find that the children are much involved in academic activities.

Keywords: *ADHD Attention Deficit and Hyperactivity Disorder, Reading comprehension, Activities.*

ADHD and Language Learning Disabilities

According to Turketi, Attention Deficit Hyperactivity Disorder has long been considered a Learning Disability called a Minimal Brain Dysfunction that result in the lack of concentration, impulsivity, restlessness and a way of processing information that is different from that of other learners. Recently, it has been classified as one of the *Learning Disorders (or Differences)* caused by a specific brain development. Some studies have shown that the language abilities of an ADHD child are affected by a deficit of working memory (Witton, 1998). According to kamila, Learning disabilities have been discussed by many authorities. In order to understand the issue it is also necessary to have some basic knowledge of brain functioning. The reason is that learning disabilities are said to be caused by some kind of brain anomalies, injuries, perception disorders, which can result in difficulties in learning, processing information and remembering (kamila, 2009).

As mentioned above statement researcher find same symptoms among the focused group of children. ADHD is often associated with deficiencies in the frontal lobe of the brain. This area is responsible for language processing and memory. While ADHD is not always classified as a learning disability, people with ADHD often require extra help from speech pathologists and other

(BE) LONGING FOR BACK TO THE WOMB IN *A THOUSAND SPLENDID SUNS* BY KHALED HOSSEINI

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Abstract

Afghanistan is the country known for multi ethnicity, multi-linguistic and fundamentalist attitude towards religion. According to history, Afghanistan is the country which was embraced by peace and happiness before the arrival of wars. Due to wars and struggles, the peace loving country has changed its face as war-torn country and afghan civilians migrated to other countries. These invasions particularly the soviet invasion led mass departure of the Afghan people to various countries. Afghans who are now living outside of their homeland due to political disturbance have given birth to Afghan Diaspora.

Afghan expatriates despite facing many problems in isolation; they are still attached to their culture, custom and tradition. The title and the importance of this paper highlight the sense of longing and belonging of Afghans towards their homeland and back to the womb represents the reminiscence of their past by remembering their homeland's tradition and ethnic culture in Khaled Hosseini's novel A Thousand Splendid Suns. This novel published in 2007 by Afghan-American author Khaled Hosseini, it focuses on the riotous lives and relationship of Mariam and Laila, two Afghan women. They are considered as a witness for the atrocities and violence that happen in Afghanistan.

Mariam who lives in Kabul has sense of longing towards her native place, Herat and. Laila escapes from her homeland due to fear and violence from Afghanistan to Pakistan. This paper focuses on the diasporic feeling of Mariam and Laila who are considered as the representatives of Afghan diasporic society. Memory and hope are the strength of diasporic individuals which make them to return to their home land. The afghan civilians are isolated in their own country and also longing for their past peaceful country.

Keywords: *Diasporic life, afghan Diaspora, nostalgic, memory.*

Home is the place to live and homeland is the land of attachments, memories and relationships. Home plays an important role in everyone's life that makes an individual to get attached to the homeland and patriotic sensation towards one's country. The shift of the home from one place to other carries all the memories, traditions, cultures and ethnic identities. When the departure starts from homeland diasporic life begins and it creates an environment filled with memories and imaginations of their homeland. These are the important factors in the diasporic literature. In diasporic life, human mind craves for belongingness and for the proper recognition in terms of identity.

The citizens of any country will move to another country with the purpose of their business, study or after marriage. This scenario is different in current times. The citizens exile due to political and economic issues, civil and world wars. These conflicts in a country push an individual to exile from their homeland to host land or to survive in their same country with lost identity. In this era many people exile not to live rather to

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UGC Approved Journal: 44274

An Online Peer Reviewed, Refereed and Quarterly Journal

Vol 1 Special Issue 3 July 2017 ISSN 2456-5571

www.bodhijournals.com

BODHI

International Journal of Research in Humanities, Arts and Science

An Online, Peer reviewed, Refereed and Quarterly Journal

Vol : 1 Special Issue : 3 July 2017 ISSN : 2456-5571

UGC approved Journal (J. No. 44274)

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INTERNATIONAL JOURNAL OF RESEARCH IN HUMANITIES, ARTS AND SCIENCE

An Online, Peer-reviewed, Refereed and Quarterly Journal with Impact Factor

Vol: 1 **Special Issue 3** **July 2017** **ISSN: 2456-5571**

Aim & Objectives

Academic Excellence in research is continued promoting in research support for young Scholars. Humanities, Arts and Science of research is motivating all aspects of encounters across disciplines and research fields in an multidisciplinary views, by assembling research groups and consequently projects, supporting publications with this inclination and organizing programmes. Internationalization of research work is the unit seeks to develop its scholarly profile in research through quality of publications. And visibility of research is creating sustainable platforms for research and publication, such as series of Books; motivating dissemination of research results for people and society

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CHICK PRAXIS IN THE NOVEL THE OTHER SIDE OF THE STORY BY MARIAN KEYES

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Abstract

"I would rather spend one lifetime with you, than face all the ages of this world alone"(Lord of the Rings) these are the lines which are often heard from the lovers when they are filled with delight. But these lines will fade away when they get into conflict. Nowadays to save their self identity, women do anything. For women, cope up with emotional stress. Their partner does not respect them and feel dissatisfied with love. To a woman especially a modern woman, dignity and self respect are like the apple of her eyes. The women nowadays are not so submissive. They question and argue for their equality and for some good reasons they go through break ups and turn their lives for a better future. Jojo Harvey is inconvincibly attracted to her boss and has an affair with him. As well, Lily Wright too is attracted to her best friend Gemma's, lover and she expresses her love for Anton without any shame. These two girls pretty well know they are betraying another woman to satiate their own needs. At last, when they find that their selected lovers also betray them and they feel as though as they are stirred up in the middle of their dreams. Instead of feeling guilty, they prepared themselves for a break up and make their track towards the different part, where they enjoy their own self and identities which they feel that they had lost earlier.

Chick lit novels are very popular, especially among young women. These novels deal with current issues. Suzanne Ferriss and Mallory Young (2006: 3) define chick lit as a type of women's fiction that tells about single, young career women and their problems in working life as well as challenges with relationships and everyday life. Ferriss and Young (2006: 3) further continue that chick lit has a specific audience and narrative style. Helen Fielding's *Bridget Jones's Diary* (1996) is considered to be the cornerstone of chick lit. However, according to Rocío Montoro (2012: 6), by the time *Bridget Jones's Diary* appeared in Britain, Marian Keyes's first novel, *Watermelon*, published in 1996, was already creating interest in Ireland.

The Other Side of the Story includes themes that are important to women and belong to their everyday lives. They depict a woman's place in the world and in romantic relationships, creating a possibility to explore and discuss society's views in the process. Social and political change in society has altered the position of women as well as expectations of society. These changes have also an effect on literature, and as a result, chick lit has an opportunity to introduce new matters into discussion in addition to the issues that classic romance literature presented.

Marian Keyes as a woman faced a lot of struggles like male dominance, gender discriminations e.t.c. She expressed her woman power in her novel The Other Side of The Story. The protagonists Jojo Harvey, Gemma Hogans and Lily Wright. Though the heroines love their beloved more than themselves, it is necessary for them to express their self respect at times. The true love will exist only if the position given by the beloved to his lady love subsists. Though Gemma

ISSN: 2456-5571

loves to be with Anton to the rest of her life, it is destroyed by her best friend Lily Wright, when she gets pregnant with Anton. Like Jojo Harvey pretty well aware that she is in love with a married man, she expects him to set a life with her. And Jojo's dream is to become a partner in her workplace, but the total dream and the love life breaks down when she comes to know that her own lover voted against her during the selection of partnership. These two ladies are pretty clear in their decisions and are ready to set the life of their own.

Lily starts a relationship with Gemma's boyfriend, Anton. The end of her friendship with Gemma bothers Lily, because she has to live with a bad conscience for stealing Gemma's boyfriend. All of the heroines have relationship issues with their romantic partners. Lily's domestic partnership crumples under financial difficulties and a stressful house building process.

Jojo believes that her beloved Mark will do anything for her. And she expected him to vote for her during the partnership selection, but she is betrayed by him and that betrayal is informed to her by her rival. This makes her shocked and burst into her beloved Marks cabin and shoots out her anxiety to hear the truth from his own mouth

> "He looked up, as she came in.
> 'Mark, tell me the truth because I'll find out anyway. Did you vote for me?
> A too-long silence. Then, 'No'.
> She stood stock-still for the longest time. Yet again, she felt like she was dreaming. She was getting kinda tired of these out-of-body experiences"(Keyes 558).

This unexpected answer from her beloved Mark makes her breakdown and she can't even believe the words which she heard from him. She expresses her shock and pain equally by standing Mum in front of him. But Jojo is not a type of submissive and accepts the reasonings, instead she just expresses her hatreds by resigning her job. Though the Dalkin Emery is ready to give her the partnership, she is not ready to accept it because she shows her opposition by ignoring the reward. She waits for the proper announcement of her partnership and acted like,

> "Jojo checked that the announcement of her partnership was in *Book News*, then she went to Mark's office and handed him a letter. He looked at it. 'What's this?'
> 'My notice. I'm leaving.'
> Mark looked weary beyond weary. 'Jojo, for God's sake...
> You're a partner, isn't that what you wanted?'
> 'Only because my boyfriend pulled strings.'
> 'If your boyfriend had done the right thing in the first place by voting for you, he wouldn't have had to pull strings. I'm so sorry'"(keyes 568)

She feels fulfilled when she thinks that she makes a revenge against Mark. Whatever the consequences she is ready to face it, to save her self respect. This is what woman power which she expresses to this male dominated corporate world.

On the other hand Lily is aware that her lover Anton is giving some importance for Gemma, his former lady love. And also his spendthrift attitude makes her feel insecure. She also needs some savings for her little girl Ema's future. So she likes to depart from him. She expressed it to her friend Irina:

> "Unfortunately, no: Anton's brush with Gemma, or at least her book, had revealed the full extent of the rot in Anton's and my relationship.
> And the fact that, once again, another of Anton's business ventures had collapsed, convinced me that my life with him would always be a financial roller coaster. I could not live that way. I owed it to Ema to seek stability"(keyes 580)

Here Lily expresses her womanly power by splitting up with Anton to seek a life for the promising future of Ema. She feels insecure with Anton and is in a confusing

state. She thinks that he is going away with his former lover Gemma and she prepares herself to split up with him. She also experienced the male attitude of Anton by hanging up with his old relationship.

Both the heroines are well experienced the backlash society and are ready to express their reactions straight away to them in a powerful way. Though the heroines have emotional bondings towards their beloveds, they are ready to split up with them to save their self respect and also they awakes the society to understand the importance of the woman's feelings and emotions. They break the phallocentric society and insists the society to accept the reality of the Chick praxis.

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[illegible] had begun to crac[illegible]

[illegible]'s ability to handle events of fragmentation and reassembly by means of [illegible] syntactic jugglery. Thus all such syntactic efforts to hold things together also imply, by their very presence and nature, the centrifugal force of the diversity that makes them necessary, as do the equally frequent foreshadowing's and recapitulations. And the same applies to imagery and events implying fragmentation and reassembly. Aadam Aziz must put together his bride- to-be from successive circular instalments glimpsed through a hole seven inches in diameter. Amina sets about loving her entire husband by concentrating her affection separately and successively on 'every single one of his component parts: physical as well as behavioral' (68). Ahmed dreams of reassembling 'the Quran in accurately chronological order' (82). And Lifafa Das strives desperately to achieve universality by adding more and more disconnected pictures to his peep-show (75-6). [James Harrison]

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Rushdie himself has said of the novel: One reason the book is so long is ... the joys of the novel being something that includes as much as possible. It seems to me really that there are only two kinds of novel. There are novels, which proceed on the basis of excluding most of the world, of plucking that one strand out of the universe and writing about that. Or there are novels in which you try to include everything, what Henry James called 'the loose baggy monsters' of fiction.

He also has his narrator, Saleem Sinai, ask of an artist whose paintings start as miniatures but catch elephantiasis, and is this an Indian disease, this urge to encapsulate the whole of reality? And Richard Cronin, in a study of *Midnight's Children* and Kim, replies that 'only those like Rushdie, who write about Indian in English (still, ironically, the nation's only true lingua franca) are likely to catch the disease and have the temerity to tackle India in its entirety.

Rushdie's prose style alone shows both the effort involved and the strains inherent in such a task. The penultimate paragraph of the book, for instance, from 'I will have train tickets' to the end, furnishes the remainder of Padma and Saleem's marriage day, recapitulates for the last time the preceding events of the story, and closes with the fission of Saleem ... bones splitting breaking ... bag of bones falling down downdown' as Shiva and the Widow close in on him from either side, all forty — five lies of print without a period (463–7). Earlier and similar passages capture the confusion inside head when he first discovers his telepathic power (179–1), the conflicting points of view expressed at a typical session of the Midnight's Children's Conference (MCC) in the parliament of knowledge, and the tension – filled the thirteen days of Parvati-the-witch and the Widow's refusal to resign (417 –19). But much most complex is the paragraph devoted to the bomb explosion that kills Saleem's family (342–3). A change from past to present tenses, the more striking for occurring midway through a single sentence, marks the crucial turning point of Saleem's amnesia. And no other passage in the book incorporates so much important ongoing action, so detailed a recital of past events, and such a wealth of implication for the future, all interwoven within a single syntactic unit. All such instances of recapitulation and/ or foreshadowing, moreover, considered single and collectively, are among Rushdie most frequently used and effective devices for creating unity out of a diversity that often verges on chaos.

Rushdie's extended sentences retain their spoken quality. And yet, unlike the extended sentences of Proust or James or even Faulkner, Rushdie's retain their spoken quality by being largely typographical breathless for lack of periods that the fastidious reader adds silently, but lacking in any sustained structural complexity. The example on pages 180-1 acknowledges as much by supplying capital letters without preceding periods to mark where new sentences might being. In effect, therefore, Rushdie is creating, stylistically, may be unattainable.

Rushdie's fondness for running words together and his use of colon to call attention to a grouping of items requiring emphasis. Tow further purely syntactic or typographical expedients can be seen as performing similar functions . There is in the first place, Rushdie's fondness for running words together, whether objectively, as in 'their heads were full of all the usual things father mother eating food land possessions family power God (101,228,9). More interestingly there is his use of the colon to call attention to a grouping of items requiring emphasis. What leaked into me from Aadam Aziz is certain vulnerability to Women, but also its cause, the hole at the center of himself caused by his failure to believe or disbelieve in God. And something else as well something within at the age of eleven, I saw before me

... are repeated several times throughout the book, though they are used in different ... concerning Midnight's Children 264). This is ... to break up the usual linear structure of novels of the Western canon and it is a technique which is used throughout the book. Events are constantly being foreshadowed, and previous events and characters affect present events and characters without any apparent sign of causality. Examples of the first pervade the book, though one the first is when the brandy bottle of the boatman Tai becomes a foreshadowing of Saleem's father's drinking (M.C-17). A good example of the latter is that the perforated sheet through which Saleem's grandfather Aadam Aziz is forced to love his wife 'causes' Mumtaz to her attempt to learn to love her husband, Ahmed, part by part and brings Saleem to see his life in fragments(M.C 107). The concept of linearity, which is after all the most ... feature of the narration ... to Saleem's ... Padma ... [illegible]

[illegible]

From the very first passages of Midnight's Children, Rushdie establishes the novel's unique narrative voice. Saleem narrates in the first person, often addressing the audience directly and informally. He also writes in a prose style that feels spontaneous and improvised, as if he were writing his thoughts down as fast as he can, without stopping to revise or edit. Midnight's Children doesn't represent a cool, composed account of past events, nor does it resemble an objective voice recollecting events from a distant vantage point. Saleem rambles and goes off ... digressions and ... much as one does in conversation. This prose style is ... to a stream of consciousness, and its ... Saleem's desperate urgent need to finish his tale before he dies.

Rushdie's prose style also makes the novel resemble a session of oral storytelling. The prose style also makes the novel resemble a session of oral storytelling, a feeling ... by the presence of Padma, Saleem's ... listener and ... within the pages of Midnight's Children. ... Padma plays the role of a ... [illegible]

[illegible]

LANGUAGE AND STYLE IN SALMAN RUSHDIE'S MIDNIGHT'S CHILDREN

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Abstract

Rushdie mixes different kinds of style and language and places the narrative within the oral tradition. We shall begin with a linguistic and stylistic analysis of the first paragraph of Midnights Children in order to show how Rushdie mixes different kinds of style and language to creative very different from traditional Western books. Form the beginning Rushdie places the narrative within the oral tradition by constantly arguing with himself about how to tell the story. He uses typical colloquialisms, e.g. 'No, that won't do', 'well then', ending a sentence with 'as a matter of fact' and beginning another with andance sentence is never completed, again typical of the colloquial style. 'It's important to be more...' He also, in the very first line, uses the all familiar 'once upon a time', which epitomizes the oral tradition of folk – tales, yet he immediately opposes this tradition by giving to the exact date and time of the action. He even draws a lot of attention to this by constantly elaborating on the details, again in a colloquial manner (e.g. 'Oh, spell it out, spell it out'). Rushdie shifts his narrative style at until this seemingly colloquial style, like the folk-tale allusion, is abandoned without any warning; he suddenly starts to use a very formal style typical of written language, e.g. 'mere trifle', 'and befallen', 'benighted moment. The language sometimes becomes almost solemn, e.g. 'entwined in fate'. his talk about prophecies and destiny helps to emphasis this solemn style. The formal style is seen in the syntax as well, e. g in the use of a passive construction, 'had befallen', which is typical of formal written language. He also use a sustained metaphor where the time of his birth becomes the 'occult tyrannies of those blandly saluting clocks, which have 'handcuffed' and 'chained' him to history and his country; this sustained metaphor is, of course, not typical of everyday language, but rather of an almost lyrical written language; i e completely different in style from the first part of the paragraph.

Rushdie mixes different kinds of style and language and places the narrative within the oral tradition. Rushdie changes the language sometimes moving into Pidgin English. But this style, too, is abandoned in the very last sentence of the paragraph stating, in a very down-to-earth manner and without any of the formal stylistic features, 'And I couldn't even wipe my own nose at the time.' This last sentence exposes the fact that in this book there is no fixed style or type of syntax, it changes constantly. Even the language changes, sentence moving into Pidgin English. All this supports my point that Rushdie is constantly trying to place himself outside the master discourse of the west as could be said, and has been said, by some post-colonial authors and critics, that English, as the language of the colonizer, cannot be used to represent the problems of the colonized. However, for Rushdie there really is no alternative; India has around 15 major languages and writing in any of these would immediately give the narrator of the story a regional identity. This would make it impossible for Rushdie to introduce the narrator as a metaphor for India, which is a major point in the novel. Instead of using a language of the colonized, Rushdie appropriates the English language to his own purpose by using the stylistic and linguistic effects mentioned above.

Returning to the first lines of the novel, another point to be made about them is that

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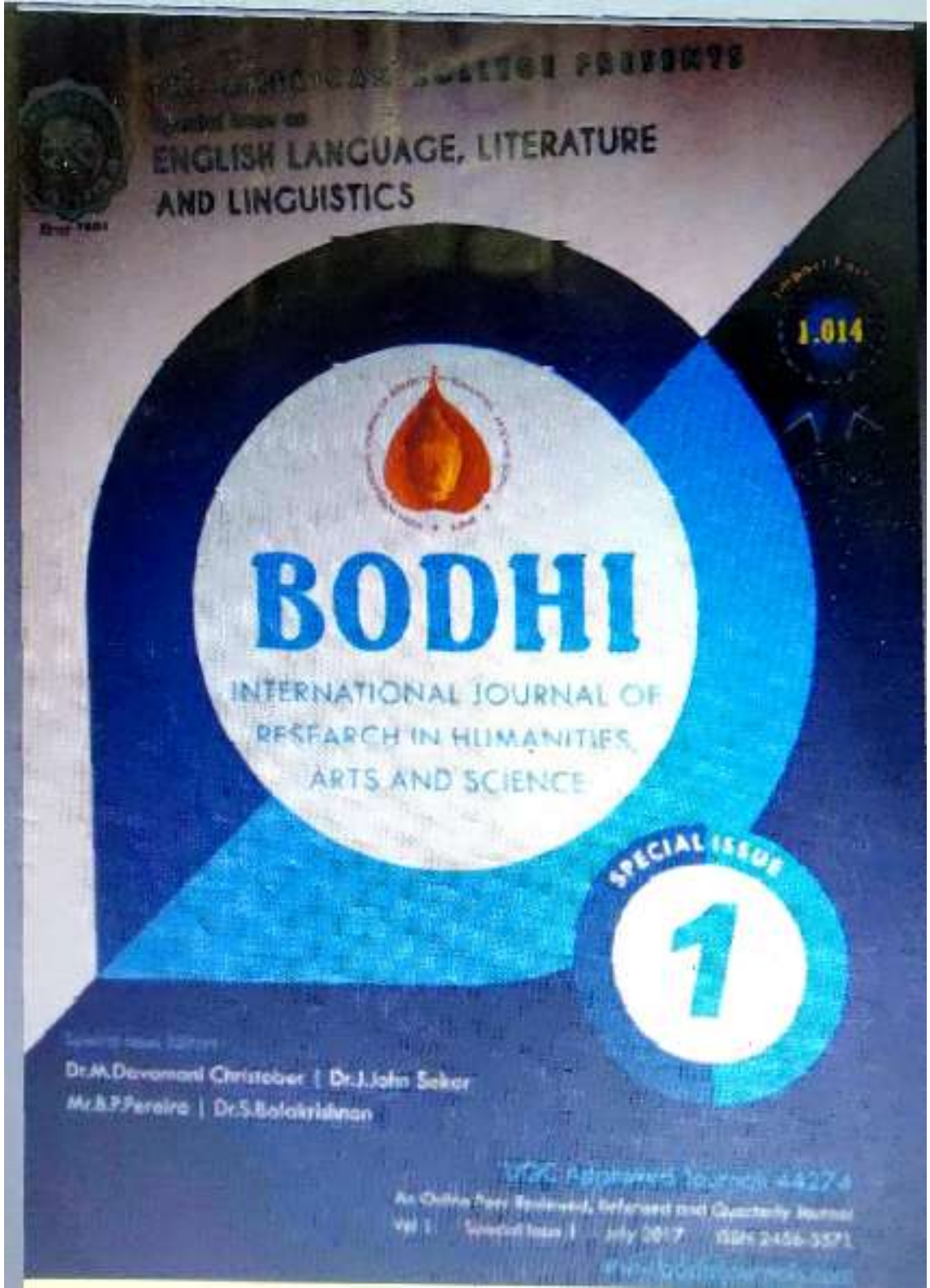
Vol : 1 Special Issue : 1 July 2017 ISSN : 2456-5571

UGC approved Journal (J. No. 44274)



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FEATURES OF E-CONTENTS IN TAMIL POETRY

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Abstract

The Tamil language is based on four skills Listening, Speaking, Reading and Writing, Reading and Listening play a vital role in Learning. The characters of e-content are consistency of content, ease of customization, learner control, easy feedback and cost-effective learning. The aim of the paper tries to give some guidelines for developing e-content to teach Tamil Poetry to the learners who wish to learn Tamil as second language. In order to prepare the e-Content, the investigator followed the ADDIE model of five phases' viz., analysis, design, development, implementation and evaluation. This can be facilitating students to master the concept of Tamil at their own pace.

Keywords: e-Content, Tamil Poetry

Introduction

Appointing native Tamil language teachers for teaching Tamil language across the globe is indeed practically not possible. But through e-contents it is possible to teach or learn Tamil from the native Tamil teachers since e-contents are anywhere and anytime learning and also has its own power and strength. It is needless to mention that Tamil being one of the living classical languages; it maintains its tradition and obtains modernity without sacrificing its original colours, for meeting both the classical and contemporary needs of the society (Cady et al., 2011). Having declared it as a classical language, there is a global acclaim among the Tamils as well as non-Tamils.

To make Teaching simpler and to make Learning interesting, Teaching Learning resources are essential. The classroom climate started to change in the 20th Century where Teaching started relying upon e-content. In the current scenario e-content is not a resource for training it has also taken the role of a trainer (Nachimuthu, 2016). It is the desire of the research to eliminate barriers in learning in Tamil and to instill the passion to learn Tamil language and to cause modification in the behaviour and also to cause higher achievement level.

Listening is the basic factor or prime most skill in a language. When language is attractive instead of being a threat, there emerges a confidence. That confidence increases the interest in learning the language. That interest would eliminate all complexities in learning the language (Vijayakumari, 2011). Tamil language is based on four skills Listening, Speaking, Reading and Writing, Reading and Listening play a vital role in Learning. Mastery in Listening skills ensures speaking and Writing skill exhaustively. There four skills are inter related and helps towards development of all skills. Ensuring learning and registering the essentials of

it in students mind eliminates the problems of Learning in Tamil (Anita Rastogi et al., 2009). If Learning has to be ensured and established then all the five senses must be occupied during the process of Teaching and Learning.

Characteristics of e-Content

Some of the important characters of e-content are 1) consistency of content; 2) ease of customization; 3) learner control; 4) easy feedback or evaluation and 5) cost-effective learning. The Consistency of content is achieved by the same learning being made available to anyone, anywhere, anytime with no degradation to the quality or effectiveness of the content or presentation. Learner control lets each learner complete just the sections of the learning they need leaving them free to come back at any time for more or to review what they have already covered. The instructional design in e-content will be learner-centered (Best & Kahn, 2010). The content would be authentic, and it may have the requirements like interactivity, hypertext and hyperlinks etc.

The e-content will present the content in multiple formats. The contents are explained with suitable graphics, animations. The instructional strategies will be chalked out in such a way that learner never lose the interest. It presents the content in a simple text with visuals and with relevant supportive headings (Homepage). It will have its own reference materials which generally do not burden the learners and those can appear on demand with optional frames. Some e-content has certain striking features like automatic retaking of the lesson.

Objectives of the study

The present paper tries to give some guidelines for developing e-content to teach Tamil Poetry to the learners who wish to learn Tamil as second language. It might be seen that there is a great lack in developing e-content material for teaching Tamil subject considerably. Hence, the investigator intended to develop e-content in selected topic in Teaching Tamil subject at XI standard level.

Methodology

The investigators presented the teaching points to the Tamil Professors and Tamil Teachers working in Periyar University, Salem and in higher secondary schools. They were appraised about the purpose of the experiment. After this, Tamil faculties verified and reviewed the teaching points. This ensures content validity and face validity of the items.

E-content development is student-centered; materials and activities are designed with the needs and interests of the student in mind. The e-content will be interactive. E-content is also useful for physically or otherwise challenged students to more fully participate. It also provides consistent and effective learning. E-content will have the ability to retain long-term access and goals (Nachimuthu, 2018). The good designing of e-

content is necessary to follow the steps of e-content development. The steps involved in developing the script are, mastering the subject, arrangement of the sentences, rearranging the work, drafting the full script with visual illustrations and added voice.

After the scripts were written, the contents of the selected portions in Tamil were transferred into the form of visuals. Visuals were made to use for illustrative talk. Audio instructions presented with the use of visual components were concerned, visuals were made. Rough drafts of simple and uncluttered layouts were prepared. Then these sketches were given to the technician then logical sequence were shot as such of the content visual (Nachimuthu et al., 2007).

After consultation with experts the investigator prepared the script for the e-content package. The script was prepared not missing even a single teaching point for the study of Tamil prose, poetry and Grammar. Based on the script, the investigator developed the e-content package for the subject unit. The developed script was given to Tamil teachers to check the accuracy of the content of the script.

It is a matter of importance that Tamil has a lot of unique properties which are not easily get-at-able to the neo-learners of Tamil language. The uniqueness is found to exist in all levels of language viz., phonology, graphology, morphology, morphophonemic, syntax and semantics, beyond syntax (discourse and pragmatics). To learn all those peculiarities, learner has to learn in mastery knowledge on Tamil language.

SELECTION OF THE SOFTWARE

The following major software was used to develop the e-Content. For design a frame page as background PHP software is used; for giving link between content, hypertext mark-up language (HTML) is used; for creating menu animation with videos and navigation JAVA Script is used; for editing of video and audio Adobe Premiere is used; for menu designing Macro Media Flash is used, for converting text into image Adobe Photoshop is used. According to Wang et al., 2003, model the e-Content was developed in such a way by using the above software which contains the following Menus: Homepage, Introduction, Key concepts, Examples and Assignment.

DEVELOPMENT OF E-CONTENT

Considering the objectives and hypotheses, the investigator being a postgraduate in Tamil and having the exposure to Educational Technology, has developed and validated e-Content for learning Poem based on the eleventh standard syllabus. In order to prepare the e-Content, the investigator followed the ADDIE model which has five phases as follows: analysis, design, development, implementation and evaluation.

1. Analysis: The analysis phase includes planning and requirement of e-Content. In this phase, the investigator found out the problem of the student for studying through the conventional method, testing the entry behaviour of the student and discussed the aim and objectives of e-Content. The teaching strategies are used for achieving the teaching goal. While using some of the teaching strategies like the lecture method,

the teacher remains active and the students are the passive audience. It results in the non-development of all the potentialities of the students. Such a situation needs some change in this teaching strategy and more and more new learning experiences are needed for students, especially for learning Tamil.

2. Design: After completing the analysis phase, the investigator described what are the hardware and software components needed in the computer for developing the e-Content.

3. Development: In this study, the e-Content is developed eleventh standard level students for learning Tamil Poem. First, the investigator selected the topic 'Poetry' in Tamil which is prescribed for eleventh standard students, in consultation with the students and the teachers; the investigator selected the following units for the present investigation. Each e-Module contains the following sections; Introduction, Key Concepts/ Explanation, Examples/ solved problems and tries these assignments.

4. Implementation: In this website the unit each module is arranged in a proper way. In this there are ten modules exist which give an explanation about mensuration with the related animated files with an explanation. Some modules may have more than one page. Based on unit content, every frame was tested whether the text, video, graph, and audio were linked correctly. Implementation is an important part of the e-Content.

5. Evaluation: It is one of the important functions in teaching and learning process. Evaluation enables to judge the effectiveness of the teaching and learning strategies. It is done through paper pencil test was conducted the achievement test/ standardized test. After evaluation, the e-Content was slightly modified suggestions from the teachers and students.

CONCLUSION

The school education should make skillful and effective students (SCERT, 2015). They should give sufficient learning experience to the students and training give to the teachers in utilizing the technological equipment's. They should conduct special programmes on preparing e-content for languages like Tamil subject for all medium students and teachers. The teachers may prepare e-content package for the students so as to promote their basic skills in Tamil subject.

It is observed that the student's academic achievement and participation in learning had improved significantly when compared to traditional instruction. The students have shown much enthusiasm to learn through this mode and it is observed that they prefer to select various other topics. It is further observed that the students started using a wide variety of media from the internet, PowerPoint presentations, simulations and activities in Learning as it provided a holistic approach (Senthilkumar, 2017). This can be facilitating students to master the concept of Tamil at their own pace, which also demands that teachers create such Electronic learning digital applications that can be used in their schools and to enable students to access it in anytime.

The process is easy and used as a template to develop any e-content course material. Sharing knowledge in the way of digitalization is one of best way effective teaching and learning. The effectiveness of e-content

through online or offline is understood the subject very much. The proposed e-content generation procedure is the platform to design an independent e-content and can be used across the world.

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IMPACT: International Journal of Research in Humanities, Arts and Literature (IMPACT: IJRHAL)
ISSN (P): 2347-4564; ISSN (E): 2321-8878
Vol. 6, Issue 9, Sep 2018, 251-256
© Impact Journals

EFFECTIVENESS OF E-CONTENT IN BOTANY

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Received: 07 Sep 2018 **Accepted:** 12 Sep 2018 **Published:** 26 Sep 2018

ABSTRACT

A digital text and images are designed for display on web pages which is suitable for particular audiences are called as 'e-Content'. E-learning is a process and e-Content is a product. For the e-Content development aspect, each one is used to develop the phases' viz., analysis, design, development, implementation, and evaluation. Types of contents are based on three bases viz., according to uniqueness; format and interactivity. The main aim of the study is to develop and validate an e-Content and to find out the effectiveness of it in Botany subject. 174 eleventh standard samples were used. The author concluded that teaching through e-Contents were an effective manner and the application of e-Content in teaching learning process had a significant impact on Botany.

***KEYWORDS*:** *E-Content, Teaching of Botany*

INTRODUCTION

In a classroom, technology stimulates the learner and gets the learner involved in the learning. Books are an extension of the brain; video is an extension of the eye; audio is the extension of an ear; audio conferencing is the extension of mind & vocal cord; the computer is an extension of fusion of mind, hands & eyes; satellite technology is an extension of human reach and computer network is an extension of human cooperation.

E-Content is the latest method of instruction that has attracted more attention to gather with the concept of models. The demand for e-Content is likely to grow in the future. e-Content is digital information delivered over a network-based electronic devices or prepared by the subject experts, i.e. symbols that can be utilized and interpreted by human actors during communication processes, which allow them to share visions and influence each other's knowledge, attitudes or behavior. It allows for user involvement and may change dynamically according to the user's behavior.

TYPES OF CONTENT

Based on the desired outcome of education and the level of uniqueness of the content utilized by the organization the researchers classify the type of content used during the e-learning process. Content is classified mainly into three types of content; according to the uniqueness, according to format and according to interactivity. Under each of these classifications come several factors. For example, according to Uniqueness consists of two categories viz., off the shelf content and customized content. Likewise, according to Format, it specified whether the content will be designed into textual content, audio content, video content, graphical content, animated content, and simulated content. According to Interactivity consists According to Interactivity into two forms according to the level (low& high) and complexity of interactivity.

IMPORTANCE OF E-CONTENT DEVELOPMENT

Ministry of HRD, Government of India has introduced several e-Content development programs viz., National Programme on Technology Education Learning (NPTEL) by offering free online video lectures in engineering, science and humanities courses from 2016 onwards. E-Content and multimedia materials typically refer to the presentation of material in different forms (Higgins & Dermer, 2001). The strategies have included PowerPoint (Mayer, 2012), Educational games (Nachimuthu, 2015), and computer-assisted video learning (Vijayakumari, 2011) in a variety of content areas, in addition to auditory and video media. Numerous studies in specific areas such as teacher education have produced significant results favoring electronic gadgets (Borko & Pitman, 2008) If we observe the students, they can utilize the following electronic gadgets; (a) Listening to music; (b) Playing PC & video games; (c) Talking on the iPhone; (iv) Sending text & picture messages; (v) Watching videos and or Television; (vi) Using Facebook, Twitter & LinkedIn ; (vii) Utilizing videos from YouTube, Skype, other Yahoo and Google messengers (Champoux, 2005).

As per the UGC (University Grants Commission, India) guidelines of e-content development needs the following categories viz., (i) home; (ii) objectives; (iii) subject mapping; (iv) summary; (v) text with pictures & animations; (vi) video and audio; (vii) assignments, quiz & tutorial; (viii) references, glossary & links; (ix) case studies; (x) FAQ‟s; (xi) download; (xii) blog and (xiii) contact. These categories are arranged sequentially by subject experts along with technical supporters and to develop the e-content materials.

OBJECTIVES & HYPOTHESES OF THE STUDY

The objectives of the study are; (i) to develop and validate an e-content package in the teaching of botany at the higher secondary level and (ii) to find out the effectiveness of e-content in the teaching-learning process of botany. The hypotheses of the study are; there is no significant difference between the pre-test and post-test scores of the control and experimental group in relation to the e-content in botany learning achievements. An e-content in botany consists of flowering plants in families in the Eleventh standard – First-year Botany released by the book of Tamil Nadu Text Book Society viz., (i) Fabaceae, (ii) Apocynaceae, (iii) Solanaceae; (iv) Euphorbiaceae and (v) Musaceae.

SAMPLE FOR THE STUDY

The Simple random sampling method was adopted in the experimental study. And the size of 174B.Ed trainees with pure Science group was selected among 3400 populations of twenty-five higher secondary schools in Namakkal District of Tamil Nadu State of Indian Country. In this study, pure science eleventh standard students were selected. Among the 174 samples, 87 students have been selected for the experimental group and remaining eighty-seven for the control group. The time was noted down as per the questions involved in the validated e-Content and that scoring was taken as their achievement.

METHODOLOGY OF THE STUDY

In the experimental method, the data collected were put into the appropriate statistical analysis. Mean, standard deviation and ‘t’ test. For this research, an e-Content package for Botany based content of ‘Flowering Plants in Families’ were prepared in Adobe software file in July 2018. The validity of the e-Content document by biology postgraduate teachers in Namakkal district and Botany professors of Periyar University, Salem in the Tamil Nadu State of India,

keeping in mind the following criteria: a) technologically friendly; b) learner friendly; c) learner-centric; d) teacher friendly; e) employing learner-centric pedagogy; f) self-evaluative and g) object-based learning and teaching.

Dick & Carey (1990) classifies the e-content development models are (i) An instructional design model by Kemp, 1977; (ii) Systematic approach model by Vernon & Donald, 1980; (iii) A Systematic Design of Instructional model by Dick & Carey, 1990; (iv) Systems Reusable Information Object Strategy model by CISCO, 1999; (v) ADDIE process model by DeSimone, Werner, Harris, 2002 and (vi) Content-based model by Cernea, 2005. The ADDIE model was followed in this study.

E-Content duration has been estimated on the basis of the number of hours that are required to transact the content in the classroom. In the present study, the investigator decided to develop the e-content in HTML format based on the objectives. In this stage, the topic divided into sub-topics. Appropriate images, animations, and videos were collected. The investigator prepared the script and messages were carefully planned and sketched out. The audio part of the script was what would be said and what sound effect would be recorded. The 'visual' part of the script shows every shot that will be used in the final production. The first step of the video shooting, the investigator prepared a working document of video in the e-content. The investigator used two-column formats. In this format, the first column contains a content part, which the last column contains an interactive mode of e-content. This content is given to the students for self-learning all the contents like objectives, glossary, script, video, related links, quiz for evaluation were given in the module. The e-content was validated by using expert validation. That Content Generation Levels are four quadrants viz., e-Tutorial, e-Content, Web resources, and self-assessment.

- e-Tutorial: It includes Video and audio contents in an organized form, animation, simulations, and virtual labs;
- e-Content: It includes Textual Document, Portable Document Format or e-books or Illustration, Video Demonstrations / Documents and Interactive simulations wherever required;
- Web Resources: It includes Related Links, Open Content on Internet, Case Studies, Anecdotal Information, Historical development of the subject, Articles and
- Self-Assessment: It includes MCQ, Problems, Quizzes, Assignments and Solutions, Online feedback through discussion forums & Setting up the FAQ, Clarification on general misconceptions.

ANALYSIS OF THE STUDY

An achievement questionnaire was also prepared by the investigator related to the learning unit of Botany part and that was found out with face validity and reliability (0.82). It consists of 50 questions with MCQ type. There are also five plant families of e-Contents were prepared and stored in a single file as 'Flowering Plants in Families'. The collected data were analyzed and interpreted to mean, standard deviation and 't' test. The statistical treatment was given to test the hypothesis and to find out that, there is no significant mean difference in the achievement of botany between the group taught through the e-Content material and the group taught through lecture method of teaching. The table-1 shows the comparison of pre-test scores of the control and experimental group.

Table 1: Comparison of the Control and Experimental Group in Pre-Test

Gender	N	Mean	S.D	'T' Value	Significance
Control Group (Pre)	87	54.85	7.14	0.4978	0.05 level
Exptl. Group (Pre)	87	55.39	7.17		

From the table-1, the calculated 't' value 0.49 is lesser than the critical value of 1.96 corresponding to the 0.05 level of significance indicates the support of the null hypothesis. This implies that the control group and experimental group don't differ significantly in their achievement in the pre-test in learning Botany.

Table 2: Comparison of the Control and Experimental Group in Post-Test

Gender	N	Mean	S.D	'T' Value	Significance
Control Group (Post)	87	56.12	07.33	4.6549	0.05 level
Exptl. Group (Post)	87	61.44	07.74		

The table-2 shows the comparison of post-test scores of the control group and the experimental group. The calculated 't' value 4.65 is greater than the critical value of 1.96 corresponding to the 0.05 level of significance indicates the non-support of the null hypothesis. Hence the null hypothesis is rejected. This implies that the control group and the experimental group highly significant difference in their achievement in the post-test scores in learning Botany

Table 3: Comparison of Pre and Post-Test Scores of the Control Group

Gender	N	Mean	S.D	'T' Value	Significance
Control Group (Pre)	87	54.85	07.14	1.1576	0.05 level
Control Group (Post)	87	56.12	07.33		

The table-3 shows the comparison of pre and post-test scores in the control group. The calculated't'-value 1.16 is lesser than the critical value of 1.96 corresponding to the 0.05 level of significance indicates the support of the null hypothesis. This implies that the pre and post-test scores of the Control group do not differ significantly in their achievement in learning Botany.

Table 4: Comparison of Pre and Post-Test Scores of the Experimental Group

Gender	N	Mean	S.D	'T' Value	Significance
Exptl. Group (Pre)	87	55.39	07.17	5.3485	0.05 level
Exptl. Group (Post)	87	61.44	07.74		

The table-4 shows the comparison of pre-test scores and post-test scores in the experimental group. The calculated 't'-value 5.35 is greater than the critical value 1.96 corresponding to the 0.05 level of significance indicates the non-support of the null hypothesis. This concludes that the experimental group differs significantly in their achievement in the pre and post-test scores in learning Botany.

FINDINGS OF THE STUDY

Advantages of e-Content development is to be meaningful and must be able to make a difference, i.e. from being unknown to known, from being known for being better understood, from being understood to have provided enlightenment, from being just stored knowledge something that is shared and made available to others. There are two forms of e-Content viz., SLO and Modules. Short Learning Objects (SLO) are a new way of thinking about learning content. They are much smaller units of learning, typically ranging from two to three minutes. It may be a description of an item, equipment, a concept, a process or an activity. Modules are larger independent structural experiences, containing

objectives, learning activities and assessment. In other words, it is a comprehensive package containing a lesson. It contains lecture modules with inbuilt visuals, text, quiz, FAQs, assignments, glossary, case studies, references, discussion, and download. The output is deployable on the web or compact disks.

The findings of the study are; a) Teaching through e-Content is effective; b) While administering the e-Content to the higher secondary level, it is found that e-Content promotes active participation; c) The e-content is found to have a beneficial effect on the learner achievement as a result of the unique combination of tutorial interactive and visual capabilities; (d) Educational e-Content materials were created more achievements in higher secondary level because of self- learning strategy particularly in Botany classrooms. The e-Content package makes and stimulates each student's individual or self-paced with the enjoyable learning process in their subjects. E-Content package encourages cooperation and active learning and promotes students' own pace of learning. In the e-Content method, they will exchange their knowledge with each other so that at the end of the learning process the students will get the complete information about the unit.

RECOMMENDATIONS

The following recommendations are given based on the findings and conclusions

- Develop a partnership between educational institutions and industry for the continuous development of new content and methodology taking into account contemporary technology.
- Distribution of the e-content to teachers and students, for supplementing and complementing the process of teaching and learning in higher education.
- Laboratory demonstration like dissection of plants and animals can also be taught through e-content can sacrifice its life.

CONCLUSIONS

Any content product available in a digital form and it typically refers to music, information, and images that are available for distribution on electronic media is called as e-Content. (Anurag Saxena, 2011). For the e-Content development aspect, each one is used to develop the following phases of the ADDIE model viz., analysis, design, development, implementation, and evaluation. E-learning is a process and e-Content is a product. This e-content approach to teaching has become an answer to the complicated problems and un-identified areas. The application of e-Content is teaching-learning in Botany at higher secondary level process had a significant impact. As the technology becomes user-friendly the creation of e-Content by teaching community will be much easier. These electronic contents are generally designed to guide students through a lot of information in a specific task. The quality of learning depends not only on the form of how the process is carried out but also on what content is taught and how the content is presented.

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Vol. VIII
Number - 5
ISSN 2277-2405
(September 2018 (Special Issue))

EDUCATION PLUS

A Peer Reviewed Journal

AN INTERNATIONAL JOURNAL OF EDUCATION & HUMANITIES

Chief Editor
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S.B. Nangia

APH PUBLISHING CORPORATION

UGC - 64522

ISSN : 2277-2405

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AN INTERNATIONAL JOURNAL OF EDUCATION & HUMANITIES

Vol. VIII, Number - 5 September, 2018

(*Special Issue*)

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Effectiveness of Biology Blogs at B.Ed Level

Prof. Dr. K. Nachimuthu*

Abstract

A blog is to provide students with high-quality learning resources customized for their ject areas. The objectives of the study are to develop and validate blogs and upload in ching method of biological science at the B.Ed level and to find out its effectiveness. An hievement on Cell biology questionnaire was also prepared by the investigator and found with face validity and reliability consists of 40 questions with 'Yes' or 'No' type was collected the selected 544 samples of B.Ed college student teachers. The majority of the students lieved that they can use the Biology blogs as an educational tool. For the achievement of rning biology blogs, the comparison of pre-test scores of the control and the experimental oup no significant difference, but in post-test scores, it changed in the achievement of biology gs. Likewise, the comparison of pre and post-test scores of control groups were no significant fference, but in the experimental groups, it indicated differences. The results of the study are ching with the help of biology blogs is an effective achievement in B.Ed level and also the per recommends to the same method follow in any other subjects.

Keywords: blogs, effectiveness, biology achievement

TRODUCTION

Due to the emergence of the Internet, it has become an important medium of communication well as a research tool. The reason is that it provides many opportunities to many people around world in different ways. Not only the Internet, but the other new digital technologies also took r places in the daily life. Blogs have become an important form of emotional and informational ase for a growing proportion of the population.

A Blog can be described as a very simple web page where the entries or posts are organized verse chronological order. A blog is usually open to the public and many are free to create. gs can also offer an opportunity to interact with readers. Readers can post comments like with estbook on a website. Blogs can also be regarded as a form of personal publishing on the rnet. A blog is a public web by individual users to be edited and updated with entries allowing pression in the forms of texts, graphics, audio and video. One primary motivation of blog is to vide students with high-quality learning resources customized for their subject areas.

STORY OF BLOGS

The original term, Web Log was coined by John Barger, editor of the Robot Wisdom blog in (Blood 2000). The term blog was first pronounced by Peter Merholz in 1999 (Merholz 2002). gging began its incarnation in the late 1990s as a means for individuals to publish simple, online rsonal diaries (Williams and Jacobs 2004) as an alternative to the personal home-page or web- and a popular form of internet-based self-expression at the time.

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SCOPE OF BLOGS

An Internet-based weblog, also known as a blog, is essentially a homepage managed by a w Armstrong (2008) defined as, historically, a weblog, or blog for short, is recognized by its regul updated, time and date stamped posts, running down the computer screen in chronologically reve order. Any written work or reading work that a student produces on paper can only be shared w one person at a time or disseminated via photocopies.

Thus, for even a relatively small class of twenty-five students, it is impractical for all studen to make their writing and reading material available in hard copy form to all other members of th class. Due to such limitations, a student in the traditional writing and reading works of their cla has typically presented his or her work to the teacher alone, or at most, to a group of peer revie and then to the teacher. Students, using commercial textbooks, may have a hard time reading th technical jargon commonly used. Because of this, they appreciate the links in their blogs notes an the diagrams and do homework problems that better explain relevant concepts (Senthilkuma *al.*, 2017).

RESEARCH ON BLOGS

Creating a blog can be a bridge for students between the familiar digital world and what is bein asked of them in academic essays, projects and other subject-based assignments. Smith (200 experimented with using classroom blogs have been overwhelmingly positive. Not only does blogg encourage students to write, it also motivates them to read and analyze texts, thereby improving the reading comprehension skills. While student acceptance of technology in the classroom requires it perceived usefulness and ease of use (Martins & Kellermanns, 2004), students do tend to learn bes when they need information that they can put to use immediately. Yih-Rueh (2006) researched th effectiveness of a blog-based learning tool, called Learning Blogs. As part of this study, students an their teacher blogged both in warm-up activities and in the lesson review. Research has identifie many benefits of blogging as an instructional practice. Armstrong (2008) asserted that using blogs in language instruction can help language learners develop English writing skills.

Somasundar *et al.*, (2008) found out that blogs appear more successful than discussion boards in communicating unspoken knowledge. Moreover, students have generally positive views towards their ability to enhance language skills through blogs (Kabilan, *et al.*, 2010). Blogs are an effective and efficient method of allowing students to access information as it is needed and to make connections between explicit knowledge from textbooks and knowledge gained as students see how others can and are using the knowledge being shared. (Vijayakumari, 2011). While an earlier experiment on blogging (Badrinathan, 2013) failed to have the desired impact, the experiment on Facebook succeeded in the sense that students used the medium frequently for learning. Blogs also introduce students to online learning communities so they can access and evaluate information and construct new learning paradigms for themselves. (Uma Maheswari, 2018). Finally, effectively modeling ways to use blogs as a teaching and learning tool is a useful skill for our students to have as they embark on their journey of life-long learning (Nachimuthu, 2018).

BENEFITS OF BLOGGING

Blogging in the classroom can have numerous benefits depending on how we use our blogs. Teachers can create a blog about class happenings so parents can stay up-to-date and students can access announcements from anywhere. Teachers can use their blogs to store lessons online or provide supplemental learning materials to students. Teachers can use blogs to organize assignments, such

sting them online for absent students or listing due dates so all students have access to the m subject materials from anywhere. Teachers can post previous students' work as examples or h current students' work so they can show parents and family who live far away. Educators can e comment sections on blog posts to get feedback from parents and the community as well reate discussion between students and student blogs teach children about writing techniques, e publishing and proper Internet protocol, which most students will use in future careers.

ECTIVES & HYPOTHESES OF THE STUDY

e objectives of the study are; (i) to develop and validate some blogs and upload in teaching od of biological science at Bachelor of Education (B.Ed) level and (ii) to find out the effectiveness ogs in the biology learning process. The hypotheses of the study are; there is no significant rence between the pre-test and post-test scores of control and experimental group in relation e biology blogs achievements. The biology blogs consists of 16 units in the Eleventh standard year Biology: Part-A- 'Botany' book of Tamil Nadu Text Book Society viz., 1) cell biology (2) heory; (3) prokaryotic & eukaryotic plant cell; (4) light microscope; (5) electron microscope; (6) structure of prokaryotic & eukaryotic cells; (7) cell wall; (8) fluid mosaic cell membrane model; ransport cell membrane model; (10) nucleus; (11) mitochondria; (12) plastids; (13) ribosomes; amitosis; (15) mitosis and (16) meiosis.

SAMPLE FOR THE STUDY

The Simple random sampling method was adopted in the experimental study. And the size 544 B.Ed trainees with biological science background was selected among 4000 populations of ty-two different B.Ed Colleges in both the Namakkal and Salem District of Tamil Nadu State of Country. In this study, the first year Bachelor of Education students were selected. Among 544 samples, 272 B.Ed trainees have been selected for the experimental group and remaining for the control group. The time was noted down as per the questions involved in the validated and that scoring was taken as their achievement.

ETHODOLOGY OF THE STUDY

In the experimental method, the data collected were put into an appropriate statistical analysis. standard deviation and 't' test. For this research, blogs for the biology-based content of 'Cell ology' was prepared in WordPress software file in January 2018 keeping in mind the technologically learner friendly criteria. The validity of the blogs is evaluated by biology professors of Periyar versity, Salem in the Tamil Nadu State of India.

NALYSIS OF THE STUDY

A biology achievement questionnaire was also prepared by the investigator related to the ology learning unit part and that was found out with face validity and reliability (0.76). It consists 40 questions with 'MCQ' type with scoring of one mark for correct answer. There are also sixteen s of blogs were prepared and stored in a file as 'Cell Biology'. Pre and post-tests were conducted both the control and the experimental groups. The collected data were analyzed and interpreted mean, standard deviation and 't' test. The statistical treatment was given to test the hypothesis to find out that, there is no significant mean difference in the achievement of biology blogs between the group taught through blog material and the group taught through the conventional method of teaching.

Table-1: Comparison of control group and experimental group in Pre-test

Gender	N	Mean	S.D	't' value	P Value
Control Group (Pre)	272	85.90	11.20	0.7256@	0.2342
Exptl. Group (Pre)	272	86.60	11.30		

(@= No significant level at 0.05 level)

The table-1 shows the comparison of pre-test scores of control and experimental group. The calculated 't' value 0.73 is less than the critical value of 1.96 corresponding to the 0.05 level of significance. Hence, the null hypothesis is accepted. This implies that the control group and experimental group don't differ significantly in their biology blogs achievement in the pre-test level.

Table-2: Comparison of control group and experimental group in Post-test

Gender	N	Mean	S.D	't' value	P Value
Control Group (Post)	272	87.70	11.50	8.2002*	0.00001
Exptl. Group (Post)	272	96.02	12.10		

(* = Significant level at 0.05 level)

The table-2 shows the comparison of post-test scores of the control group and the experimental group. The calculated 't' value 8.20 is greater than the critical value of 1.96 corresponding to the 0.05 level of significance. Hence, the null hypothesis is rejected. This implies that the control group and the experimental groups are a highly significant difference in their biology blogs achievement in the post-test level.

Table-3. Comparison of pre-test and post-test scores of Control group

Gender	N	Mean	S.D	't' value	P Value
Control Group (Pre)	272	85.90	11.20	1.8493@	0.3248
Control Group (Post)	272	87.70	11.50		

(@= No significant level at 0.05 level)

The table-3 shows the comparison of pre-test scores and post-test scores in control group. The calculated 't'-value 1.85 is less than the critical value of 1.96 corresponding to the 0.05 level of significance. Hence, the null hypothesis is accepted. This implies that the pre-test and post-test scores of Control group do not differ significantly in their Biology blogs achievement level.

Table-4. Comparison of pre-test and post-test scores of Experimental group

Gender	N	Mean	S.D	't' value	P Value
Exptl. Group (Pre)	272	86.60	11.30	9.3639*	0.00001
Exptl. Group (Post)	272	96.02	12.10		

(* = Significant level at 0.05 level)

The table-4 shows the comparison of pre-test scores and post-test scores in the experimental group. The calculated 't'-value 9.36 is greater than the critical value 1.96 corresponding to the 0.05 level of significance. Hence, the null hypothesis is rejected. The investigator concludes that the experimental group differs significantly in their biology blog learning achievement in the pre and post- test levels.

FINDINGS OF THE STUDY

The majority of the students believed that they can use the Biology blogs as an educational tool. Only a very small amount of participants stated that they were not able to use it for educational purposes, which is very promising for the future. While the comparison of pre-test scores of the control and the experimental group they were 't'= 0.73 and P = 0.23 at 0.05 level indicates that they were no significant difference, in the achievement of learning biology blogs. But in post-test scores of the control and the experimental group they were 't'= 8.20 and P = 0.00001 at 0.05 level indicates that they were a significant difference, in the achievement of biology blogs.

While the comparison of pre and post-test scores of control groups they were 't'= 1.85 and P = 0.32 at 0.05 level indicates that they were no significant difference. But in pre and post-test scores of the experimental groups they were 't'= 9.36 and P = 0.00001 at 0.05 level indicates that they were a significant difference in the achievement of biology blogs. From this, the investigator found out the achievement level of Biology blogs. It indicted from the experimental group differs significantly in their biology blogs achievement in the pre-test and post-test scores as per the table-4. However, as noted by Nachimuthu (2018), the use of blogs as a learning tool seems to be low-cost with high-returns.

The results of the study are; a) Teaching with the help of blogs is effective; b) While administering the blogs to the B.Ed trainees, it is found that blogs promote an achievement and active participation; c) The blogs are found to have a beneficial effect on the B.Ed student teachers' achievement in biology as a result of the unique combination of tutorial interactive and visual capabilities; (d) Educational blogs materials were created more achievements in B.Ed level because of self- learning strategy particularly in science classrooms. (e) Educational blogs encourage cooperation and active learning and promote B.Ed student teachers' own pace of learning and (f) in educational blogs method they will exchange their knowledge with each other so that at the end of the learning process the B.Ed student teachers' will get the good achievement on biology blogs.

CONCLUSION

This research supports the hypothesis that blogs can also be popular in the biological science classroom at B.Ed level. Biology Blogs do indeed encourage greater learner independence and interest in learning beyond their classroom. More research needs to be done to determine how to most effectively manipulate blogs in and out, of the classroom in order to make better use of these interesting and authentic computer resources. Few of the student teachers reported that blogging had promoted interactive discussion and helped them understand the target learning activities, while the teacher concluded that responding to the student teachers' blogs had been helpful in evaluating course instruction and in planning future instruction. The researcher concluded that the blogs are as a complementary tool for biology teaching and the blogs are used to re-use and it increase the knowledge and enhance student achievement in Biology at B.Ed level in Tamil Nadu.

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Effect of Multi-Sensory Strategies and Its Implication on Mathematics Learning Ability

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Abstract

A perusal of human civilization reveals that mathematics has its influence at every stage of human progress and development. It is imperative that our students should know the contributions of great mathematicians and about their real purpose of mathematical inventions. Through this approach, teachers can present information in multiple ways and engage all students in the learning process. Because multi-sensory teaching allows teachers to present information to students using a number of different means of sensory input, this method adheres to the universal design of learning (UDL) (Metcalf, Evans, Flynn and Williams, 2009) by providing a flexible learning environment that accommodates students' differences with regard to the ways in which they learn. Mathematics may be thought of as a highly disciplined mode of thinking. The teachers should help students to appreciate the structure and pattern which underlie mechanical and computational skills.

KEYWORDS: Multi-sensory teaching, mathematical, universal design of learning and thinking

INTRODUCTION

Intense global competition, rapid technological changes, advances in manufacturing and information technology and discerning customers are forcing manufacturers to optimize manufacturing process, operations, and all the possible nodes of supply chains that enable them to deliver high-quality products in a short period of time**.** Mathematics plays an important role in human life. Mathematics of today is the result of the efforts made by a group of men for centuries and it reflects the culture and civilization of human race. It is being said that of mathematics is the history of human civilization. A perusal of human civilization reveals that mathematics has its influence at every stage of human progress and development.

Commercial necessity was the force behind all mathematical inventions. Arithmetic developed as a result of man's need to assess his wealth and geometry form surveying land. In the development of mathematics curriculum at secondary/higher secondary school level, very little attention has been given to the history of mathematics due to constrain of time. It is imperative that our students should know the contributions of great mathematicians and about their real purpose of mathematical inventions.

Through this approach, teachers can present information in multiple ways and engage all students in the learning process. Because multi-sensory teaching allows teachers to present information to students using a number of different means of sensory input, this method adheres to the universal design of learning (UDL) (Metcalf, Evans, Flynn, and Williams, 2009) by providing a flexible learning

environment that accommodates students' differences with regard to the ways in which they learn.

LITERATURE REVIEW

Many studies have addressed the effectiveness of multi-sensory instruction as a method of intervention for students with disabilities (Ashbaugh, 2016). Kok Hwee and Houghton (2011) examined the impact of a multi-sensory approach on the reading achievement of 77 Singaporean primary-school-aged children with dyslexia. The educators used the Orton- Gillingham (OG) technique that involves visual, auditory, and kinesthetic modalities. In this study, the students practiced reading using multi-sensory methods for eight weeks. The results of the study confirmed that combining the three modalities through the OG technique was effective in bringing about significant improvements in reading.

Al Sayyed (2013) investigated the impact of using an approach that focused on auditory, visual, and tactile senses in order to teach mathematics to students with learning disabilities. Study participants were separated into an experimental group and a control group. Both groups received eight weeks of mathematics instruction. Students in the experimental group were taught using a multi-sensory approach, while students in the control group were instructed with more traditional methods. At the end of the session, students who were taught using the multi-sensory approach achieved better outcomes on a post-test than students in the control group, suggesting that the multi-sensory approach helped students to have a better understanding of mathematics. This is an important finding given the challenges of teaching mathematics to students with disabilities.

Jubran (2012) conducted a study to determine the effects of using a multi-sensory approach to teach students English as a second language. The study's sample was comprised of 122 10th grade students divided into an experimental group that learned through a multi-sensory approach, and a control group that learned in more traditional ways. Both groups received eight weeks of English language instruction, at the end of which statistically significant differences between the two groups' levels of achievement were found in favour of the experimental group, which was taught via the multi-sensory approach. Although these students did not have disabilities, their ESL status makes their outcomes relevant to the target group.

Further, Martin, Gaffan and Williams (1998) and Niki and Lisa (2001) both conducted studies on the use of a multisensory room where one or more forms of sensory-based learning were presented. Sensory rooms, as Fowler (2008) describes them, are spaces that contain equipment designed to provide specific sensory stimulation to users. Ideally, these sensory experiences are tailored to the perceived needs of the users. Martin et al.'s (1998) study of 27 adults with severe/profound learning disabilities who exhibited challenging behaviours took place over the course of 16 weeks. Niki and Lisa's (2001) study which took place over the course of six weeks, focused on two participants diagnosed with autism: one female subject, age 17, and one male subject, age 16. Both studies found that multi-sensory rooms did not result in clear positive or negative effects on negative behaviours. However, the participants did become more relaxed while they were in them.

The literature has helped to define multi-sensory, which as the term implies refers to representations of material that address two or more of the five senses, and demonstrated ways it can motivate students, affect their abilities to learn, and positively affect their academic outcomes. The universal design of learning (UDL), conceptualized to improve learner engagement and learning outcomes, specifies three core means by which the learner can receive information: multiple means of

representation, multiple means of engagement, and multiple means of assessment (Brand & Dalton, 2012).

Multi-sensory instruction is a classroom practice that may be well suited to the three principles of UDL (Metcalf, Evans, Flynn, and Williams 2009). Just as multi-sensory instruction makes use of different sensory channels for conveying information, UDL do with the three elements. According to Bernacchio and Mullen (2007), the idea behind UDL is to provide flexible curricula and instruction that matches all students' abilities. Students are usually provided intervention in groups within the classroom, and each group may include students from different ability levels. The students can observe and learn from one another. It also uses technology to maximize success for all students. Thus, it gives all students a chance to socialize with one another and express their knowledge through engagement with and among school community that offer choices, incentives, and support.

By using the three channels of UDL, teachers can effectively integrate multi-sensory learning opportunities into children's daily learning. Further, UDL provides rich environments that offer learners numerous opportunities for social interaction, direct physical contact with the environment, and a changing set of objects for play and exploration (Brand & Dalton, 2012).

Furthermore, UDL is not only about teachers presenting information; it is also about students being able to deal with and assess the information. Students may have accurate ideas about what teachers are trying to present yet be unable to demonstrate their understanding. UDL or/and multisensory approaches can help students to demonstrate their understandings through the materials they have examined when they were learning. That is, by repeating the same activities with which have been taught, students can demonstrate their understanding to their teachers. By placing emphasis on presenting information in ways that make it available to every student regardless of his/her preferred learning style, both approaches can provide all students with equal opportunities to learn via their respective strength. These methods help both teachers and students to meet their educational goals.

Multi-sensory approach to intervention can help students to improve their levels of performance. This study aimed to real-world use of this method of intervention in the classroom as well as to explore the multi-sensory modalities and activities of students and to examine their perspectives regarding a multisensory approach to teaching mathematics

PURPOSE OF THE STUDY

A teacher of mathematics needs to explore the full potential of these for more effective mathematics teaching. This is a pre-instructional technique. The teacher, before introducing a lesson has to prepare the minds of the students to receive new knowledge. For effective learning, the teacher has to ensure students' willingness to learn. The learning becomes more meaningful when the new knowledge is integrated with the previous knowledge and relates it with the new experience. The following behaviours are essential for set induction.

- ❖ Establishing a cognitive and emotional rapport with the Students
- ❖ Recalling and integrating previous knowledge with new knowledge
- ❖ Maintaining continuity and logical thinking of students
- ❖ Arousing and maintaining the student interest

The main components of the skill are

Arrest attention: Use of voice gesture and eye contact. Use of audiovisual aids changing the pattern of teacher-students interaction.

Focus attention on the topic: Test the previous relevant for learning the new topic. Can also use knowledge acquired from various source like classroom, book, friends, technologies and etc.

Introduce an element of interest: Using teaching aids bringing out the significance of the new lesson.

Arouse the curiosity: Creating a suitable problematic situation. Posing an intriguing problem

OBJECTIVE OF THE STUDY

1) To Study the Use of Multi-sensory Strategies and its Implication on Mathematics Learning Ability
2) To Identify the Types of Multi-sensory Strategies Materials Which Are Suitable For Mathematics Learning Ability?
3) To Examine the Multi-sensory Strategies and its Implication on Mathematics Learning Ability For higher Secondary Students.
4) To establish A Reusable Framework to Showcase the Usage of Multi-sensory Strategies and its Implication on Mathematics Learning Ability

CONCEPTUAL FRAMEWORK



Auditory (Verbal, Linguistic)

An auditory learner is one who gets the most out of a lecture or verbal class instruction. They interpret what they hear much easier than information they see or read in a book. Auditory learners rely on words to understand concepts and lessons. Speech and the written word are used in much the same way a visual learner uses pictures and images. This could be an effective teaching style for students with dyslexia or dysgraphia.

Visual

A visual learner is a student who learns from watching. They learn much faster when they can look at diagrams, maps, blueprints or pictures. If they can see an activity being performed, it is much easier for them to comprehend and use the information. Many children on the Autistic Spectrum are said to be visual learners. This can also be an effective teaching style for students with dyscalculia – since visualizing math problems can be easier for them.

Kinesthetic

Kinesthetic learners are best able to absorb information if they are using their hands on teaching techniques give them a better understanding of how things work and solving problems than other learning styles. Kinesthetic learners like to touch and feel things. Students with aphasia, or difficulty with language, will learn better with active methods of teaching.

Aural (Auditory – musical)

Children who experience difficulty retaining information often turn to music to strengthen their ability to absorb and utilize information. A perfect example is the ABC song that young children are taught. By putting the letters to music, the brain is better able to remember them and recall them as they are needed.

Logical (Mathematical)

Logical or mathematical styles of learning include using reasoning and logical deductions to arrive at answers to various types of problems. Students who learn best with logic and reasoning are often highly organized and prefer structure to an open way of learning.

Social (Interpersonal)

Students who learn better in a group setting are called or social or interpersonal learners. They work best in groups where they can discuss concepts and share the responsibility of achieving a mutual goal. Students with learning can help one another by working together and using complimentary learning styles to achieve their goals.

Solitary (Intrapersonal)

Students who learn best on their own are known as solitary learners. They thrive using an intrapersonal or singular learning style that allows them to focus fully on what the task they are performing.

Combination

The majority of individuals, adults and children alike, use a combination of learning styles. As a person gets older and begins to figure out which type of learning style is most effective for them, they will begin to learn and adapt much faster. Children know how they learn and will often give teachers clues. Some will continually reach for an object or ask to try it on their own. Others will ask for techniques and problems to be shown to them again and again until they grasp the concept.

CONCLUSION

Mathematics may be thought of as a highly disciplined mode of thinking. The teachers should help students to appreciate the structure and pattern which underlie mechanical and computational skills. Many situations can be broken down by analysing them into interrelated constituent problems which can be explored be well-known mathematics techniques. Wherever there is structure, relationship, regularity, systematic variation, there is mathematics. To recognise this, one needs some knowledge of mathematical skill and formulae, but above all one needs imagination, appreciation of order, structure and pattern, combined with a flexible, roving interest to live in the changing, challenging and exciting world around us.

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ISSN: 0976-3031

Available Online at http://www.recentscientific.com

CODEN: IJRSFP (USA)

International Journal of Recent Scientific Research
Vol. 9, Issue, 10(D), pp. 29308-29311, October 2018

International Journal of Recent Scientific Research

DOI: 10.24327/IJRSR

Research Article

UTILIZATION OF E-RESOURCES ON INDIAN NATIONAL LEADERS AMONG STUDENT TEACHERS

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DOI: http://dx.doi.org/10.24327/ijrsr.2018.0910.2835

ARTICLE INFO

Article History:
Received 12th July, 2018
Received in revised form 23rd August, 2018
Accepted 7th September, 2018
Published online 28th October, 2018

Key Words:

e-resources, Indian National Leaders

ABSTRACT

Electronic resources are easily accessible thru' computer networks and it solves storage problems and controls the flood of information. Now all the teacher education print sources are being digitized. Electronic information sources can be seen as the most recent development in information technology and are among the most powerful tools for teacher education. The main aim of the study is, to find out the utilization of electronic resources on Indian National Leaders by the student teachers and the investigators collected one twenty-five samples as random sampling method of Namakkal District of Tamil Nadu State. And they found out that their utilization is more. Compare with males, females are better utilized in Social Science teaching.

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INTRODUCTION

E-resources should be readily accessible to all teacher educators and teacher trainees. Before the development of computer and internet technology, printed version of resources like books, journals, dictionaries, encyclopedias is played a significant role in teaching and learning process. But these printed versions are not easily accessible to all and are also expensive in nature. In this computer era, the number of e-books and e-journals are available in a free of cost manner and it has become inevitable and hence it is very much needed to convert the printed version into e-version for future needs. Therefore, of the different utilization of electronic resources knowledge has become the need of this hour for student teachers.

Reviews on E-Resources

Shokeen and Kaushik (2002) reported that social scientists of Haryana University in India used current journals, textbooks, and reference books most frequently for their information needs. Baljinder Kaul and Rama Verma (2008) found out that, use of electronic information resources in a case study of Thapar University and concluded that, the awareness of UGC-Infonet e-Journals Digital Library Consortium is known the very few students and research scholars of Thapar University. So, they suggested that to conduct frequently user orientation programmes and workshops for getting the awareness on e-journals. Vijayakumari (2012) explored the idea that the use of library resources and services is necessary to help scholars and student teachers meet their information requirements and finds that textbooks and journals are the most popular sources to information for their research work.

Praveena and Nadaraj (2011) studied e-resources usage among University Teachers and Research Scholars in University of Tamil Nadu and they concluded that the Faculty and Research Scholars of Social Sciences have expressed positively and essentially about the e-resources which are frequently used by them. Likewise, Karisiddappa et al., (2010) have highlighted in their study stated the importance of e-journals digital library consortium. They expressed that the e-journals are very essential for the Indian Higher Education system. They suggested that to use more e-Journals in study and research in teacher education, there is a great need of conducting the user education workshops to know about the e-journals.

Anjaiah (2013) discussed in usage of UGC- Infonet e-journals Digital Library Consortium by the faculty members and research scholars with special reference to Kakatiya University, Warangal, that on UGC info-net digital library consortium is playing a very important role in disseminating the e-resources information which is more useful to teaching community as well as research scholars to complete their research study.

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Types of e-resources

Generally, e-resources in Teacher Education classified into two major areas viz., online and offline e-resources. Chakravarthy et al., (2005) described the taxonomy of e-resources is on the basis for numeric, text, image and program (system & data); they are explained below;

1. ***Electronic numeric data****:* a) Electronic census data; b) Electronic survey data.
2. ***Electronic text data:*** a) Electronic bibliographic database; b) Electronic journal (e.g., journals containing textual information); c) Electronic newsletter (e.g., newsletters containing textual information); d) Electronic document (e.g., other textual material)
3. ***Electronic image data:*** a) Electronic representational data; b) Electronic maps data; c) Electronic music data; d) Electronic sound data; e) Electronic font data.
4. ***Electronic program:*** a) Electronic utility program; b) application program; c) CAD program; d) database program; e) spreadsheet program; f) word processor program; g) desktop publishing program and h) games.
5. ***Electronic system program****:* a) Electronic operating system program; b) Electronic programming language; c) Electronic retrieval program.
6. ***Electronic data and program:*** a) Electronic data and program (e.g., several types of data and the software to process the data- unable to determine predominance; Web sites with significant audio and video) b) Electronic interactive multimedia; c) Electronic online service (e.g., bulletin boards, discussion groups & lists, collections of online databases).

Objectives of the study

The following objectives are made for the present study.

1. To know the availability of electronic resources on Indian National Leaders in Colleges of Education Libraries in Tamil Nadu.
2. To find out the degree of utility of electronic resources on Indian National Leaders among student teachers.
3. To find out the frequency of usage of electronic resources on Indian National Leaders among student teachers.

Hypotheses of the study

The following Hypotheses are made for the present study.

1. There is no significant difference between the student teachers and their awareness of electronic resources and Journals on Indian National Leaders.
2. There is no significant difference between the student teachers and their utility of electronic resources and Journals on Indian National Leaders

METHODOLOGY OF THE STUDY

To conduct the study, a survey method with a checklist is used for data collection. A well-structured checklist was designed scientifically keeping in view of the objectives. Purpose of accessing e-resources is; a) frequency of use of such e-resources; and b) importance and influence of e-resources on Indian National Leaders. For the present study, a total of 175 structured questionnaires were distributed randomly to the student teachers. One hundred twenty- five (72%) were returned and these data were tabulated and analyzed.

The tool for the study is 'Utilization of National Leaders for Student Teachers". This tool is used to find out the user interface which provides the user with utilization information related to Indian National Leaders in their College of Education level. The tool consists of two parts. One is asking of demographic data such as demographic variables of gender and locality. Another one is related to checklist their utilization of Indian National Leaders.

Data Analysis

For the present study, a total of 175 questionnaires were distributed to the student teachers of social science in different College of Education institutes using a simple random sampling technique to which 125 responded, which amounts to 83.33 percent of response rate. Among them, 81 (64.8%) were male student teachers and remaining 44 (35.2%) are female student teachers.

Use of the internet: By using the internet, the student teachers can improve their knowledge by viewing the information and the information can be downloaded which they need. A question has been asked to the student teachers to know the use of the internet. Their replies are analyzed and regular utilization of the internet by the student teachers are 103 (82.4%) and non-regular utility of student teachers are 22 (17.6%).

Utility of e-journals: While asking the question about the frequency of Utility of the electronic journals, the student teachers results were as follows; everyday utility is 94 (75.2%); Once in two days is 13 (10.4%); Once in a week is 9 (7.2%) and every fifteen days is 6 (4.8%) and Once in a month is 3 (2.4%) student teachers are utilizing the electronic journals for gathering information related to Indian National Leaders.

Purpose of using e-journals: While asking the question about the Purpose of using electronic journals, the student teachers results were as follows; most of the student teachers 78 (62.4%) use UGC-INFONET e-journals for their searching online databases, followed by 18 (14.4%) student teachers use for writing assignments and preparing notes, 16 (12.8%) for writing articles for s and conferences; 9 (7.2%) of the student teachers for Internship teaching works, followed by 4 (3.2%) student teachers are used for collecting their general information. From this, it is clearly shown that the importance of e-journals in the academic field.

Place of Internet access of e-resources: While access the place of e-resources through Internet, the majority 96 (76.8 %) of student teachers access the Internet from the library of College of Education institutes, about 21 (16.8 %) student teachers access from Internet Centers and 8 (6.4 %) student teachers from their house. It is a good sign that using the library for accessing the electronic journals in this digital age. To know the level of utility of online resources is presented in the below table no.1

Table 1 Frequency and percent analysis of student teachers' utility of online resources

S.No.	Online – resources	Frequency	%
1.	e-books	12	09.60
2.	e-Journals	42	33.60
3.	e-magazines	04	03.20
4.	e-thesis	04	03.20
5.	e-newspapers	04	03.20
6.	e-mail	03	02.40
7.	e-library	24	19.20
8.	e-forum	06	04.80
9.	e-book shops	06	04.80
10.	e-dictionaries	12	09.60
11.	e-encyclopedia	08	06.40
Total Sample		125	100%

The above table-1 furnishes the details about student teachers utility of online resources and it shows that, out of 125 student teachers, nearly more than half of student teachers (65) are expressed and they are fully satisfied with the existing usage of e-journals search related to National Leaders. The problems faced by the student teachers while accessing the e-journals Digital Library Consortium are the slow bandwidth of their college library and time-consuming while retrieving the relevant information sources. The following table-2 illustrates the frequently used search engines for e-resources.

Table 2 Frequently used Search Engines for e-resources queries

S.No.	Search Engines	% of Student Teachers
1.	Alta Vista	05.70
2.	Aol.com	44.20
3	Ask.com	52.40
4.	Baidu	42.20
5.	Bing	52.40
6.	DuckDuckGo	34.60
7.	Exalead	40.20
8.	Gigablast	45.80
9.	Google	100.00
10.	Google Scholars	40.60
11.	Khoj.com	10.20
12.	Look Smart	10.10
13.	Lycos	12.40
14.	MSN	40.20
15.	Munax	02.20
16.	Qwant	04.10
17.	WolframAlpha	06.60
18.	Yahoo!	84.80
19.	Yandex	48.20
20.	Yandex.ru	12.20

The table-2, reveals that, out of 125 student teachers, 100 % utilized Google and 85% through Yahoo search engine, the third category of utilizing is Bing and Ask.com search engines.

Major Findings of the Study

The following major findings were found in the present study and given below:

1. A majority of the student teachers 81 (64.8%) belongs to the male, followed by female 44 (35.2%)
2. A Large majority of the student teachers 67 (53.6%) from the urban area, whereas 58 (46.4%) student teachers from rural
3. A majority 103 (82.4%) of the student teachers opinioned that the e-journals are very useful to complete their assignments related to Indian National Leaders and up-to-date that subject knowledge and remaining 22 (13.6%) student teachers are non-utilizing the information.
4. A majority 78 (62.4%) of the student teachers says that the purpose of visiting the digital library of their College of Education, to use the e-resources for writing a note on Indian National Leaders.
5. A majority 78 (62.4%) of the student teachers said that usage of the internet is most useful, needful and very essential to obtain the information from electronic journals for their internship teaching, but some of the student teachers 4 (3.2%) responded negatively, because of lack of knowledge of electronic journals and they used only for collecting of general information.
6. The student teachers visit the electronic journals once in two days 13 (10.4%), followed by once in a week 9 (7.2%), every 15 days 6 (4.8%) and once in a month is 3 (2.4%). But the majority of the student teachers 78 (62.4%) used electronic journals regularly.
7. A majority of the student teachers 78 (62.4%) use UGC-INFONET e-journals for their searching online databases, followed by 18 (14.4%) student teachers use for writing Assignments and preparing notes, 16 (12.8%) for writing Articles for Seminars and Conferences; 9 (7.2%) of the student teachers for Internship Teaching works, followed by student teachers 4 (3.2%) for collecting their general information.
8. While access the place of e-resources through Internet, the majority 96 (76.8 %) of student teachers access the Internet from their College of Education Institutes Library, about 21 (16.8 %) student teachers access from Internet Centers and 8 (6.4 %) student teachers from their house.

CONCLUSION

Communication Information Technology (ICT) plays a vital role in the development of society. Vast amounts of data are transmitted in seconds, and Internet access offers unimaginably large amounts of information, data, and interpreted materials. Use of the emergence of the internet and e-resources particularly the World Wide Web, as a new medium of information storage and delivery represents a revolution, which will have a boosting impact on the publishing and information delivery system in the twenty-first century.

The internet considered as the electronic mobile library in cyberspace provides an almost universal infrastructure for accessing the information with almost global reach. The Internet is composed of a large number of smaller interconnected networks called internets. These internets may connect tens, hundreds, or thousands of computers, enabling them to share information with each other and to share various resources, such as powerful supercomputers and databases of information. Free access to scholarly literature through UGC-Infonet Digital Library consortium is boosting the status of Indian higher education system (Nachimuthu, 2018). With the help of INFLIBNET, all the College of Education Institutes and Universities have to be geared up to meet the latest and authentic information needs of users.

E-resources will continue to enjoy wider acceptance among Teacher education academics as the future unfolds and barriers to their use are reduced. The teacher educators will improve the

ICT skills and develop the academic carrier and improve e-knowledge through the available e-resources. Then only the today's teachers are to be a future e-teacher for future generation community. Teaching is a serious task; indeed, a noble profession. Teachers need to roundly understand the needs of students in different aspects of their learning style. It may seem difficult; however, teaching is one way of communicating with students. Considering the students' differences, teachers are challenged to become effective, adept and innovative.

Recommendations

Based on the present study, the following constructive suggestions were made by the researcher for effective use of the electronic journals by the student teachers of the College of Education institutes and also to overcome the problems faced by student teachers of the study.

1. The college of education digital library should be connected with a high inverter to overcome the frequent power off.
2. The college of education library authorities should be taken steps to provide high-speed computer terminals to reduce slow bandwidth.
3. The library staff should be enriching the updated ICT skills /knowledge and they will be given proper ICT training programmes frequently.
4. The major problems such as downloading, irrelevant information, finding relevant information, and information overload are faced by student teachers should be avoided by way of taking immediate steps.

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How to cite this article:

Nachimuthu K and Malarvannan S.2018, Utilization of E-Resources on Indian National Leaders among Student Teachers. *Int J Recent Sci Res.* 9(10), pp. 29308-29311. DOI: http://dx.doi.org/10.24327/ijrsr.2018.0910.2835

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REVIEW OF RESEARCH
IMPACT FACTOR : 5.7631(UIF) UGC APPROVED JOURNAL NO. 48514 ISSN: 2249-894X
VOLUME - 8 | ISSUE - 2 | NOVEMBER - 2018

USING MULTIMEDIA ON TAMIL GRAMMAR TEACHING AND ITS EFFECTIVENESS OF LEARNING



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ABSTRACT

The effective use of Technology in Education has changed the face of Education and it has created more educational opportunities. This new educational technology is supporting both teaching and learning process. Teaching grammar has always remained a challenges and problems faced by a language teacher in the teaching of grammar. The use of Multimedia in teaching and learning enhances the knowledge and resources of Tamil grammar. Multimedia to be an effective tool for the promotion of learning provides for constructive source of knowledge of language. Generally, understudies create more prominent trust in their capacity to utilize Tamil since they have to interface with the Internet through perusing and composing. Utilizing mixed media gives the understudies to accumulate data through media that empowers their creative abilities, interests. Additionally it utilizing this innovation joined with the feeling of educating has been making an effective instructing strategy.

KEYWORDS: *Tamil Grammar, Teaching, Effectiveness of Learning and Multimedia.*

INTRODUCTION

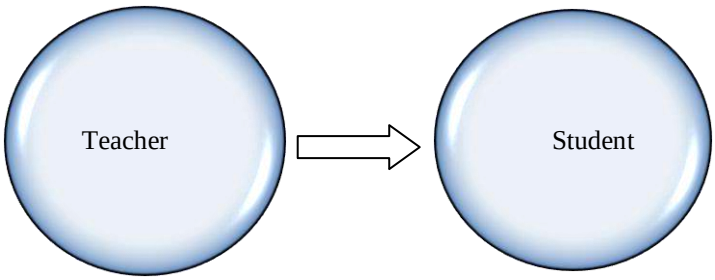
Instruction is a light that demonstrates the humanity the correct heading to flood. The reason for instruction isn't simply making an understudy educated however includes method of reasoning, information capacity and independence. At the point when there is a readiness to change, there is promise for advancement in any field. Imagination can be created and development benefits the two understudies and instructors. Today in the midst of social and technological explosion in various fields of knowledge as well as in the techniques by which, this out bursting knowledge is communicated, the teacher can no longer be the sole and mere information giving instruments in the class room. Further, the growing school population and its concomitantly eager and more diverse variety of classes make it increasingly more difficult for a single teacher to “reach and child” with the information giving methods that we generally follow in the class room. The use of educational software in learning environments is a convenient way to discover and access to information resources in order to prepare learners for future life.

OBJECTIVE OF THE STUDY

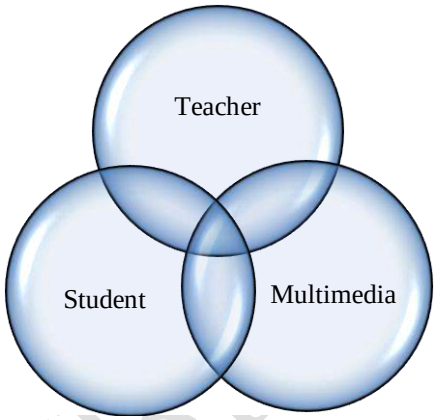
- ✓ To Study the Use of multimedia Materials For Teaching Tamil grammar
- ✓ To Identify the Types of multimedia Materials Which Are Suitable for Teaching Tamil grammar
- ✓ To Examine the Effect of Learning multimedia Teaching Tamil grammar For Secondary Students.
- ✓ To establish A Reusable Framework to Showcase the Usage of Multimedia in Tamil grammar Teaching

CONCEPTUAL FRAMEWORK

TRADITIONAL METHOD – A ONE WAY FLOW



MULTIMEDIA LEARNING – AN INTERACTIVE LEARNING PROCESS



REVIEW OF LITERATURE

Nozari, A. Y., & Siamian, H. (2015). Traditional education classes are no more effective because they are tied to a particular place and time. Podcast complete the defection of other educational resources. In this study we aimed to address whether utilizing podcast multimedia training system has an effect on the motivational achievement and students learning of the Arabic course in high school. In this practical-purposed, descriptive and quasi-experimental study, pre- and post-test method in control and experiment groups was used. Researchers used simple random sampling method to form the groups. The results showed the normal distribution of data according to the value of z (0.09) in the pre- and post-tests in both control and experiment groups. Therefore, the data distribution was normal (P>0.925). Significant differences between experimental and control groups in terms of academic level were not observed in the pre-test. There was no significant difference between the motivational achievement of education in post-test of control and experiment group (p>0.89). The results showed that teaching with podcast multimedia systems significantly increased learning of Arabic in the high school level. But of motivation reinforcement between traditional method and system for multimedia podcasts, showed no significant differences. Each variety of multimedia techniques can be beneficial for a specific course. Therefore, more studies on the effectiveness of podcast method in different courses to determine its effects are necessary.

Satyaprakasha, C. V., & Sudhanshu, Y. (2014). The term 'Multimedia instructional systems' refers to the user of appropriate and carefully selected verities of learning experiences which are presented to the learner through selected teaching strategies which reinforce and strengthen one another so that the learner will achieve predetermined and desired behavioural objectives. In the present study attempt has been made to find out the effect of Multi Media Teaching on achievement in biology. Objectives of the study were 1.To find out the effectiveness of Multi Media Teaching on achievement in biology and 2.To find out the

effectiveness of Multi Media Teaching on achievement in biology among boys and girls in experimental group. Hypotheses of the study were 1. Multimedia teaching would promote achievement in biology and 2. The attainment of different objectives of achievement in biology would be same among boys and girls in experimental group. For the present study, two sections of 9th standard consisted of 38 and 39 students of Samhitha High School, Kurabrahalli, Bangalore has been chosen as the sample. Cluster and random sampling procedure was employed in the selection of the sample. Achievement Test in Biology developed by the investigator has been used for the collection of data. The major findings of the study were 1. Multi Media Teaching significantly promoted achievement with respect to knowledge, understanding, application and total achievement in biology in comparison to conventional method. 2. Different objectives like knowledge, understating, application and total achievement in biology were significantly attained by both boys and girls in experimental group.

Singaravelu, G. (2014). The study enlightens the impact of Gadget Based Learning of English Grammar at standard II. Objectives of the study is to find out the learning problems of the students of standard II in Learning English Grammar in Shri Vani Vilas Middle School and to find whether there is any significant difference in achievement mean score between pre test of control group, and post test of control group in Learning English Grammar of the students of standard II in Shri Vani Vilas Middle school at Mannargudi. Equivalent group Experimental method was adopted for the study. The study is confined to 160 students of standard II studying in Shri Vani Vilas Middle school, Mannargudi for 80 students (-40 control group+40 Experimental group), and 80 students (40 control group+40 Experimental group) from Gopala Samudram Middle school at Mannargudi. Researcher's self-made achievement test was used as instrumentation for the study. It establishes that the conventional method of teaching is not effective in learning English Grammar at standard II. The main educational implication is that it can be implemented to all other schools.

Joshi, A. (2012). One of the procedures to enhancing the understudies' meets the scholarly needs and causes them creating English dialect abilities is giving sight and sound amid the way toward educating and learning in the classroom. Mixed media classroom give the understudies opportunities to cooperating with differing writings that give them a strong foundation in the undertakings and substance of standard school courses. The composition plans to discover a few focal points of the utilization of mixed media in the classroom. Additionally, the association of innovation in the classroom can not denied giving positive point to enhancing the nature of instructing and giving more different methods in showing an outside dialect. The exploration utilizes a subjective technique giving a profoundly portrayal utilizing sight and sound in the classroom. The distinction between a conventional classroom and sight and sound classroom has been attracted this composition. The composition demonstrates that there are a few points of interest in showing English utilizing interactive media as a method in showing process in the classroom. Through the media the educator could give greater chance to understudies to express their feelings and appreciate amid the course. The profoundly nearness and inspiration additionally convey positive perspectives to understudies so they can enhance their aptitudes.

Vogel, S.P. and Engelhard Jr, G. (2011) describe a quantitative approach based on Rasch measurement theory for evaluating classroom assessments within the context of foreign language classes. A secondary purpose was to examine the effects of two instructional approaches to teach grammar, a guided inductive and a deductive approach, through the lens of Rasch measurement theory.

Larsen-Freeman, D. (2000) suggested that from a pedagogical perspective, there is a cost for associating grammar with rules. They discuss reasons for underlying rules and give implications for a reason-based approach to teaching grammar. The way people interact with knowledge has changed tremendously for today's society, in that the skills of information-management are required more than those for the retention of knowledge.

Hanson-Smith, E. Ed(2000) examined “Not Just Flashy Gadgets" (June Averill, Eve Chambers, Maria Dantas-Whitney); "Immersed in Writing: Networked Composition and Kendall Demonstration Elementary School" (Joy Kreeft Peyton); "Enthusiasm, Experience and Collaboration: Technology in the DEIL/IEI"

(Douglas G. Mills); and ""Teaching Writing with Web Projects: Famous Personages in Japan" (Thomas N. Robb). Part four, "Training Teachers," has two chapters: "Hands-On Teacher Training: Presentation Software" (Elizabeth Hanson-Smith); and "A Teacher Preparation Course for Computer-Assisted Language Learning" (Sarah Rilling). A"Glossary of Key Terms" and a subject index are also included.

MULTIMEDIA CLASSROOM TEACHING

The utilization of mixed media depicted here makes utilization of print writings, film and Internet to create and upgrade etymology and learning. Through their associations with interactive media messages on point of intrigue, understudies turn out to be progressively comfortable with scholarly vocabulary and dialect structures. As they seek after supported investigation of one substance region through center order inquire about, the understudies turn out to be effectively occupied with the way toward importance development inside and crosswise over various media. Working however the complex mixing of implications, inserted inside various writings urges understudies to make associations as they manufacture a more extensive scope of schemata, which are then accessible to enable them to get a handle on future writings. Utilizing print, film and Internet as assets for examining gives understudies chances to accumulate data through upgrades that will animate their creative impulses, draw to their advantage and acquaint them with the crude materials for investigation and elucidation of both dialect and setting. Understudies create strong establishment in a few branches of knowledge and progress toward becoming "content specialists" in one. Along these lines they significantly increment their general information base, and also their English dialect and basic proficiency abilities, encouraging their execution in future school courses. Albeit different investigations bolster the use of mixed media in the classroom, Liu, Jones and Hem Street (1998) point out that the plan of sight and sound is helpful when innovation is to have any impact on learning. One of the fundamental reasons for programming in composing is to encourage the advancement of scholastic composition aptitudes for understudies using the articles matter for composing assignments. The program is introduced as a reenactment amusement to intrigue and inspiration. Understudies utilizing the program wound up in the virtual universe of instruction.

MULTIMEDIA LEARNING PROCESS

I hear and I overlook.

I see and I accept.

I do and I get it.

- Confucius

The utilization of interactive media portrayed here makes utilization of print writings, film and Internet to create and upgrade semantics and information. Through their communications with media messages on subject of intrigue, understudies turn out to be progressively comfortable with scholarly vocabulary and dialect structures. As they seek after continued investigation of one substance zone through center order look into, the understudies turn out to be effectively occupied with the way toward significance development inside and crosswise over various media. Working however the complex intermixing of implications, installed inside various writings urges understudies to make associations as they manufacture a more extensive scope of schemata, which are then accessible to enable them to get a handle on future writings. Media mixes are for the most part alluded to as sight and sound framework. Sight and sound signifies 'Numerous Media'. Mixed media, is the blend of different computerized media types, for example, content, pictures, sound and video, into an incorporated multi-tactile intelligent application or introduction to pass on data to a crowd of people.

LBP PUBLICATION

CONCLUSION

Through the communication with sight and sound, the understudies turn out to be progressively comfortable with scholastic vocabulary and dialect structure. Associating with the Internet will make the advantage of expanded understudy inspiration. Understudies are anxious to start class and frequently arrive before the actual arranged time at the PC lab, signing on the Internet and starting exploration all alone. They additionally frequently remain after class to keep dealing with the Internet. By and large, understudies create more prominent trust in their capacity to utilize Tamil since they have to interface with the Internet through perusing and composing. Utilizing mixed media gives the understudies to accumulate data through media that supports their creative energies, interests. Additionally it utilizing this innovation joined with the feeling of instructing will make a fruitful educating technique.

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Vol. V
Number - 1

ISSN 2277-2405
Jan - Dec. 2016

EDUCATION PLUS

A Peer Reviewed Journal

AN INTERNATIONAL JOURNAL OF EDUCATION & HUMANITIES

Chief Editor
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Study Habits and Achievement of Economically Backward Students

C. Kathiresan*

Abstract

Study is the process of inter link of many skills comprising note taking, creating new ideas, reasoning, retention etc. Traditionally educators assumed that by providing instruction in a better ways so that learner task will become easier. With the development of new methods and approaches in learning and teaching process. Students' learning has become effective and achieves the most through study skills. Study habits play a vital role in the process of achievement at any level of learning. There are several factors that influences study habit for the betterment of achievement. The present study was conducted with 315 9th standard student of Erode District. Survey method with stratified random sampling method was conducted. The result shows that there is significant difference exists in gender, locality of students, type of school, type of management, family economic status.

Keywords: Instruction, approaches, effective, influences & achievement

INTRODUCTION

The term 'study' usually associated with reading and reference work that will be helpful in interpreting ideas, making judgments and creating new ideas. Study habits or skills are defined as those, such as summarizing, note- taking, outlining or locating material which learners employ to assist themselves in the efficient learning of the material at hand. The task of learning required information either from the text or class room lecture, is a complex one that calls upon the students to employ many techniques and skills. It is the duty of the parents and teachers to help learners find ways in which their study may become as pleasant and as successful as possible. Poor lighting, bad ventilation, extremes in temperature or excessive dryness of the air may interfere with learning efficiency. When the physical conditions are ideal the learner has little excuse for not getting started in their study without wasting a great deal of time.

FACTORS OF EFFECTIVE STUDY

Although habits can be developed that will serve the individual well during his study sessions, other habits also can be formed that will interfere greatly with success-achieving, protracted study. A favorable mental set or attitude towards study is likely to accompany good physical conditions. The teacher can influence the attitude of the learner towards the mastery of a subject. If a learner dislikes a particular subject, the teacher should try to motivate the learner so the student will develop a change in attitude towards it. It is relatively easy for a learner to plan a programme of study when he understands the study assignment, when he recognizes the fact that the assignment is not to be completed merely to satisfy a teacher and when he believes that the material is wrong learning.

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The teacher should know not only the purpose of the assignment but also in a way the study will contribute to his subsequent learning requirements.

TRADITIONAL STUDY HABITS

The most commonly taught study skill technique is the **SQ3R** and its adaptations originally developed by **Robinson (1940)** to provide soldiers with higher level study skills that would assist in their training for specialized position. Robinson discusses such items as concentration, motivation, time management, test taking and the application of the technique to various subject areas. SQ3R is comprised of the following steps

- **Survey:** Look over the headings in the chapter to see what points will be discussed
- **Question:** Turn each heading in to question
- **Read:** Read the chapter to find out the answer to the question posed
- **Resite:** After reading the first section recite the answer to the posed question. Recitation may take the form of notes or an outline.
- **Review:** At the completion of the chapter review the notes and recite the major points under each topic

Achievement

The occurrence of success and failure, experience is independent of actual achievement. It is determined rather by goals expectations and aspirations of the person at the time of action. It is the actual performance after used in reference to scores on educational tests or school graders. Parents desire that their children climb the ladder of performance to as high a level as possible. This desire for a high level of achievement puts a lot of pressure on the students, teachers and schools and in general, the educational system itself.

Need and Importance

There exists individual difference in the level of learning among students based on their interest and intellectual capacity. The achievement is based on the level of performances in the examination. Study is the process that enhances the achievement. It is composed of many components. The factor that influence the study habits are intelligence, learning environment, availability of resources for reading, method of study, duration etc. All these have a lead role in the development of memory. A normal brain has the drawback of prolonged retention of knowledge. Even though recapitulation leads to retention but for a few days or months only. Inculcating a better study habit can develop prolonged retention of knowledge and quick recap of valuable points. To gain knowledge in any subject attentiveness and interest is must. So there is a positive nature exists study habits and achievement. So the researcher intended to conduct the present study.

Review

Gatsakos, Mark Albert (2004) there was no significant difference in comprehension when students were read aloud to or when they read silently. **Koteswara N.M (1991)** girls had a better study habits than boys. Urban students had better study habit than rural students. There was no significant difference between study habits of high achieving girls on the reading achievement test. **Deb, Madhu & Grewal H.P (1990)** significant relationship between study habit and academic achievement was found. **Saxena, S.K (1981)** socio-economic status had the most significant effects on self-concept,

study habit and school attitude of different divisioners as well as failure of high school. **Sunanda, G,(1980)** the groups received counseling registered significant gain in their academic performance and study habits score.

Nirmal Kanta (1979) students of X scored significantly higher on study habits than those of class IX in relation to study habits. The level of parental education favored the study habits scores of students. The family income was positively correlated with the study habit scores. **Nair, V.S.(1978)** the cultural level was a differentiating factor in study habits and achievement in school of secondary pupils. **Chaudhari, V.P. (1975)** study habits of achievers differed significantly from under achievers. **Chhabra, N. (1975)** positive relationship exists between morale and study habits of P.G. teachers and the same was absent in the caste of trained graduates and teachers. Study habits had a positive relationship with educational qualification. **Kulwant Kaur,(1974)** differences exist among overachieving, normal achieving and under achieving 10th standard students in high and higher secondary schools. **Trivedi, R.S and Patel, B.V.(1973)** in their study found that the study habits of student's belonging to English stream were relatively better organized than the habits of non-English stream.

Objectives of the Study

- To find out the mean achievement level of the students of IX standard
- To find out the mean study habits level of the students of IX standard
- To find out the significant difference if any between study habits and academic achievement of students studying in different types and management of the schools.
- To find out the significant relationship if any among the students belonging to Govt, aided and municipal schools in respect of study habits and academic achievement.
- To find out the effect of parents Economical status on the achievement and study habits of the students.

Hypothesis of the Study

- There is no significance difference in respect of study habits between Urban and rural school students, Boys and Girls, Urban and rural school Girls, Urban and rural school boys, Boys school and Girls school, Girls school and co-ed school, Co-ed school and Boys school, Govt. and Aided school, Govt. and municipal school, Aided and municipal school
- There is no significance difference in respect of academic achievement between Boys and Girls, Urban and rural school students, Urban and rural school girls, Urban and rural school boys, Boys school and girls school, Girls school and Co-ed school, Boys school and Co-ed school, Govt. and Aided school, Govt. and Municipal school, Aided and Municipal school
- There is no significant relationship among Govt., aided and municipal school students in respect of Study habits, Academic achievement

Construction of the Tool

The investigator has constructed a tool in the form of rating scale which is appropriate to study the study habits of 9th standard students. The tool contains 50 statements about the study habits with three responses. The responses are Always, Sometimes and Never. The tool contains positive statements and negative statements for final study. After the pilot study, the reliability was **0.69** with well established face and content validity.

ISSN : 2277-2405

Sample for the final Study

Among available sampling techniques, the investigator has decided to use stratified random sampling in order to ensure representativeness. Among a large number of 9th standard students, sample of 315 students are selected from six higher secondary schools and from one high school in and around Erode.

Statistical Techniques

Statistics constitutes an important part of every scientific and economic enquiry. It is indispensable in almost every spheres of human activity and knowledge of science both in pure and social. Here t-test, F test, analysis and correlational analysis were administrated.

Analysis and interpretation of data Mean and Standard Deviation based on study habit scores

Demographic variable	Sub-group	Mean	S.D	t	Remarks
Locality of student	Urban	63	9.90	2.84*	S
	Rural	60	8.80		
Gender	Boys	60	8.34	2.84*	S
	Girls	63	10.37		
Locality of girls	Urban	65	11.57	1.82	N.S
	Rural	62	9.60		
Locality of boys	Urban	61	8.62	0.73	N.S
	Rural	60	7.98		
Nature of school	Boys	62	7.85	2.56*	S
	Co-Ed	59	8.77		
	Girls	66	10.60	5.26*	S
	Co-Ed	59	8.77		
	Girls	66	10.60	2.71*	S
	Boys	62	7.85		
Type of Management	Govt	60	9.57	3.29*	S
	Aided	64	9.25		
	Govt	60	9.57	0.69	N.S
	Municipal	61	9.54		
	Aided	64	9.25	2.19*	S
	Municipal	61	9.54		
Income group	Low	60.99	9.05	2.15*	S
	High	63.73	10.23		

The t value 2.84 is greater than the table value 2.58 at 1% level. Therefore, there is significant difference between urban and rural school students with respect to study habits. So there is no significant difference between urban and rural school students in respect of study habits is rejected.

It is found that the t value 2.84 is greater than the table value 2.58 at 1% level. Therefore, there is significant difference between boys and girls in respect of study habits. So there is no significant difference between boys and girls in respect of study habits is rejected.

It is found that the t value 1.82 is less than the table value 1.96 at 5% level. Therefore, there is no significant difference between urban and rural school girls in respect of study habits. So there is no significant difference between urban and rural girls in respect of study habits is rejected.

It is found that the t value 0.73 is less than the table value 1.96 at 5% level. Therefore, there is no significant difference between urban and rural boys in respect of study habits. So there is no significant difference between urban rural boys is accepted.

It is found that t value 2.56 is greater the table 1.96 at 5% level. Therefore, there is significant difference between the students from boys school and students from Co-ed school in respect of study habits. So there is no significant difference between the students from Co-ed school in respect of study habits is rejected.

It is found that the t value is 5.26 is greater than the table value 2.58 at 1%. Therefore, there is significant difference between students from Girls school and students from Co-ed schools in respect of study habits. So there in no significant difference between students from Girls school and the students from Co-ed School in respect of study habits is rejected.

It is found that the t value 2.71 is greater than the table value 2.58 at 1% level. Therefore, there is significant difference between students from Girls school and students from Boys school in respect of study habits. So there is no significant difference between students from Girls school and Boys school in respect of study habits is rejected.

It is found that the t value 3.29 is greater than the table't' value 2.58 at 1% level. Therefore, there is significant difference between Govt. school students and Aided school students in respect of study habits. So there is no significant difference between Govt. school students and Aided school students in respect of study habits is rejected.

It is found that the t value 0.69 is less the table 1.96 at 5% level. Therefore, there is no significant difference between Govt. school students and municipal school students in respect of study habits. So there is no significant difference between Govt. school students and municipal school students in respect of study habits is accepted.

It is found that the t value 2.19 is greater than the table value 1.96 at 5% level. Therefore, there is significant difference between aided and municipal school students in respect of study habits. So there is no significant difference between aided and municipal school students in respect of study habits is rejected.

It is seen that the t value 2.59 is greater than the table value 2.58 at 1% level. Therefore, there is significant difference between boys and girls in respect of achievement. So there is no significant difference between boys and girls in respect of achievement is rejected.

Mean and Standard Deviation based on achievement scores

Demographic variable	Sub group	Mean	S.D	t	Remarks
Locality of student	Urban	46	17.30	0.51	N.S
	Rural	45	17.44		
Gender	Boys	43	17.11	2.59*	S
	Girls	48	17.15		

ISSN : 2277-2405

Demographic variable	Sub group	Mean	S.D	t	Remarks
Locality of girls	Urban	51	18.27	1.51	N.S
	Rural	47	15.66		
Locality of boys	Urban	42	14.93	1.06	N.S
	Rural	45	19.07		
Nature of school	Boys	48	16.58	3.37*	S
	Co-Ed	40	16.13		
	Girls	56	15.96	7.48*	S
	Co-Ed	40	16.13		
	Girls	56	15.96	3.04*	S
	Boys	48	16.58		
Type of Management	Govt	45	17.46	2.70*	S
	Aided	51	16.79		
	Govt	45	17.46	2.92*	S
	Municipal	38	14.82		
	Aided	51	16.79	5.75*	S
	Municipal	38	14.82		
Income group	Low	43.84	16.59	0.66	N.S
	High	63.73	10.23		

It is seen that the t value 0.51 is less than the table value 1.96 at 5% level. Therefore, there is no significant difference between urban school students and rural school students in respect of achievement. So there is no significant difference between urban school and rural school students in respect of achievement are accepted.

It is seen that the t value 1.51 is less than the table value 1.96 at 5% level. Therefore, there is no significant difference between urban school girls and rural school girls in respect of achievement. So there is no significant difference between urban school girls and rural school girls in respect of achievement is accepted.

It is seen that the t value 1.06 is less than the table value 1.96 at 5% level. Therefore, there is no significant difference between urban school bays and rural school boys in respect of achievement. So there is no significant difference between urban school boys and rural school boys in respect of achievement is accepted.

It is seen that the t value 3.37 is greater than the table value 2.58 at 1% level. Therefore, there significant difference between students from boys school and students from co-ed school in respect of achievement. So there is significant difference between students from boys school and students from co-ed schools in respect of achievement is rejected.

It is seen that the significant t value 7.48 is greater than the table value 2.58 at 1% level. Therefore, there is significant difference between students from girls school and students from co-ed schools in respect of achievement. So there is no significant difference between students from girls school and students from co-ed schools in respect of achievement is rejected.

It is seen that the t value 3.04 is greater than the table value 2.58 at 1% level. Therefore, there is significant difference between students from girls school and students from boys school in respect

of achievement. So there is no significant difference between students from girls school and students from boys school in respect of achievement is rejected.

It is seen that the t value 2.70 is greater than the table value 2.58 at 1% level. Therefore, there is significant difference between govt. and aided school students in respect of achievement. So there in no significant difference between govt. school students and aided school students in respect of achievement is rejected.

It is seen that the significant t value 2.92 is greater than the table value 2.58 at 1% level. Therefore, there is significant difference between Govt, school students and municipal school students in respect of achievement. So there is no significant difference between Govt. school students and municipal students in respect of achievement is rejected.

It is seen that the t value 5.75 is greater than the table value 2.58 at 1% level. Therefore, there is significant difference between aided and municipal school students in respect of achievement. So there is no significant difference between aided school students and municipal school students in respect of achievement is rejected.

It is seen that the t value 2.15 which is greater than the table value 1.96 at 5% level. Therefore, there is significant difference between high and low income group in respect of study habits. So there is no significant difference between high and low income group in respect of study habits is rejected.

It is found that the t value 0.66 which is less than the table value 1.96 at 5% level. Therefore, there is no significant difference between high income and low income group in respect of academic achievement. So there is no significant difference between high and low income group in respect of academic achievement is accepted.

ANOVA based on study habit scores

Sources of variance	Sum of Square	Df	Mean square	F-value	Level of significance
Between groups	726	2	363	3.24*	S
Within groups	35141	312	112		
Total	35867	314			

It is found that the F value 3.24 is greater than the table value 3.15 at 0.05 levels. Among the students of three different schools, the study habits are taken as significant. Hence, the null hypothesis is rejected.

ANOVA based on achievement scores

Sources of variance	Sum of Square	df	Mean square	F-value	Level of significance
Between groups	7684.25	2	3842.13	14.28*	S
Within groups	83960.50	312	269.10		
Total	91644.75	314			

It is found that the F- value 14.28 is greater than the table value 3.15 at 0.05 level. Among the students of three different hypothesis is rejected.

ISSN : 2277-2405

IMPLICATIONS OF THE STUDY

The academic achievement of the IX std students is being evaluated by the teachers by the way of conducting monthly tests, quarterly examinations, half yearly examinations and annual examinations. The first and foremost reason for scoring high marks in the examinations or test is study habits of the students. Effective teaching methodology should be adopted in the teaching profession, mainly in primary and secondary school levels. The teacher should clear the difficulties of the students in learning process in order to make the students achieve better scores in the examinations.

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Vol. 3 Issue 9 Jan 2018

ISSN2249-3867

RESEARCH DIMENSIONS

A Peer Reviewed & Refereed Multidisciplinary International Journal

Impact Factor: 5.1899

UGC Approved Journal No. 45814

Chief Editor

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RESEARCH DIMENSIONS

ISSN: 2249-3867
IMPACT FACTOR : 5.1899(UIF)
VOLUME - 3 | ISSUE - 9 | JANUARY - 2018

ATTITUDE TOWARDS LEARNING COMPUTER AMONG HIGH SCHOOL TEACHERS

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ABSTRACT: -

Computers at present are influencing every aspect of human life. They are playing salient roles in work places, business, education and entertainment. Moreover, many people recognize technology as catalysts for change; change in working conditions, handling and



exchanging information, teaching and learning approaches, scientific research and in accessing information. They are influencing all aspects of life. The influences are felt more and more at schools. Because computers provide both students and teachers with more opportunities in adapting learning and teaching to individual needs, society is, forcing schools aptly respond to technical innovation. The potentials of technology in increasing access and improving relevance and quality of education can be assured. They greatly facilitate the acquisition and absorption of knowledge, offering developing countries unprecedented opportunities to enhance educational systems that had revolutionized the way people work today and are now transforming education systems.

KEYWORDS: *Influencing, Accessing, Opportunities, Adapting & Revolutionized.*

INTRODUCTION :

Education is the process by that people acquire knowledge, skills, habits, values or attitudes. The word education is also used to describe the results of the educational process. It should help people to become useful members of society, also helps them to develop an appreciation of their cultural heritage and live more satisfying lives. According to National Policy on Education "It is fundamental to all-round development, material and spiritual". Education is the high way to derive the maximum benefit from the assets already created by the economical and technical development. Education needs to be planned meticulously and development with great sensitivity. So, as to make the best use of the human being as a positive asset and a precious national resource, i.e., education should provide scientific temper.

COMPUTER IN EDUCATION

The following are the areas that computers are helpful in the field of Education.

- Take over the most of the drudgery of schooling like classifying children according to abilities, preparing time table, schedules, etc.
- Allocate learning resources to individual and groups.
- Maintain progress cards preserve them confidentially.
- Provide easy access to files of information for reference and guidance.
- Directs interaction between student and the subject matter to be learned.

- Engage the students in tutorial interactions and dialogue.

NEED AND IMPORTANCE OF THE STUDY

A teacher should have the knowledge of the world up to date. Their wisdom should always be expanding one. Teaching with traditional method will help them to give students only the subject knowledge, but teaching through computer or sharing the information through computer will enlarge the learners thought and ideas. So, that learner will be more aware of not only with their subject but also with the knowledge of computer. Hence to obtain this, the teachers should know the way to utilize the computer. But most of the teachers feel comfortable with the traditional method of teaching. Using innovative methods need courage and confidence. It also needs risk taking. Hence keeping in mind the new challenges faced by the teaching community, the investigator tends to study the attitude towards learning computer among high school teachers.

OBJECTIVES OF THE STUDY

To find the level of attitude towards learning computer among high school teachers in terms of background variables.

(a) To find out the significant difference in the attitude towards learning computer among high school teachers based on the dimensions such as enthusiasm, anxiety, acceptance, e-mail, power point and productivity with respect to a) Gender, b) Major subject, c) Educational qualification, d) Type of the School, e) Nature of the School, and f) Teaching Experience.

HYPOTHESES

• The level of attitude towards learning computer among high school teachers in terms of background variables is average.

• There is no significant difference in the scores on the attitude towards learning computer among high school teachers with the dimensions such as enthusiasm, anxiety, acceptance, e-mail, power point and productivity with respect to a) Gender, b) Major subject, c) Educational qualification, d) Type of the School, e) Nature of the School, and f) Teaching Experience.

METHOD USED FOR THE STUDY

Research methods are very important in a research process. A pre-planned and well described method will provide a researcher a scientific and feasible plan for attacking and solving the problem under investigation. The descriptive method was widely used research method in the field of education. The investigator has adopted survey method in view of the objectives of the study. Survey has the basic connection of “the act of looking over or beyond”. The survey method gathers data from a relatively large number of cases at a particular time.

POPULATION AND SAMPLE USED

The population for the study consists of all high school teachers. The present investigation was conducted with 300 high school teachers working in schools. The sample was drawn by using simple random sampling technique.

VALIDITY AND RELIABILITY

Attitude towards learning computer among high school teachers constructed and validated by the investigator. In order to establish content validity, the tool consisting of 60 items was given to a panel of experts; the items were modified on the basis of remarks given by the panel of experts. The reliability of attitude towards learning computer among high school teachers scale was found to be 0.74 by test-retest method.

Data Analysis

Table 1: Differences in the Scores of High School Teachers in Dimensional Wise Analysis on Attitude towards Learning Computer With Respect To Gender

Dimensions	Gender	Mean	Standard Deviation	t- value	Remark
Enthusiasm	Male	11.15	1.91	**1.99**	S
	Female	10.66	2.11		
Anxiety	Male	7.64	1.61	0.58	NS
	Female	7.52	1.64		
Acceptance	Male	2.66	1.20	1.27	NS
	Female	2.47	1.13		
E-mail	Male	19.18	5.39	0.51	NS
	Female	18.85	4.88		
Power Point Presentation	Male	2.74	1.38	**2.27**	S
	Female	3.13	1.32		
Productivity	Male	27.44	4.09	0.09	NS
	Female	27.39	5.04		
In Total	Male	70.81	9.96	0.62	NS
	Female	70.02	10.54		

Table 2: Differences in the Scores of High School Teachers in Dimensional Wise Analysis on Attitude towards Learning Computer With Respect To Major Subjects

Dimensions	Source of Variation	Sum of Squares	df	F- value	Remark
Enthusiasm	Between	16.57	3	1.31	NS
	Within	1251.01	297		
Anxiety	Between	0.50	3	0.06	NS
	Within	795.73	297		
Acceptance	Between	1.12	3	0.28	NS
	Within	397.83	297		
E-mail	Between	17.12	3	0.22	NS
	Within	7600.23	297		
Power Point Presentation	Between	4.53	3	0.82	NS
	Within	544.44	297		
Productivity	Between	52.54	3	0.77	NS
	Within	6731.82	297		
In Total	Between	127.16	3	0.39	NS
	Within	32020.04	297		

Table 3: Differences in the Scores of High School Teachers in Dimensional Wise Analysis on Attitude towards Learning Computer With Respect To Educational Qualification

Dimensions	Source of Variation	Sum of Squares	df	F- value	Remark
Enthusiasm	Between	3.53	3	0.28	NS
	Within	1264.06	297		
Anxiety	Between	6.83	3	0.86	NS
	Within	789.40	297		
Acceptance	Between	9.79	3	**2.49**	S
	Within	389.16	297		
E-mail	Between	79.07	3	1.04	NS
	Within	7538.28	297		
Power Point Presentation	Between	1.80	3	0.33	NS
	Within	547.17	297		
Productivity	Between	16.37	3	0.24	NS
	Within	6769.99	297		
In Total	Between	174.97	3	0.29	NS
	Within	31972.24	297		

Table 4: Differences in the Scores of High School Teachers in Dimensional Wise Analysis on Attitude towards Learning Computer With Respect To Type of School

Dimensions	Source of Variation	Sum of Squares	df	F- value	Remark
Enthusiasm	Between	4.66	2	0.55	NS
	Within	1262.92	298		
Anxiety	Between	18.05	2	**3.46**	S
	Within	778.18	298		
Acceptance	Between	1.20	2	0.45	NS
	Within	397.75	298		
E-mail	Between	99.03	2	1.96	NS
	Within	7518.32	298		
Power Point Presentation	Between	29.96	2	**8.60**	S
	Within	519.01	298		
Productivity	Between	53.83	2	1.19	NS
	Within	6730.52	298		
In Total	Between	567.44	2	2.68	NS
	Within	31579.76	298		

Table 5: Differences in the Scores of High School Teachers in Dimensional Wise Analysis on Attitude towards Learning Computer With Respect To Nature of Schools

Dimensions	Source of Variation	Sum of Squares	df	F- value	Remark
Enthusiasm	Between	0.95	2	0.11	NS
	Within	1266.63	298		
Anxiety	Between	4.46	2	0.84	NS
	Within	791.77	298		
Acceptance	Between	12.45	2	**4.80**	S
	Within	386.50	298		
E-mail	Between	48.97	2	0.96	NS
	Within	7568.38	298		
Power Point Presentation	Between	1.99	2	0.54	NS
	Within	546.98	298		
Productivity	Between	2.25	2	0.05	NS
	Within	6782.11	298		
In Total	Between	155.50	2	0.72	NS
	Within	31991.70	298		

Table 6: Differences in the Scores of High School Teachers in Dimensional Wise Analysis on Attitude towards Learning Computer With Respect To Teaching Experience

Dimensions	Source of Variation	Sum of Squares	df	F- value	Remark
Enthusiasm	Between	12.64	2	1.50	NS
	Within	1254.95	298		
Anxiety	Between	1.36	2	0.25	NS
	Within	794.88	298		
Acceptance	Between	0.24	2	0.09	NS
	Within	398.71	298		
E-mail	Between	82.63	2	1.63	NS
	Within	7534.72	298		
Power Point Presentation	Between	2.80	2	0.76	NS
	Within	546.17	298		
Productivity	Between	93.27	2	2.08	NS
	Within	6691.09	298		
In Total	Between	433.14	2	2.03	NS
	Within	31714.06	298		

*S- Significant at 0.05 level & NS- Not Significant.

FINDINGS OF THE STUDY

The following are the interpretations obtained from the analysis.

- The level of attitude towards learning computer among high school teachers in terms of background variables is average.
- There is significant difference in the scores on the attitude towards learning computer among high school teachers with the dimensions such as enthusiasm, power point and the rest shows no signification with respect to gender.
- There is no significant difference in the scores on the attitude towards learning computer among high school

teachers with the dimensions such as enthusiasm, anxiety, acceptance, e-mail, power point and productivity with respect to major subject.

- There is significant difference in the scores on the attitude towards learning computer among high school teachers with the only dimension called acceptance and the rest shows no signification with respect to educational qualification.
- There is significant difference in the scores on the attitude towards learning computer among high school teachers with the dimensions such as anxiety, power point and the rest shows no signification with respect to type of the school.
- There is significant difference in the scores on the attitude towards learning computer among high school teachers with the only dimension called acceptance and the rest shows no signification with respect to nature of the school.
- There is no significant difference in the scores on the attitude towards learning computer among high school teachers with the dimensions such as enthusiasm, anxiety, acceptance, e-mail, power point and productivity with respect to teaching experience.

RECOMMENDATIONS

From the present study, the investigator wants to propose some remedial measures to be taken, so that the high school teachers can become innovative teachers.

- Government must ensure training on ICT awareness for all the high school teachers.
- Proper infrastructure should be provided for the teachers to attain, proficiency in computer.
- The teacher organizations include developing a preferred future incorporating the most positive aspects of new technologies and building alliances with technology advocates based upon common interests.

SUGGESTIONS FOR FURTHER RESEARCH

• Similar type of studies can be extended to other schools, colleges and universities exploring the same field of investigations.
• Study on relation between computer awareness and academic achievement of the college students can be conducted.
• Study about the impact of computer on teaching effectiveness of college professors may be conducted.
• Study on importance of learning computer at B.Ed, level can be conducted.
• Awareness of information and communication technology of higher secondary school students may be studied.
• Computer awareness and personality development of D.T.Ed, students may be studied.

CONCLUSION

Teachers have a central role in developing new learning models in schools. The uses of computer is making major differences in the learning of students and teaching approaches. They show exerting impacts on pedagogical approaches in the classrooms. Their contribution to changes in teaching practices, school innovation and community services is considerable. The emerging new technologies make the teaching profession evolve from teacher-centered instruction to student-centered interactive learning environments. It is widely recognized that the next generation of teachers are not only the greatest source of information about curriculum design and education content, but also take on the demanding role of change agents to bridge the gap between the way computers are applied for classroom teaching and the opportunities offered by ICT to enhance learning. The process of preparing teachers to use technology must be viewed from a whole-school approach that encourages change over time. Support must be made available at various levels, such as professional development to increase teacher's confidence and skills in choosing software and integrating ICT across the curriculum. It support staffs by assisting with technical and curricular needs.

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ISSN-0976-0245 (Print) • ISSN-0976-5506 (Electronic)

Volume 9 | Number 11 | November 2018

Indian Journal of Public Health Research & Development

An International Journal

SCOPUS IJPHRD CITATION SCORE

Indian Journal of Public Health Research and Development Scopus coverage years: from 2010 to 2017 Publisher: R.K. Sharma, Institute of Medico-Legal Publications ISSN:0976-0245E-ISSN: 0976-5506 Subject area: Medicine: Public Health, Environmental and Occupational Health
CiteScore 2015- 0.02
SJR 2015- 0.105
SNIP 2015- 0.034

Covered by Scopus
EMBASE
Approved by MCI

Website:
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Print-ISSN: 0976-0245-Electronic-ISSN: 0976-5506, Frequency: Monthly

Indian Journal of Public Health Research & Development is a double blind peer reviewed international journal. It deals with all aspects of Public Health including Community Medicine, Public Health, Epidemiology, Occupational Health, Environmental Hazards, Clinical Research, and Public Health Laws and covers all medical specialties concerned with research and development for the masses. The journal strongly encourages reports of research carried out within Indian continent and South East Asia.

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Editor

Dr. R.K. Sharma
Institute of Medico-legal Publications
Logix Office Tower, Unit No. 1704, Logix City Centre Mall,
Sector- 32, Noida - 201 301 (Uttar Pradesh)

Printed, published and owned by

Dr. R.K. Sharma
Institute of Medico-legal Publications
Logix Office Tower, Unit No. 1704, Logix City Centre Mall,
Sector- 32, Noida - 201 301 (Uttar Pradesh)

Published at

Institute of Medico-legal Publications
Logix Office Tower, Unit No. 1704, Logix City Centre Mall,
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DOI Number : 10.5958/0976-5506.2018.01745.X

Survey on Faculty Members Attitude on Selection Criteria for Digital Archives at Raman Research Institute, Bengaluru

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ABSTRACT

A repository is which stores one or more collection of digital information objects with the intention of providing long-term access to the information known as digital archives. This study is attempted on the selection criteria for the digital archives at RRI Library. To know the level of awareness on various copyright or legal issues associated with the digital collection and to get opinion from various categories of respondents about criteria guide on selection of materials for digitization. The present study analysis is to know various problems while using digital archives and ways to Publicize to use the IR/ digital archives and discuss about the special skills required for library staff to implement various methods to access the digital collection and precautionary measures relating to issues on digitizing the documents in the digital archives

Keywords: *Digital Archives, IR, RRI*

INTRODUCTION

A digital archive is a repository that stores one or more collection of digital information objects with the intention of providing long-term access to the information. Digital archives can be a sophisticated, multi-tiered storage system or simply from a local drive on someone's home computer. 'Long-term' refers to a period of time which is long enough to be concerned about the impact of changing technologies, including support for new media and data formats, and with a changing user community, on the information being held in a repository. This period extends into the indefinite future. Digital technology is constantly shifting, and the challenges of preserving materials in digital formats require constant innovation. This means that the curation of archives 'born-digitally' is heavily reliant on research, development and problem-solving. Ensuring long-term access to digital information is a complex challenge that includes issues such as: storage media instability and deterioration technology obsolescence and incompatibility (at the level of: hardware, system software, application software, data and file formats, storage media readers and drivers) lack of metadata which results in the failure to locate information, the inability to render and read the information, or the inability to attribute meaning or value to the information due to the lack of contextual information lack of clearly assigned responsibilities and resources for long-term preservation

Advantages of digital archiving

Archives of artifacts is helpful for historical reasons. Physical artifacts may get worn out in few years.

Searching of the contents in digital versions can be made powerful and this can help literally to all stakeholders.

Visibility of such archives is achieved which helps users to understand the importance of archives.

Better access to information and Data retention and backup

Less space requirements for physical document storage

Cost savings due to reduced overheads for storage, searching and handling of paper documents

Raman Research Library

The present library has been developed around

the library started by Prof. C. V. Raman. After the institute's activities enlarged from 1972 onwards, library's collection developed in the new areas of research activities. Its collection is strong in the areas of astronomy and astrophysics, theoretical physics, optics and liquid crystals. Apart from these subjects there are books on Computer Science, Electronics, scientific biographies, general science, nature and fine arts. It has also a collection of non-book materials like scientific slides, CD-ROMs, DVDs and audio and video tapes. The library participates in inter library networking activities and has a good rapport with the libraries in the city as well as outside. It is used by not only by the scientists of this institute but also by others belonging to Indian Institute of Science, Indian Institute of Astrophysics, Jawaharlal Nehru Centre for Advanced Scientific Research, National Aerospace Laboratories, National Centre for Biological Sciences, TIFR Centre for Applicable Mathematics and others. The library has full text access to several online journals. The Digital repository is built to showcase all the research publications of Prof. C.V. Raman. It includes research publications of the faculty and students of RRI in addition to the historical/ archival records such as Annual Reports, Newspaper clippings, Photographs and multimedia objects. A collage of profiles and publications of RRI members (whose imprints) have been culled and collated for posterity.

REVIEW OF LITERATURE

Kim, Julia Y (2018) conducted the study about the archives and library communities had benefited from major innovations in emulation and software preservation[1]. Presently the digital archives were accessible to all users and supported all major operating and desktop systems, and much of the work in determining platform requirements can be made almost invisible to end-users. The study investigating solutions for emulation, but also legal issues, metadata, and other impediments to the preservation of software necessary for rendering digital files. **Ravenwood, Clare (2015)** examined the social context of selection in institutions, in which the responsibilities of stakeholders and relationships between them can affect the material chosen for preservation by practitioners[2]. A range of stakeholders is identified and addressed the relationships between practitioners, information technology staff, and sources of material are found to be crucial. The influence of senior managers is important in providing a mandate and encouraging shared working and networks of expertise. **Chen, Tin-Kai (2014)** aimed to digitize video collections hosted by the Museum of Shadow Play of the Kaohsiung City Cultural Affairs Bureau in Taiwan[3]. The study cooperated with the museum and digitizes films kept there, whilst also constructing a Web 2.0 interactive online platform to promote the culture of shadow puppet theatre. The study designed and validated three prototypes of social interfaces representing the cultural context by taking advantage of interactive technology. **Muir, Adrienne (2014)** discussed that there are various possible approaches to dealing with the issues, including extending legal deposit law, amending copyright and related law, development and use of preservation clauses in licenses or collective licensing and the provision of preservation rights metadata[4]. There is a need for clarification of the legal situation and a raising of awareness. Roles and responsibilities in digital preservation and the impact of new trends in electronic publishing also need to be investigated.

Calanag, Maria Luisa (2001) stated about the Selection and metadata issues which surround the preservation of digital information are discussed, in particular, the assignment of "collection levels" to Web materials to ensure preservation,. PMES have been identified as informed by the OAIS as Reference Model[5]. They expressed preservation decision and responsibility for the resource at the time of selection. **Bähr, Thomas (2011)** described the necessary knowing about how identified, ranging from digital curation skills needed to evaluate digital data carriers to specialist digital preservation knowledge of file formats needed to describe information with the goal of sustaining accessiblilty over long-term[6]. It shows how central tasks of digital preservation like process description and preservation planning require expert knowledge of traditional librarian and information technology skills as well as new knowledge which is described as digital preservation skills. **Maxwell, Alexander (2010)** discussed the mission and implementation of digital libraries from an historian's perspective[7]. This paper summarizes the abstract qualities that historians look for in their sources, and then compares various digital archives both qualitatively and quantitatively, highlighting design features that enhance or detract from the ease of use. It gives library scientists candid opinions from an intensive end user of digital information, contains several practical suggestions,

and explains the reasoning behind those suggestions. **Hodge, Gail (2004)** discussed about OAIS Reference Model which provided the framework for discussing the key areas that impact on digital preservation, the creation of the electronic information, the acquisition of and policies surrounding the archiving of resources, preservation formats, preservation planning. They are encouraged to monitor developments and projects in the field, to raise awareness of the need for preservation within their institutions, to consider preservation and long-term access issues when negotiating licenses for electronic resources[8].

OBJECTIVES

To study the awareness levels on various copyright or legal issues associated with the digital collection

To get opinion from the respondents about criteria guide on selection of materials for digitization

To analyse various problems while using digital archives and ways to Publicize the use of IR/ digital archives

To discuss about the special skills required for library staff to implement and manage the digital collection and precautionary measures to be taken to digitize the documents.

METHODOLOGY

The researcher used a design of empirical survey using questionnaire method. This study involves both primary, secondary data and wide interaction with a sample group. Simple random sampling method is adopted to collect data from the faculty members of RRI.

Analysis

Table no: 1: Distribution of the respondents by gender

Sl. No	Gender	No of respondents	Percentage
1	Male	91	75.8
2	Female	29	24.2
	Total	120	100

The table no 1 shows the distribution of the respondents by their gender. It is noticed from the table that 76% of the respondents were male and 24% of the respondents were female.

Table No: 2: Distribution of the respondents by age

Sl. No	Age	No of respondents	Percentage
1	Below 35	29	24.2
2	36 – 40	67	55.8
3	41 – 45	10	8.3
4	46 – 50	7	5.8
5	Above 51	7	5.8
	Total	**120**	**100**

The table no 2 shows the distribution of the respondents by age. It is clear from the table that 56% of the respondents belong to the age group of 36-40. Around 24% of the respondents were below 35 aged and 8% of the respondents belong to the age group of 41-45 age. 6% of the respondents were aged 46-50 and another 6% of the respondents were aged above 51.

Table No: 3: Frequency level of accessing the digital archives

Sl. No	Frequency level	No of respondents	Percentage
1	Daily	66	55
2	Twice a Week	23	19.2
3	Occasionally	31	25.8
	Total	**120**	**100**

The table no 3 shows the frequency level of accessing the various digital archives materials is clear that 55% of the respondents were accessing the digital archives daily and 26% of the respondents were accessing the digital archives occasionally. 19% of the respondents were accessing the digital archives twice a week.

Table No 4: Awareness on copyright or legal issues associated with your digital collection which would result in restrictions on its use

Sl. No	Type		Highly Aware	Aware	Moderately Aware	Somewhat Aware	Never	Total	Mean	Std. Div	Rank
1	Publishers Policy	N	42	14	8	7	49	120	3.06	1.798	9
		%	35	11.7	6.7	5.8	40.8	100			
2	Sherpa Romeo	N	42	13	23	26	16	120	2.68	1.473	7
		%	35	10.8	19.2	21.7	13.3	100			
3	Creative Common Licensing	N	34	21	16	22	27	120	2.89	1.549	8
		%	28.3	17.5	13.3	18.3	22.5	100			
4	Fair Dealing / Fair use Rights	N	34	7	15	7	57	120	3.38	1.74	10
		%	28.3	5.8	12.5	5.8	47.5	100			
5	Site Licensing	N	49	7	31	15	18	120	2.55	1.494	6
		%	40.8	5.8	25.8	12.5	15	100			
6	Indian Copyrights Act	N	32	37	30	8	13	120	2.44	1.256	3
		%	26.7	30.8	25	6.7	10.8	100			
7	International Copyrights	N	50	37	8	15	10	120	2.15	1.313	1
		%	41.7	30.8	6.7	12.5	8.3	100			
8	Confidentiality	N	27	41	27	13	12	120	2.52	1.237	5
		%	22.5	34.2	22.5	10.8	10	100			
9	Multiple Format	N	45	29	10	18	18	120	2.46	1.489	4
		%	37.5	24.2	8.3	15	15	100			
10	Inter Library Loan	N	44	25	36	8	7	120	2.24	1.188	2
		%	36.7	20.8	30	6.7	5.8	100			

The table no 4 shows the respondents' opinion about Awareness on copyright or legal issues associated with digital collection which would result in restrictions on its use. It is noticed that 47% of the respondents were aware about the publishers policy related copyrights. Around 46% of the respondents were aware about Sherpa Romeo type of copy rights and another 46% of the respondents were aware about the Creative Common Licensing. 34% of the respondents were aware about Fair Dealing /Fair use Rights and 46% of the respondents were aware about Site Licensing. It is noticed that 57% of the respondents were aware about the Indian Copyrights Act, Confidentiality based rights and 73% of the respondents were aware about the International Copyrights. It is noticed that 62% of the respondents were aware about multiple format of rights and 58% of the respondents were aware about the inter library loan rights.

Among the various factors of the awareness on copyright or legal issues associated with the digital archives, high level on awareness is noticed on International Copyrights, Inter Library Loan Indian Copyrights Act and Multiple Format. Moderate level of awareness was found in Confidentiality, Site Licensing and Sherpa Romeo. Low level of awareness noticed on Creative Common Licensing, Publishers Policy and fair Dealing /fair use Rights

Table No 5: Criteria guide selection of materials for digitization

Sl. No	Criteria		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Mean	Std. Div	Rank
1	Preservation	N	27	32	36	11	14	120	2.61	1.259	10
		%	22.5	26.7	30	9.2	11.7	100			
2	Enhanced Access	N	55	22	22	11	10	120	2.16	1.322	5
		%	45.8	18.3	18.3	9.2	8.3	100			
3	Archival value	N	30	51	19	6	14	120	2.36	1.242	7
		%	25	42.5	15.8	5	11.7	100			
4	Academic Importance	N	21	31	18	29	21	120	2.98	1.384	14
		%	17.5	25.8	15	24.2	17.5	100			
5	To Save Space	N	27	21	45	11	16	120	2.73	1.282	11
		%	22.5	17.5	37.5	9.2	13.3	100			
6	Organizational Commitment	N	87	12	6	7	8	120	1.64	1.222	1
		%	72.5	10	5	5.8	6.7	100			
7	Quantity to meet user need	N	53	38	8	12	9	120	2.05	1.263	2
		%	44.2	31.7	6.7	10	7.5	100			
8	Subject relevance	N	40	22	38	7	13	120	2.42	1.301	8
		%	33.3	18.3	31.7	5.8	10.8	100			
9	Cost effectiveness	N	45	23	14	27	11	120	2.47	1.420	9
		%	37.5	19.2	11.7	22.5	9.2	100			
10	Authenticity of information	N	60	26	10	10	14	120	2.10	1.405	3
		%	50	21.7	8.3	8.3	11.7	100			
11	Distributed access	N	59	11	16	19	15	120	2.33	1.514	6
		%	49.2	9.2	13.3	15.8	12.5	100			
12	Added Value	N	38	21	15	23	23	120	2.77	1.538	12
		%	31.7	17.5	12.5	19.2	19.2	100			
13	Ease of accessibility	N	27	20	28	38	7	120	2.82	1.263	13
		%	22.5	16.7	23.3	31.7	5.8	100			
14	Legal issues	N	64	15	14	14	13	120	2.14	1.455	4
		%	53.3	12.5	11.7	11.7	10.8	100			

The table no 5 shows the respondents' opinion about various criteria guide selection of materials for digitization in the digital archives. It is clear that 50% of the respondents were considering for type of preservation and digitization of digital archives. 64% of the respondents thought about enhanced access for digital archives. 68% of the respondents considered for archival values. 43% of the respondents were thinking of academic importance before digitization of the documents and 40% of the respondents have agreed to save the space. It is noticed that 83% of the respondents have thought of organizational commitment factor for digitization of materials and 76% of the respondents have agreed for criteria of quality of information to meet the user need. It is clear that 52% of the respondents have thought about selection of materials based on subject

relevance and 57% of the respondents about the cost effectiveness. It is noticed that 72% of the respondents have discussed about authenticity of information for digital archives and 58% of the respondents have agreed for distributed access of digital archives. . It is clear that 49% of the respondents have agreed to the point of added values of the digital collection and 65% of the respondents agreed about the ease of accessibility to be considered for digitization.

Among the various criteria guide for selection of materials for digitizing the digital archives, high level of acceptance was found as criteria for Organizational Commitment, Quantity to meet user need, Authenticity of information, Legal issues and Enhanced Access. Moderate level of acceptance was found on distributed access, archival value, subject relevance, cost effectiveness and preservation. Low level of acceptance noticed on saving the space, added Value, ease of accessibility and academic Importance.

Table No 6: Major Problems while using digital archives

Sl. No	Problems		Always	Often	Sometimes	Rarely	Never	Total	Mean	Std. Div	Rank
1	Inadequate Funding	N	25	22	37	23	13	120	2.81	1.272	11
		%	20.8	18.3	30.8	19.2	10.8	100			
2	Human resource	N	31	22	32	23	12	120	2.69	1.314	7
		%	25.8	18.3	26.7	19.2	10	100			
3	IT support	N	20	22	23	27	28	120	3.18	1.412	13
		%	16.7	18.3	19.2	22.5	23.3	100			
4	Data storage	N	27	41	21	17	14	120	2.58	1.30	6
		%	22.5	34.2	17.5	14.2	11.7	100			
5	Copyright issues	N	28	25	30	22	15	120	2.76	1.335	10
		%	23.3	20.8	25	18.3	12.5	100			
6	Expertise and experience	N	35	24	34	19	8	120	2.51	1.25	4
		%	29.2	20	28.3	15.8	6.7	100			
7	Support from Administration	N	37	33	26	16	8	120	2.38	1.237	1
		%	30.8	27.5	21.7	13.3	6.7	100			
8	Rapid Growth	N	18	35	41	17	9	120	2.7	1.12	8
		%	15	29.2	34.2	14.2	7.5	100			
9	Sustainability	N	18	57	21	16	8	120	2.49	1.108	3
		%	15	47.5	17.5	13.3	6.7	100			
10	Management of resources	N	14	26	47	25	8	120	2.89	1.075	12
		%	11.7	21.7	39.2	20.8	6.7	100			
11	Partnership / Collaboration	N	24	38	34	16	8	120	2.55	1.151	5
		%	20	31.7	28.3	13.3	6.7	100			
12	Lack of Flexibility	N	25	45	29	14	7	120	2.44	1.121	2
		%	20.8	37.5	24.2	11.7	5.8	100			
13	Lack of Expertise	N	18	29	45	21	7	120	2.75	1.094	9
		%	15	24.2	37.5	17.5	5.8	100			

The table no 6 shows the respondents' opinion about major problems faced by them while accessing and developing the digital archives. It is noticed that 39% of the respondents mentioned about inadequate funding, 44% of the respondents stated about the lack of human resources, 35% of the respondents said about the lack of IT support and 57% of the respondents faced the lack of sufficient space for data storage for developing the digital archives. It is clear that 44% of the respondents were worried about copyright issues and 58% of the respondents were faced the lack of expertise and experience in accessing the digital archives. It is clear that 44% of the respondents faced the lack of support from the administration, 63% of the respondents faced the rapid growth of literature and another 63% of the respondents were worried about the sustainability problems. for developing the digital archives. It is noticed that 34% of the respondents thought about the management of resources in the digital archives and 52% of the respondents considered about the partnership and collaboration areas of digital archives. Around 58% of the respondents faced the lack of flexibility in maintaining the digital archives and 40% of the respondents were worried about lack of expertise in developing and accessing the digital archives.

Among the various problems faced by the respondents while accessing and developing the digital archives, majority of the respondents faced lack of support from Administration, lack of Flexibility, Sustainability, Expertise and experience ranked fourth, Moderate respondents were lack of Partnership / Collaboration, data storage, lack of Human resource support and rapid Growth on literature. Least preference of barrier to be mentioned by the respondents like lack of Expertise, Copyright issues, inadequate funding, Management of resources and IT support.

Table No 7: Ways to Publicize to use the IR/ digital archives

Sl. No	Factors		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Mean	Std. Div	Rank
1	User orientation	N	26	24	42	17	11	120	2.69	1.222	3
		%	21.7	20	35	14.2	9.2	100			
2	Intimation through email	N	27	24	41	24	4	120	2.62	1.139	2
		%	22.5	20	34.2	20	3.3	100			
3	Notice board	N	29	22	33	23	13	120	2.74	1.312	4
		%	24.2	18.3	27.5	19.2	10.8	100			
4	Pamphlets	N	25	22	29	27	17	120	2.91	1.347	5
		%	20.8	18.3	24.2	22.5	14.2	100			
5	Seminar	N	32	40	20	16	12	120	2.47	1.289	1
		%	26.7	33.3	16.7	13.3	10	100			

The table no 7 shows the respondents opinion about ways to publicize the use of digital archives. It is noticed that 42% of the respondents agreed about user orientation to help to publicize the effective use of digital archives. Around 43% of the respondents agreed about intimation through emails which promote the effective use of digital archives and another 43% of the respondents agreed about display on notice boards will promote the digital archives. 39% of the respondents agreed about using the pamphlets to promote the digital archives and 60% of the respondents agreed about promoting the digital archives by conducting seminars.

Among the various ways to publicize the use of digital archives, majority of respondents suggested to publicize the digital archives through Seminars, intimation through email and through user orientation. Some of the respondents suggested to promote through notice board and pamphlets to publicize the digital archives.

Table No 8: Opinion about special skills required for library staff possess in the field of digital preservation

Sl. No	Factors		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Mean	Std. Div	Rank
1	Technical skills	N	33	23	29	20	15	120	2.68	1.367	4
		%	27.5	19.2	24.2	16.7	12.5	100			
2	Assistance in digitization	N	31	22	36	22	9	120	2.63	1.256	3
		%	25.8	18.3	30	18.3	7.5	100			
3	Copyright advice	N	32	30	31	18	9	120	2.52	1.243	1
		%	26.7	25	25.8	15	7.5	100			
4	Ensuring material availability for long term	N	16	32	43	19	10	120	2.79	1.122	5
		%	13.3	26.7	35.8	15.8	8.3	100			
5	Allowing other institutions to view the material	N	16	51	26	18	9	120	2.61	1.125	2
		%	13.3	42.5	21.7	15	7.5	100			

The table no 8 shows the respondents' opinion about special skills required for library staff to possess in the field of digital preservation. It is noticed that 47% of the respondents agreed that the library staff must have adequate technical skill to manage the digital archives. Around 44% of the respondents agreed about the library staff need for assistance in digitization. 52% of the respondents agreed about the library staff to know about the copyright advices. 40% of the respondents accepted to ensure the material availability for long term through the library staff. 56% of the respondents agreed about allowing other institutions to view the material.

Among the various special skills required for library staff to possess in the field of digital preservation, more number of respondents agreed for required skills on Copyright advice, allowing other institutions to view the material and assistance towards digitization. Some of the respondents had mentioned about the technical skills and ensuring material availability for long term.

Table No 9: Opinion about the precautionary measures relating to while digitizing the documents in the digital archives

Sl. No	Factors		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Mean	Std. Div	Rank
1	Future changes in hardware technology	N	13	24	47	27	9	120	2.96	10.8	5
		%	10.8	20	39.2	22.5	7.5	100			

Cont... **Table No 9: Opinion about the precautionary measures relating to while digitizing the documents in the digital archives**

2	Future changes in software technology	N	20	36	37	18	9	120	2.67	1.147	3
		%	16.7	30	30.8	15	7.5	100			
3	Security issues	N	24	48	33	10	5	120	2.37	1.028	1
		%	20	40	27.5	8.3	4.2	100			
4	Copyright issues	N	14	31	50	20	5	120	2.76	1.004	4
		%	11.7	25.8	41.7	16.7	4.2	100			
5	Copying and updating incase of obsolescence of storage device	N	18	22	65	10	5	120	2.68	0.97	2
		%	15	18.3	54.2	8.3	4.2	100			

The table no 9 shows the respondents' opinion about the precautionary measures relating to digitizing the documents in the digital archives. It is noticed from the table that 31% of the respondents agreed to adopt the future changes in hardware technology while digitizing the documents in the digital archives. Around 46.7% of the respondents agreed about adopting the future changes in software technology while digitizing the documents in the digital archives. 60% of the respondents agreed about security issues related to digital archives. 38% of the respondents agreed about maintaining the copyright issues related to digital archives and 33% of the respondents agreed upon copying and updating incase of obsolescence of storage device for digital archives.

Among the precautionary measures relating to digitizing the documents in the digital archives, more number of respondents showed concern about the Security issues, future changes in software technology, copying and updating incase of obsolescence of storage device. Moderate levels of concern were identified on copyright issues and future changes in hardware technology.

FINDINGS AND DISCUSSIONS

It is noticed that high level on awareness noticed on International Copyrights, Inter Library Loan Indian Copyrights Act and multiple Format of copy right/Legal issues associated with the digital Archives.

There is need to give more awareness on Creative Common Licensing, Publishers Policy and fair Dealing /fair use Rights related to digital archival policies

Majority of the respondents agreed to follow Organizational Commitment, Quantity to meet user need, Authenticity of information, Legal issues and Enhanced Access as criteria for digitization of materials in the archives.

It is identified that majority of the respondents faced the lack of support from Administration, lack of Flexibility, Sustainability, Expertise and experience. Moderate respondents faced lack of Partnership / Collaboration, data storage, lack of Human resource support and rapid Growth on literature while accessing and developing the digital archives.

The study indicated that more number of respondents suggested to publicize the digital archives through Seminars, intimation through email and through user orientation. Some of the respondents suggested to promote through notice board and pamphlets to publicize the digital archives.

It is suggested that more number of respondents agreed to the requirement of staff skills on Copyright advice, allowing other institutions to view the material and assistance towards digitization.

It is clear that more number of respondents have shown concern about the Security issues, future changes in software technology, copying and updating incase of obsolescence of storage device.

CONCLUSION

A successful digital archives could be brought together by all the efforts taken by the library professionals. Confidently, digital archives would develop over time

and pull the library services into digital information service and the optimistic concentration taken for the efforts to reach this goal. The study attempted to draw the attention of the users towards digital archives on their copyright awareness and their own criteria for the digital collection. The digital archives policies and the strategy is simple, and to know about the digital collection which could identify possible partners and projects. Digital archives identified the importance of the users and associated with understanding of the specific user needs.

Conflict of Interest: Nil

Source of Funding: Self

Ethical Clearance: IJRISE Journal Reviewer Committee

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Library Philosophy and Practice (e-journal) | Libraries at University of Nebraska-Lincoln

December 2018

A STUDY ON KNOWLEDGE AND USAGE OF ELECTRONIC RESOURCES BY THE SC/ ST RESEARCH SCHOLARS AND PG STUDENTS AMONG PERIYAR UNIVERSITY AFFILIATED COLLEGES

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A STUDY ON KNOWLEDGE AND USAGE OF ELECTRONIC RESOURCES BY THE SC/ST RESEARCH SCHOLARS AND PG STUDENTS AMONG PERIYAR UNIVERSITY AFFILIATED COLLEGES

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Abstract

Advances in computer applications during the past few decades have brought radical changes in the way information is gathered, stored, organized, accessed, retrieved and consumed. The foremost focus of the research paper was to study the knowledge and use of electronic resources by SC/ST research scholars and PG students among colleges in Salem District affiliated to Periyar University. The study was carried out for SC/ST research scholars and PG students studying in colleges affiliated to Periyar University, Salem to explore their usage pattern of electronic resources. A Structured questionnaire was designed to achieve the objectives of the study and collect data from the research scholars. The results revealed that more number of research scholars and PG students were frequently using the e-resources for class assignments and preparation of examinations. Moreover, most of the users preferred to download the e-resources as in PDFformats. However some of the institutional based problems are being faced by the users.

Keywords: Electronic Resources, Research Scholars, SC/ST, PG Students, Periyar University

Introduction

E-resources are increasingly important to all aspects of education – from teaching and learning, through to the collection of student data, administration and marketing activities the institutions engage in. Advances in computer applications during the past few decades have brought radical changes in the way information is gathered, stored, organized, accessed, retrieved and consumed. The application of computers in information processing has brought several products and services to the scene. The Internet and the Web are constantly influencing the development of new modes of scholarly communication; their potential for delivering goods is quite vast, as they overcome successfully the geographical limitations associated with the print media. Electronic resources are online information resources, including bibliographic databases, electronic reference books, search engines for full text collections, digital collections of data and data sets. Non reference e-books and e-journals will be referred to as e-resources in this report. With the information explosion, the internet has revolutionized the research processes and made information retrieval very convenient. The electronic resources which come in the form of e-books and e-journals accessed through various databases have made research activities conveniently available. E-resources are convenient to use and make research a lot easier in that, they enable one to search for information at a faster rate because search engines are utilized as opposed to manual searches. Libraries have witnessed a great metamorphosis in recent years both in their

collection development and in their service structure. Over the last several years, a significant transformation has been noticed in collection development policies and practices. Print medium is increasingly giving way to the electronic form of materials.

Bala, Suniti (2018) explored the use of open access resources (OARs) by researchers of Punjab Agricultural University, Ludhiana. The findings of the study shows that research articles, theses and e-books are extensively used open access resources for course and research work. Training and online tutorials can be helpful in overcoming the problems faced by researchers in using OARs. **Yebowaah, Franklina Adjoa (2017)** examined the use of electronic resources by lecturers of the University for Development Studies, Wa campus. The study recommended that efforts to improve the use of e-resources in the Library should include ways of creating user awareness, training/workshops for users and staff, and responding to the challenges confronting utilization. ***Amusa, Oyintola Isiaka*** **(2016)** surveyed the level of availability, use and constraints to use of electronic resources among law lecturers in Nigeria. The study recommended regular subscriptions to electronic resources and provision of basic information literacy skills with emphasis on how to access, retrieve, download and print electronic resources for the law lecturers. **Viswanathan, V (2016)** attempted to deal with users opinion regarding the usage of Library Electronic Resources of selected arts and science colleges in Tamil Nadu. This paper provided few suggestions for the effective use of the resources among arts and science college libraries. **Jogan, Sushma N (2015)** examined the views of postgraduate students' on the access, awareness and usage in facilitating their research and their satisfaction with the sources and services currently provided. It suggested further for an improvement in the access facilities with high Internet speed and subscription to more e-resources by the University Library. The study attempted to encounter different problems faced by the students during accessing e-resources. **Kumar, Devendra (2015)** analyzed the awareness and usage of EIRS among the Teachers and Students of IIMS. The study demonstrated and elaborated the various aspects of the purpose of using EIRS, types, methods and linking pattern of EIRS. The study discussed with the reason for using EIRS and suggested to make the EIRS more beneficial. **Kwadzo, Gladys (2015)** examined the awareness level and usage of electronic databases by graduate students in the University of Ghana. The study found that students were very much aware of the databases available and established that majority of students knew about the databases from their lecturers and most of them accessed from the central library. **Nazir, Tawfeeq (2015)** attempted to determine the use and satisfaction level with respect to the electronic resources provided by the University of Kashmir to its users. The findings could be helpful to know the different challenges and concerns faced by users while accessing and using e-resources. The study highlighted the current scenario of the faculties of University of Kashmir with reference to the awareness and usage of electronic resources. **Priyadharshini, R (2015)** described the awareness, access and use of electronic resources available in the Agricultural College and Research Institute, Madurai. The study focused on the use of different types of electronic information resources, awareness of users, access and use of digital resources freely available by the Post Graduate Students, Ph.D Scholars and Faculty Members.

Objectives

The present study aimed to study the awareness and usage of electronic resources by SC/ST research scholars and PG students among Periyar University affiliated colleges.

Methodology

The researcher used a design of empirical survey. This study involves both primary, secondary data and wide interaction with a sample group. Simple random sampling method is chosen as far as primary data is concerned. The researcher has personally visited all the above institutions, distributed 728 questionnaires and received 700 filled-in questionnaires from the respondents. The response rate is 96.15.

Analysis

The analysis and interpretation of awareness and usage of e-resources as follow as

TABLE NO: 1
DISTRIBUTION OF THE RESPONDENTS BY INSTITUTION

Sl. No	Institution	Percentage
1	University	21.6
2	Aided College	9.3
3	Self Finance College	50.7
4	Constituent College	2.1
5	Government College	16.3
	Total	100

The table no 1 shows the distribution of the respondents by their studying institutions. It is clear that 51% of the respondents are from Self Finance Colleges and 22% of the respondents are from Periyar University Campus. Around 16% of the respondents are from Government Colleges and 9% of the respondents are responded Aided colleges. A 2% of the respondents are from Periyar University Constituent Colleges.

TABLE NO: 2
AWARENESS ABOUT THE FOLLOWING E-RESOURCES

Sl. No	Sources	Mean	Std. Deviation	Rank
1	E-journals	2.44	1.322	2
2	E-books	2.37	1.152	1
3	E-databases	2.69	1.277	3
4	E-magazines	2.89	1.301	4
5	E-dissertations and theses	3.09	1.331	7
6	Online Public Access Catalogues	2.92	1.414	5
7	E- audio visual resources	3.05	1.388	6

Based on the mean and Standard Deviation values, the awareness level of the respondents on various e-resources was ranked as follow as, e-books (M:-2.37, SD:-1.152) ranked first, e-journals ranked (M:-2.44, SD:-1.322) second, e-databases ranked (M:-2.69, SD:-1.277) third, e-magazines ranked (M:-2.89, SD:-1.301) fourth, OPAC ranked (M:-2.92, SD:-1.414) fifth, e- audio visual resources ranked (M:-3.05, SD:-1.388) sixth and e-dissertation and theses ranked(M:-3.09, SD:-1.331) seventh.

TABLE NO: 3
ANOVA BETWEEN AWARENESS LEVEL VARIOUS E-RESOURCES AND COURSE OF STUDY

H_O: There is no difference between awareness level on various e-resources and course of study

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
E-journals	Between Groups	48.759	2	24.380	14.499	.000
	Within Groups	1171.955	697	1.681		
	Total	1220.714	699			
E-books	Between Groups	16.489	2	8.244	6.300	.002
	Within Groups	912.156	697	1.309		
	Total	928.644	699			
E-databases	Between Groups	14.539	2	7.269	4.491	.002
	Within Groups	1128.318	697	1.619		
	Total	1142.857	699			
E-dissertations and theses	Between Groups	58.556	2	29.278	17.294	.000
	Within Groups	1180.031	697	1.693		
	Total	1238.587	699			
E- audio visual resources	Between Groups	18.864	2	9.432	4.953	.005
	Within Groups	1327.285	697	1.904		
	Total	1346.149	699			

The table no. 3 shows the Analysis of Variance between awareness levels of various e-resources and Courses of study. From the above table it is clearly understood that significant value of the two variables is zero and lesser than the table value at the significant level of 5%. Calculated values of F are greater than the table value. Hence the null hypothesis is rejected and the alternative hypothesis is accepted. The alternative hypothesis is being ***"There is a significant difference between course what they study and their awareness level on various e-resources."***

TABLE NO: 4
REGRESSION BETWEEN AWARENESS LEVEL ON VARIOUS E-RESOURCES AND THE INSTITUTION

H_O: There is no difference between awareness level on various e-resources and the institution where they study

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.243[a]	.059	.049	1.233

a. Predictors: (Constant), E- audio visual resources, E-databases , E-dissertations and theses, E-magazines , Online Public Access Catalogues , E-journals , E-books

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	65.972	7	9.425	6.199	.000[a]
	Residual	1052.062	692	1.520		
	Total	1118.034	699			

a. Predictors: (Constant), E- audio visual resources, E-databases , E-dissertations and theses, E-magazines , Online Public Access Catalogues , E-journals , E-books

b. Dependent Variable: Institution

The table no 4 shows the regression between awareness level on various e-resources and the Institution where they study. From the above table it is clearly understood that significant value of the two variables is zero and lesser than the table value at the significant level of 5%. Hence the null hypothesis is rejected and the alternative hypothesis is accepted. The alternative hypothesis is being ***"There is a significant difference between awareness level on various e-resources and the institution where they study".***

TABLE NO: 5
FREQUENCY OF USE OF ELECTRONIC INFORMATION RESOURCES

Sl. No	Frequency	No of Respondent	Percentage
1	Daily	252	36
2	Twice a week	113	16.1
3	Thrice a week	61	8.7
4	Weekly	189	27
5	Occasionally	85	12.1
	Total	700	100

The table no 5 shows the frequency level of using the electronic information sources. It is noticed that majority (36%) of the respondents were using the electronic information sources on a daily basis. Around 27% of the respondents were using once in a weekly and 16% the respondents were using e-resources twice in a week. 12% of the respondents were using the e-resources occasionally and 9% of the respondents were using the e-resources thrice a week.

TABLE NO: 6
CHI-SQUARE TEST BETWEEN INSTITUTION AND PLACE OF ACCESSING THE E-RESOURCES

H_O: There is no relationship between the institution where they study and place of accessing the e-resources

Sl. No	Place	Pearson Chi-Square Test		
		Value	df	Asymp. Sig. (2-sided)
1	Home	35.341[a]	16	.004
2	Departmental Lab	35.341[a]	16	.004
3	Main Library	35.142[a]	16	.004
4	Other Places	65.561[a]	16	.000

The table no 6 shows the chi-square between the Institution where they study and place of accessing the e-resources. From the above table it is clearly understood that significant value of the two variables is zero and lesser than the table value at the significant level of 5%. Hence the null hypothesis is rejected and the alternative hypothesis is accepted. The alternative hypothesis is being ***"There is a significant relationship between the institution where they study and place of accessing the e-resources"***

TABLE NO: 7
PURPOSES OF USING THE E-RESOURCES

Sl. No	Purpose	Mean	Std. Deviation	Rank
1	Class Assignment	2.03	1.225	1
2	Research Paper	2.43	1.283	3
3	Seminar / Conference	2.42	1.15	4
4	Preparation for Exam	2.25	1.207	2
5	Update the Subject	2.56	1.337	5
6	Other	3.44	1.366	6

Based on the mean and Standard Deviation values, the various purpose of accessing the e-resources has been ranked as follows, Class assignment was ranked (M:-2.03, SD:-1.225) first, preparation of examination was ranked (M:-2.25, SD:-1.207) second, research paper was ranked (M:-2.43, SD:-1.283) third, preparing for seminars/ conferences was ranked (M:-2.42, SD:-1.15) fourth, updating the subject knowledge was ranked (M:-2.56, SD:-1.337) fifth and for other purposes was ranked (M:-3.44, SD:-1.366) sixth.

TABLE NO: 8
REGRESSION BETWEEN COURSE AND PURPOSE OF USING THE VARIOUS E-RESOURCES

H_O: There is no difference between course and purpose of using the various e-resources

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.319[a]	.102	.094	.590

a. Predictors: (Constant), Purpose: Other, Purpose: Preparation for Exam, Purpose: Research Paper, Purpose: Class Assignment , Purpose: Seminar / Conference, Purpose: Update the Subject

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.258	6	4.543	13.054	.000[a]
	Residual	241.170	693	.348		
	Total	268.429	699			

a. Predictors: (Constant), Purpose: Other, Purpose: Preparation for Exam, Purpose: Research Paper, Purpose: Class Assignment , Purpose: Seminar / Conference, Purpose: Update the Subject

b. Dependent Variable: Course

The table no 8 shows the regression between course and purpose of using the various e-resources. From the above table it is clearly understood that significant value of the two variables is zero and lesser than the table value at the significant level of 5%. Hence the null hypothesis is rejected and the alternative hypothesis is accepted. The alternative hypothesis is being **"There is a significant difference between course and purpose of using the various e-resources"**

TABLE NO: 9
REGRESSION BETWEEN INSTITUTION AND PURPOSE OF USING THE VARIOUS E-RESOURCES

H_O: There is no difference between Institution and purpose of using the various e-resources

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.190[a]	.036	.028	1.247

a. Predictors: (Constant), Purpose: Other, Purpose: Preparation for Exam, Purpose: Research Paper, Purpose: Class Assignment , Purpose: Seminar / Conference, Purpose: Update the Subject

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	40.532	6	6.755	4.345	.000[a]
	Residual	1077.503	693	1.555		
	Total	1118.034	699			

a. Predictors: (Constant), Purpose: Other, Purpose: Preparation for Exam, Purpose: Research Paper, Purpose: Class Assignment , Purpose: Seminar / Conference, Purpose: Update the Subject

b. Dependent Variable: Institution

The table no 9 shows the regression between Institution and purpose of using the various e-resources. From the above table it is clearly understood that significant value of the two variables is zero and lesser than the table value at the significant level of 5%. Hence the null hypothesis is rejected and the alternative hypothesis is accepted. The alternative hypothesis is being ***"There is a significant difference between Institution and purpose of using the various e-resources".***

TABLE NO: 10
FREQUENCY LEVEL OF USING THE E-RESOURCES

Sl. No	Sources	Mean	Std. Deviation	Rank
1	E-journals	2.36	1.295	1
2	E-books	2.39	1.096	2
3	E-databases	2.79	1.24	3
4	E-magazines	3.07	1.189	6
5	E-dissertations and theses	3.04	1.303	5
6	Online Public Access Catalogues	2.94	1.438	4
7	E- audio visual resources	3.08	1.386	7

Based on the mean and Standard Deviation values, the frequency level of accessing the e-resources has been ranked as follows, e-journals was ranked (M:-2.36, SD:-1.295) first, e-books was ranked (M:-2.39, SD:-1.096) second, e-databases was ranked (M:-2.79, SD:-1.24) third, OPAC was ranked (M:-2.94, SD:-1.438) fourth, e-dissertations and theses ranked (M:-3.04, SD:-1.303) fifth, e-magazines ranked (M:-3.07, SD:-1.189) sixth and e-audio visual resources was ranked (M:-3.08, SD:-1.386) seventh.

TABLE NO: 11
REGRESSION BETWEEN INSTITUTION AND FREQUENCY OF ACCESSING THE VARIOUS E-RESOURCES

H_O: There is no difference between Institution and frequency of accessing the various e-resources

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.224[a]	.050	.040	1.239

a. Predictors: (Constant), Frequency: E- audio visual resources, Frequency: E-books , Frequency: E-magazines , Frequency: E-dissertations and theses, Frequency: Online Public Access Catalogues , Frequency: E-journals , Frequency: E-databases

ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	55.891	7	7.984	5.202	.000[a]
	Residual	1062.143	692	1.535		
	Total	1118.034	699			

a. Predictors: (Constant), Frequency: E- audio visual resources, Frequency: E-books , Frequency: E-magazines , Frequency: E-dissertations and theses, Frequency: Online Public Access Catalogues , Frequency: E-journals , Frequency: E-databases

b. Dependent Variable: Institution

The table no. 11 shows the regression between Institution and frequency of accessing the various e-resources. From the above table it is clearly understood that significant value of the two variables is zero and lesser than the table value at the significant level of 5%. Hence the null hypothesis is rejected and the alternative hypothesis is accepted. The alternative hypothesis is being ***"There is a significant difference between Institution and frequency of accessing the various e-resources."***

TABLE NO: 12
PREFERABLE FILE FORMAT

Sl. No	Format	Mean	Std. Deviation	Rank
1	PDF	1.89	1.245	1
2	Full-text HTML	2.79	1.234	3
3	PPT	2.42	1.235	2
4	Other	3.49	1.39	4

Based on the mean and Standard Deviation values, the preferred file format to download has been ranked as follows, PDF was ranked (M:-1.89, SD:-1.245) first, PPT was ranked (M:-2.42, SD:-1.235) second, Full text HTML was ranked (M:-2.79, SD:-1.234) third and other file formats was ranked (M:-3.49, SD:-1.39) fourth.

TABLE NO: 13
REGRESSION BETWEEN COURSE OF STUDY AND PREFERRED FORMAT TO DOWNLOAD

H_O: There is no difference between course of study and preferred format to download

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.151[a]	.023	.017	.614

a. Predictors: (Constant), Preferred format: Other, Preferred format: PDF , Preferred format: Full-text HTML , Preferred format: PPT

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.114	4	1.528	4.049	.003[a]
	Residual	262.315	695	.377		
	Total	268.429	699			

a. Predictors: (Constant), Preferred format: Other, Preferred format: PDF , Preferred format: Full-text HTML , Preferred format: PPT

b. Dependent Variable: Course

The table no 13 shows the regression between course of study and preferred format to download. From the above table it is clearly understood that significant value of the two variables is zero and lesser than the table value at the significant level of 5%. Hence the null hypothesis is rejected and the alternative hypothesis is accepted. The alternative hypothesis is being *"**There is a significant difference between course of study and preferred format to download."***

TABLE NO: 14
Regression between Institution and preferred format to download

H_O: There is no difference between institution where they study and preferred format to download

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.143[a]	.020	.015	1.255

a. Predictors: (Constant), Preferred format: Other, Preferred format: PDF , Preferred format: Full-text HTML , Preferred format: PPT

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.900	4	5.725	3.633	.005[a]
	Residual	1095.135	695	1.576		
	Total	1118.034	699			

a. Predictors: (Constant), Preferred format: Other, Preferred format: PDF , Preferred format: Full-text HTML , Preferred format: PPT

b. Dependent Variable: Institution

The table no 14 shows the regression between institution where they study and preferred format to download. From the above table it is clearly understood that significant value of the two variables is zero and lesser than the table value at the significant level of 5%. Hence the null hypothesis is rejected and the alternative hypothesis is accepted. The alternative hypothesis is being ***"There is a significant difference between institution where they study and preferred format to download."***

TABLE NO: 15
SATISFACTION LEVEL ON VARIOUS E-RESOURCES

Sl. No	Sources	Mean	Std. Deviation	Rank
1	E-journals	1.97	0.996	1
2	E-books	2.07	0.874	2
3	E-databases	2.38	1.093	4
4	E-magazines	2.6	1.137	7
5	E-dissertations and theses	2.71	1.281	8
6	CD-ROMs	2.77	1.194	9
7	Online Public Access Catalogues	2.49	1.194	6
8	E-Images	2.33	1.159	3
9	E- audio visual resources	2.57	1.241	5

Based on the mean and Standard Deviation values, the satisfaction level on various e-resources has been ranked as follows, e-journals was ranked (M:-1.97, SD:-0.996) first, e-books ranked (M:-2.07, SD:-0.874) second, e-images was ranked (M:-2.33, SD:-1.159) third, e-databases was ranked (M:-2.38, SD:-1.093) fourth, e-audio visual resources was ranked (M:-2.57, SD:-1.241) fifth, OPAC was ranked (M:-2.49, SD:-1.194) sixth, e-magazines was ranked (M:-2.6, SD:-1.137) seventh, e- dissertation and theses was ranked (M:-2.71, SD:-1.281) eighth and CD-ROMs was ranked (M:-2.77, SD:-1.194) ninth.

TABLE NO: 16
REGRESSION BETWEEN COURSE AND LEVEL OF SATISFACTION ON VARIOUS E-RESOURCES

H_O: There is no difference between course of study and their satisfaction level on various e-resources.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.194[a]	.038	.025	.612

a. Predictors: (Constant), Satisfaction: E- audio visual resources, Satisfaction: E-journals , Satisfaction: E-magazines , Satisfaction: E-Images , Satisfaction: Online Public Access Catalogues , Satisfaction: E-databases , Satisfaction: CD-ROMs , Satisfaction: E-books , Satisfaction: E-dissertations and theses

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.096	9	1.122	2.996	.002[a]
	Residual	258.333	690	.374		
	Total	268.429	699			

a. Predictors: (Constant), Satisfaction: E- audio visual resources, Satisfaction: E-journals , Satisfaction: E-magazines , Satisfaction: E-Images , Satisfaction: Online Public Access Catalogues , Satisfaction: E-databases , Satisfaction: CD-ROMs , Satisfaction: E-books , Satisfaction: E-dissertations and theses

b. Dependent Variable: Course

The table no. 16 shows the regression between course and satisfaction level on various e-resources. From the above table it is clearly understood that significant value of the two variables is zero and lesser than the table value at the significant level of 5%. Hence the null hypothesis is rejected and the alternative hypothesis is accepted. The alternative hypothesis is being ***"There is a significant difference between course of study and their satisfaction level on various e-resources."***

TABLE NO: 17
REGRESSION BETWEEN INSTITUTION AND LEVEL OF SATISFACTION ON VARIOUS E-RESOURCES

H_O: There is no difference between Institution where they studying and their satisfaction level on various e-resources

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.205[a]	.042	.029	1.246

a. Predictors: (Constant), Satisfaction: E- audio visual resources, Satisfaction: E-journals , Satisfaction: E-magazines , Satisfaction: E-Images , Satisfaction: Online Public Access Catalogues , Satisfaction: E-databases , Satisfaction: CD-ROMs , Satisfaction: E-books , Satisfaction: E-dissertations and theses

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.891	9	5.210	3.356	.000[a]
	Residual	1071.143	690	1.552		
	Total	1118.034	699			

a. Predictors: (Constant), Satisfaction: E- audio visual resources, Satisfaction: E-journals , Satisfaction: E-magazines , Satisfaction: E-Images , Satisfaction: Online Public Access Catalogues , Satisfaction: E-databases , Satisfaction: CD-ROMs , Satisfaction: E-books , Satisfaction: E-dissertations and theses

b. Dependent Variable: Institution

The table no 17 shows the regression between Institution and satisfaction level on various e-resources. From the above table it is clearly understood that significant value of the two variables is zero and lesser than the table value at the significant level of 5%. Hence the null hypothesis is rejected and the alternative hypothesis is accepted. The alternative hypothesis is being ***"There is a significant difference between Institution where they studying and their satisfaction level on various e-resources."***

TABLE NO: 18
PROBLEMS FACED WHILE ACCESSING THE E-RESOURCES

Sl. No	Problems	Mean	Std. Deviation	Rank
1	Slow network Connection	2.3	1.21	1
2	Electricity	2.72	1.214	3
3	Advertisements	2.53	1.277	2
4	Licensing	2.89	1.315	5
5	Scattered Data	3.15	1.289	8
6	Authentication	3.18	1.289	9
7	Misuse	3.21	1.378	10
8	Time Consuming	2.83	1.309	4
9	Document Saving Issues	3.07	1.262	6
10	Limited Information	3.09	1.331	7

Based on the mean and Standard Deviation values, the various problems faced by the respondents while of accessing the e-resources has been ranked as follows, slow network connection was ranked (M:-2.30, SD:-1.21) first, unwanted advertisement was ranked (M:-2.53, SD:-1.277) second, electricity problem was ranked (M:-2.72, SD:-1.214) third, time consuming was ranked (M:-, SD:-) fourth, Licensing problem was ranked (M:-2.89, SD:-1.315) fifth, Documents saving issues was ranked (M:-3.07, SD:-1.262) sixth, Limited information was ranked (M:-3.09, SD:-1.331) seventh, Scattered data was ranked (M:-3.15, SD:-1.289) eight, authentication was ranked (M:-3.18, SD:-1.289) ninth, misuse of data was ranked (M:-3.21, SD:-1.378) tenth.

TABLE NO: 19
CHI-SQUARE TEST BETWEEN FREQUENCY LEVEL USING THE E-RESOURCES AND PROBLEMS FACED WHILE ACCESSING THE E-RESOURCES

H_O: There is no relationship between frequency level of using the e-resources and problems faced while accessing the e-resources

Sl. No	Problems	Pearson Chi-Square Test		
		Value	df	Asymp. Sig. (2-sided)
1.	Slow network Connection	62.002[a]	16	.000
2.	Electricity	76.914[a]	16	.000
3.	Advertisements	77.427[a]	16	.000
4.	Licensing	63.269[a]	16	.000
5.	Scattered Data	63.269[a]	16	.000
6.	Authentication	77.149[a]	16	.000
7.	Misuse	77.149[a]	16	.000
8.	Time Consuming	75.862[a]	16	.000
9.	Document Saving Issues	1.046E2[a]	16	.000
10.	Limited Information	76.605[a]	16	.000

The table no 19 shows the chi-square between the frequency of accessing the e-resources and problems faced while accessing the e-resources. From the above table it is clearly understood that significant value of the two variables is zero and lesser than the table value at the significant level of 5%. Hence the null hypothesis is rejected and the alternative hypothesis is accepted. The alternative hypothesis is being *"**There is a significant relationship between the frequency level of using the e-resources and problems faced while accessing the e-resources**"*

Findings

- The study indicated that 51% of the respondents were from Self Finance Colleges and 22% of the respondents were from Periyar University. Around 16% of the respondents were from Government Colleges and 9% of the respondents were responded Aided colleges.
- It is understood from the study that most of the respondents were higher aware of e-books, e-journals, e-databases and e-magazines. Some of the respondents had lesser level of awareness on OPAC, e- audio visual resources and e-dissertation and theses.
- The hypothesis "There is a significant difference between course what they study and their awareness level on various e-resources" has been proved.
- The hypothesis "There is a significant difference between awareness level on various e-resources and the institution where they study" has been proved.
- The study indicated that 36% of the respondents were using the electronic information sources on a daily basis and 27% of the respondents were using weekly once.
- The hypothesis "There is a significant relationship between the institution where they study and place of accessing the e-resources" has been proved.
- Based on the mean and Standard Deviation values, the various purposes of accessing the e-resources has been ranked as follows, Class assignment was ranked first, preparation of examination was ranked second, research paper was ranked third, preparing for seminars/ conferences was ranked fourth, updating the subject knowledge was ranked fifth and for other purposes was ranked sixth.
- The hypothesis "There is a significant difference between course and purpose of using the various e-resources" has been proved.
- The hypothesis "There is a significant difference between Institution and purpose of using the various e-resources" has been proved.
- Based on the mean and Standard Deviation values, the frequency level of accessing the e-resources has been ranked as follows, e-journals was ranked first, e-books was ranked second, e-databases was ranked third, OPAC was ranked fourth, e-dissertations and theses ranked fifth, e-magazines ranked sixth and e-audio visual resources was ranked seventh.
- The hypothesis "There is a significant difference between Institution and frequency of accessing the various e-resources" has been proved.
- Based on the mean and Standard Deviation values, the preferred file format to download was ranked as follow as, PDF was ranked first, PPT was ranked second, Full text HTML was ranked third and other file formats was ranked fourth.
- The hypothesis proved that "There is a significant difference between course of study and preferred format to download."
- The hypothesis "There is a significant difference between institution where they study and preferred format to download" has been proved.
- The study indicated the satisfaction level on various e-resources has been ranked as follows, e-journals was ranked first, e-books ranked second, e-images was ranked

third, e-databases was ranked fourth, e-audio visual resources was ranked fifth, OPAC was ranked sixth, e-magazines was ranked seventh, e- dissertation and theses was ranked eighth and CD-ROMs was ranked ninth.

- The hypothesis "There is a significant difference between course of study and their satisfaction level on various e-resources" has been proved.
- The hypothesis "There is a significant difference between Institution where they studying and their satisfaction level on various e-resources" has been proved.
- Based on the mean and Standard Deviation values, the various problems faced by the respondents while of accessing the e-resources have been ranked as follows, slow network connection was ranked first, unwanted advertisement was ranked second, electricity problem was ranked third, time consuming was ranked fourth, Licensing problem was ranked fifth, Documents saving issues was ranked sixth, Limited information was ranked seventh, Scattered data was ranked eight, authentication was ranked ninth, misuse of data was ranked tenth.
- The hypothesis "There is a significant relationship between the frequency level of using the e-resources and problems faced while accessing the e-resources" has been proved.

Conclusion

It is of significant importance, essentially with respect to learning and teaching outcomes, that the usage of e-resources is constantly monitored among various target groups of users and reflected in the way in which institutions develop e-learning strategies and embed e-learning imperatives into other strategies. The study shows the use of e-resources is very common among the SC/ST PG students and research scholars of Periyar University and majority of the SC/ST PG students and research scholars are dependent on e-resources to get the desired and relevant information. But practical use of e-resources is not up-to the worth in comparison to investments made in acquiring these resources. The study also indicated the infrastructure and training programs should also be revised as per requirements. It is observed that the availability of e-resources on the campus was almost enough for all the existing disciplines but the infrastructure must also be adequately provided and consistently updated.

Acknowledgement
The author would like to thank the Indian Council of Social Science Research for it's Financial support under the ICSSR Minor Research Project F.No. 02 /448/2016-17/RP dt. 30.03.2017.

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November 2018

KEYWORDS ANALYSIS ON DENGUE DISEASE FROM 2005 – 2014: A SCIENTOMETRIC STUDY

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KEYWORDS ANALYSIS ON DENGUE DISEASE FROM 2005 – 2014: A SCIENTOMETRIC STUDY

Abstracts

The study has examined the research output of the keyword analysis of 'Dengue disease' during the period 2005 - 2014. Bibliometric indicators were existing journal articles, cited reference, authorship pattern, document wise distribution, journal self – citation and author self-citation, keyword analysis in the dengue disease. The keyword analysis of Dengue Disease for ten-years, during the year 2005 to 2014 taken for the study 3517 words were retrieved in the current study. The highest publication is 691 in 2014 rank is first, the second rank is 2012 in 518 records, third rank is 2011 in 414 records and lowest record is 131 in 2005. The out of 3517 articles single author contributed only 216 (6.14 %) articles while the rest 3301 (93.86 %) articles were contributed by Multi authors. The majority of authorship patterns are multi-author collaborations which is the highest contribution during the ten years. The degree of collaboration ranges from 0.90 to 0.97 and the average degree of collaboration is 0.94. Researchers identified the total number of Countries i.e. 130 during the period between 2005- 2014. But, we observed the majority of the Country "USA" in 1219 records with TLCS- 6211 and TGCS in 27146. Researchers identified the total number of keywords i.e. 5493 during the period between 2005-2014. But selected top 20 keywords for the research purpose. We observed the majority of the keywords "Dengue" in 2038 records with TLCS 10794 and TGCS in 33761. Moreover the present study mirrors the actual published results of the work of Dengue Disease in global level.

Keywords: Dengue diseases, Scientrometrics, Degree of collaboration, authorship pattern, Document type, Bradford's law

Introduction

Scientometrics is the study of measuring and analyzing science, technology and innovation. Major research issues embrace the dimension of impact, reference sets of articles to explore the impact of journals and institutes, considerate of scientific citations, mapping scientific fields and the formation of indicators for use in policy and organization contexts. In observe there is a important be related between scientometrics and other scientific fields such as bibliometrics, information science and science of science policy. Dengue diseases also known as break bone fever, is a mosquito – borne tropic a disease cause y the dengue virus.

Dengue diseases also known as break bone fever, is a mosquito – borne tropic a disease caused y the dengue virus. Symptoms consist of fever, headache, muscle and joint pains, and a quality skin rash that is similar to measles. In a small quantity of cases, the disease develops into the life-aggressive dengue hemorrhagic fever, resulting in bleeding, low levels of blood platelets and blood plasma leakage, or into dengue shock syndrome, where stress occurs. Treatment of acute dengue is compassionate using either oral or intravenous rehydration for mild or moderate disease, and intravenous fluids and blood transfusion for extra severe cases. The number of cases of dengue fever has increased dramatically since the 1960s, with between 50 and 528 million people infected yearly. Early descriptions of the circumstance date from 1779, and its viral cause and transmission were understood by the early 20th century. Dengue has become a global problem since the Second World War and is endemic in more than 110 countries. Apart from eliminating the mosquitoes, work is ongoing on a vaccine, as well as medication targeted directly at the virus.

Signs and symptoms

Typically, people contaminated with dengue virus are an indicative (80%) or only have mild symptoms such as an unsophisticated fever. Therefore, travelers frequent from widespread areas are improbable to have dengue if fever or other symptoms start more than 14 days after arriving home. Children repeatedly experience symptoms related to those of the common cold and gastroenteritis (sickness and diarrhea) and have a greater risk of severe complications, though initial symptoms are generally unconcerned but contain high fever.

Review of Literature

. Hang Wen and Yi Huang (2012) carried out a investigate on oxidative stress publications published among 1991 and 2010 in journals of all the focus categories of the Science citation index. Publication trends were analyzed by the retrieved consequences in periodical type and language, individuality of articles outputs, country, focus categories and journals, and the incidence of title-words and keywords used. Over the years, there was a significant growth in article outputs, with more countries participating and collaborating. The seven major industrialized countries (G7) published the majority of the world articles while the USA contributed about one-third of the total. Chinese and Indian outputs grew much faster than those of other countries in the past five years. Oxidative stress research in food and ecological associated fields increasingly became the conventional of the research. An analysis of the title-words, author keywords and keywords plus showed that antioxidants in human or rat cells were the hot topic in the field. In addition, ‘‘reaction oxygen species’’, ‘‘apoptosis’’, and ‘‘nitric-oxide’’ were major topics of oxidative stress research recently.

Gupta, R., & Tiwari, R. (2014) conducted a study based on quantitatively evaluate Indian dengue research output during the 10 years from 2003 to 2012, using Scopus international multidisciplinary database. The study focused on global publication output, share, rank, and citation impact of top 15 most productive nations, India’s publications output, growth, global publication share and research impact, international collaborative papers share in national output and the share of major international collaborative partner countries in total India’s international collaborative papers, contribution of various sub-fields and distribution by population age groups, productivity and citation impact of its leading Indian institutions and authors and Indian contribution in most productive journals. Among the top 15 most productive countries, India holds second position in dengue fever research output, with global publication share of 10.22% during 2003-12. The average citation per paper scored by India was 3.27, the least among the top 15 most productive countries during 2003-12. India’s share of international collaborative papers was 10.55% during 2003-12, which increased from 9.12% during 2003-07 to 11.13% during 2008-12. Present India’s research efforts in dengue research are low in view of the 50,222 cases of dengue in 2012 alone. The country needs to increase its research output and also increase its research impact substantially particularly through enhanced national and international

collaboration, besides evolving a national policy for identification, monitoring and control of dengue cases and also evolving a research strategy with sufficient funding commitment to solve this growing national problem.

Sa'ed, H. Z. (2016) the focused emergence the of the dengue is a significant emerging and re-emerging infection worldwide as a quickly growing and extensive public health problem, with diffusion occurring in more than 128 countries in Asia, Americas, southeast Africa, western Pacific, and eastern Mediterranean regions. The consistent search advance based on the exploit of the keyword "dengue" in the title, abstract and keyword field was used to get examine output related to dengue at a global level. All data related to dengue were collected from the past to December 31, 2015.A total of 19,581 dengue-related documents identified in the Scopus database. The leading countries in dengue research were the USA (4,709; 24.05 %), India (1,942; 9.92 %), Brazil (1,530; 7.81 %), Thailand (1,260; 6.43 %), the UK (1,129; 5.77 %), and France (1,087; 5.55 %). Only 226 (1.16 % of the overall global research effort in the dengue field) articles were published in the Arab region. The total number of citations for all publications was 352,710, with an average of 18.0 citations per publication. Furthermore, the h-index for all extracted data related to dengue research was 186. Kingdom of Saudi Arabia (KSA) was the most productive country in the Arab region with 102 documents representing 45.1 %. Furthermore, the h-index for all extracted data related to dengue research was 27. The USA was Arab's most main cooperative partner (46, 20.4 %), followed by India (36, 15.9 %). It was concluded that the amount of literature related to dengue research has considerably increased over the last decade. This bibliometric investigation has confirmed the significant role that the USA, India, Brazil, Thailand, the UK, and France participate in dengue research. The Arab world formed fewer publications correlated to dengue with lower eminence than further world countries.

Lalitha Kumari (2009) analyses the research output and impact in Synthetic Organic Chemistry (SOC) during 1998–2004, applying standardized scientometric indicators. Volume of research publications and their citations presented as percentage world share is illustrative of the trend pattern against time. Adopting relative indicator - Absolute Citation Impact (ACI) and Relative Citation Impact (RCI), a cross national assessment is attempted at three levels of aggregations - global, Asian and Indian. Based on this investigation, it is concluded that G7 nations, being

leaders in respect of the volume of literature published, and citations attracted are showing a decreasing trend over the years probably due to shifting and diversification of their research efforts to other emerging research fronts.

Bhardwaj, R. K. (2014) explored Dengue is a disease primarily characterized by headache, eye pain, skin rash, debilitating muscle, and sudden high fever. Presently, no vaccine is available to counter this disease. The best antidote is disturbance strategies to limit the extent of a virus. This paper is an attempt to make a scientometric assessment of research on dengue during 2001-12. The data of this study is obtained from Scopus (http://www.scopus.com) multidisciplinary database and analyzed from different angles. The study reveals that there were 9618 publications within the period under study. During the period 2001-12 annual growth rate was 13.4 percent, compared to 14.31 percent in the period 2001-2006, and 12.48 percent in 2007-2012. The USA is found to be the leading country on dengue research. The USA has contributed 24.88 percent of world publications. Mahidol University, Thailand, is the majority industrious organization which has contributed the highest number of publications (353 papers; 6502 citations; h-index value 40). Guzmán, María Guadalupe from Instituto de Medicina Tropical Pedro Kouri, was found to be the most dynamic author in the field of dengue research.

Dutt, B., Kumar, S., & Garg, K. C. (2010) have analyzed of 2566 papers published during 1987 to 2008 and indexed by Science Citation Index - Expanded indicate a gradual rise in the quantum of output. About 80% of the papers appeared in journals originating from the USA. The UK, Netherlands, France, and Germany. Total output came from 74 countries of which 17 countries contributed 87% of the total output. The highest number of publications came from the USA followed by India. However, in the later block (1998-2008) the proportion of the output of both USA as well as India declined as compared to the first block (1987-1997). More than half of the scientific output is concentrated among four sub-disciplines of microbiology & virology, immunology & vaccine. Epidemiology and entomology. Among the prolific institutions, the publication output of institutions from the US and Taiwan had a higher impact. Of all the papers published 17%, did not get any citations. The incidence of High-Quality Papers, Citations per Paper (CPP) and Relative Quality Index (RQI) were more than average for the USA. The proportion of co-authored papers increased significantly in the year 2008 as compared to 1987. The proportion or mega authored paper was high for the Netherlands, Taiwan, China, Cuba, Brazil, France, and Japan.

Objectives

The following are the important objectives of the study,

- To find out year-wise publication of articles
- To find out Document Type
- To find out the institution wise Records
- To find out the Authorship pattern
- To determine the degree of collaboration,
- To find out the Single and Multi Authorship pattern
- To find out most prolific authors, most productive institution and¬ author productivity

Methodology

The present study data were collected from the web of science core collection database which is published by Thomson Reuters [WOS]. The records on 'Dengue Disease' research output during 2005 – 2014 have taken for the analysis. The present study analysis for the authorship pattern, countries, institutions, keywords in dengue disease. Bradford's law of scattering has also been applied in this study. The keywords investigation for dengue disease during the study period was taken and 3517 words were retrieved for the present study. The collected data from a web of science core collection database records of analyzed through Histcite and calculated using excel sheet to find out the result.

Data Analysis and Interpretation

Table: 1 year wise publication of records

S.No	Publication Year	Records	%	TLCS	TGCS
1	2005	131	3.72	1640	5733
2	2006	185	5.26	2227	6876
3	2007	208	5.91	2081	7152
4	2008	282	8.02	1765	7000
5	2009	323	9.18	1417	6533
6	2010	382	10.87	1352	7628

7	2011	414	11.77	1305	6190
8	2012	518	14.73	808	4996
9	2013	383	10.89	471	2293
10	2014	691	19.65	82	731
Total		**3517**	**100**	**13148**	**55132**

Table1 analyses the yearly output brought out by the scientists on dengue disease at world level from 2005 to 2014. From the below table, we could clearly see that there is about 3517 total output brought out by the scientists on dengue the year wise analyses indicate the increasing trend. In the year the output measured is 131. It increased to 691 in the year 2014. Yet there is a declaring trend is observed in the year 2013 from the year 2005 to 2009. The output performance rate is measured to below 10 percentages; still, from 2010 onwards the performance is observed to more than 10 percentages. And the year 2014 is a progressive year. The increasing trend is noted from this year 2005 and the light output performance is noted in the year 2014. Yet there is a declaring status in the output performance is observed in the year 2013 to which the reason is unknown. The study includes the data covered in a web of science database from 2005 to 2014.

Figure: 1 year wise publication of records

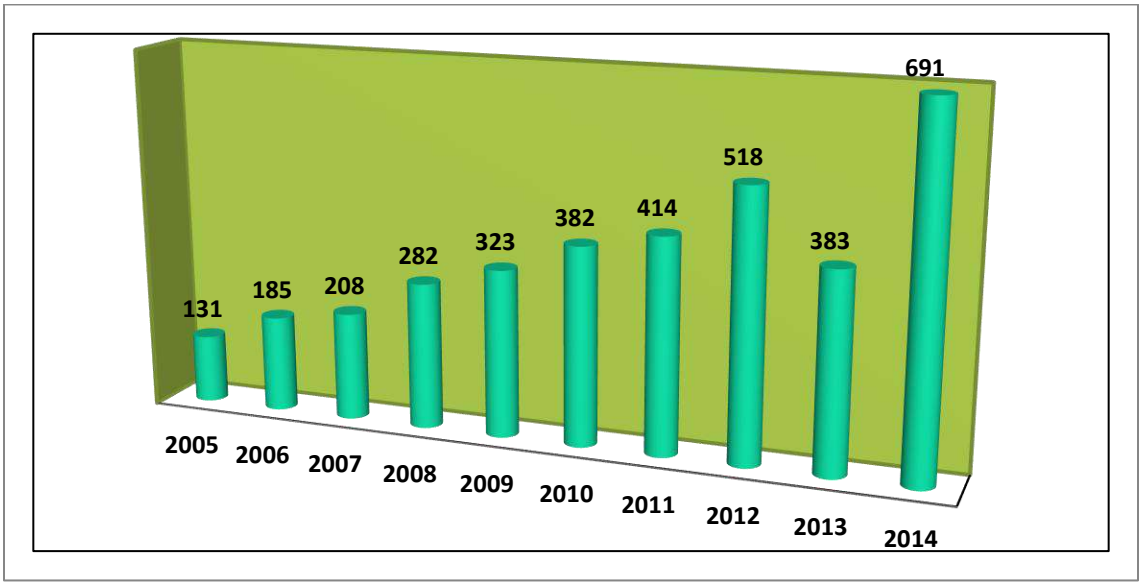


Table: 2 Language Wise of Articles

S.No	Language	Records	%	TLCS	TGCS
1	English	3376	95.93	13010	54594
2	Spanish	51	1.45	14	106
3	Portuguese	39	1.11	33	156
4	French	29	0.82	88	249
5	German	14	0.4	0	14
6	Turkish	4	0.11	3	12
7	Polish	2	0.06	0	1
8	Czech	1	0.03	0	0
9	Dutch	1	0.03	0	0
10	Korean	1	0.03	0	0
11	Malay	1	0.03	0	0
Total	**11**	**3517**	**100**	**13148**	**55132**

Table 3 lights on the language wise distribution of research output given by dengue researcher. The overall strong period corers 11 different languages. The dengue scientists are spread over 11 different language speakers. Among then 5 languages are observed. The majority of the scientists prefer publishing their reserved output in English language. It is routed to be about 3376.out of total output of 3517 language English occupies to be the top and it is calculated to 95.93percentage.The next language that the dengue scientist prefer is Spanish which is accounted to 51.

Figure: 2 Language Wise of Articles

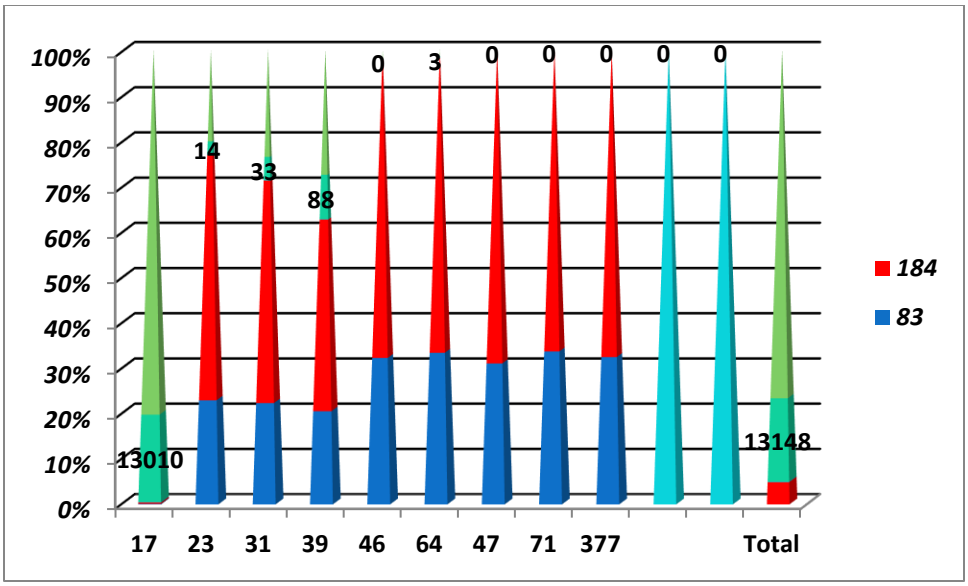


Table: 3 Country wise Records (130 countries)

S.NO	Country	Records	Cumulative	TLCS	TGCS
1	USA	1219	1219	6211	27146
2	Brazil	430	1649	948	4292
3	UK	316	1965	1569	6710
4	France	284	2249	1040	5567
5	India	261	2510	591	2159
6	Thailand	255	2765	1462	4613
7	Singapore	186	2951	866	3913
8	Australia	181	3132	615	3404
9	Peoples R China	153	3285	248	1678
10	Germany	144	3429	770	2861
11	Taiwan	124	3553	702	2241
12	Japan	97	3650	349	1242

13	Malaysia	97	3747	279	1105
14	Vietnam	97	3844	737	2712
15	Switzerland	86	3930	377	2633
16	Netherlands	84	4014	199	1326
17	Canada	83	4097	308	2081
18	Mexico	79	4176	118	1066
19	Cuba	68	4244	392	1468
20	Italy	68	4312	134	765
21	Colombia	66	4378	83	463
22	Spain	53	4431	88	649
23	South Korea	52	4483	427	1570
24	Indonesia	50	4533	152	542
25	Pakistan	46	4579	41	158
26	Sri Lanka	46	4625	108	317
27	Venezuela	46	4671	240	696
28	Sweden	43	4714	108	630
29	Argentina	41	4755	82	425
30	Peru	31	4786	44	436
31	Portugal	30	4816	46	261
32	Belgium	29	4845	171	612
33	Philippines	29	4874	90	393
34	Nicaragua	27	4901	235	683
35	Cambodia	25	4926	24	637

36	South Africa	23	4949	209	772
37	Reunion	22	4971	64	375
38	French Guiana	21	4992	73	295
39	Saudi Arabia	21	5013	17	135
40	Costa Rica	19	5032	27	164
41	Kenya	19	5051	34	177
42	Austria	18	5069	30	203
43	Trinid& Tobago	18	5087	36	140
44	Israel	17	5104	100	414
s45	Turkey	14	5118	11	80
46	Fr Polynesia	13	5131	29	115
47	Martinique	13	5144	52	139
48	Ecuador	12	5156	10	129
49	Gabon	12	5168	20	171
50	Egypt	11	5179	9	82
51	New Zealand	11	5190	14	127
52	Denmark	10	5200	47	142
53	Nepal	10	5210	6	39
54	Norway	10	5220	8	139

55	Senegal	10	5230	30	223
	Other 75 Countries	275	5505	1429	4660
TOTAL	Total (130) Countries	5505		21636	96175

Table 4 explains the country wise distribution of publications output on Dengue Disease. The total output observed in the study is 5505 during the short period. There are about dengue contras have collective contributed 5505 research output on dengue disease. The analyses bring out the fact that the USA is ranked to be the first and it has given the productivity of 1219 records on Dengue research. The second rank is occupied by BRAZIL which has brought out 430 publications on Dengue Disease. While comparing the output of USA, Output of BRAZIL seems to be one third of USA's Output. The third rank to the UK .It has reflected with 316 publications output. FRANCE is the next order of rank and it has shows 284 publications. India is ranked to the fifth in order. The output of INDIA is accounted to 261.THAILAND is observed to be sixth in rank order with 255 publishing. There are about 5 countries observed with more than 100 publications on Dengue disease. The other countries are noted with less than 100 publications .The table has listed according to the output of countries up to 10 publications. Number of countries has collectively brought out 219 research output on Dengue Disease.

Table: 4 Year Wise Analysis of Authorship Pattern

Years	Single Author	Two Author	Three Author	Four Author	Five Author	More than five	Total
2005	8	12	21	15	15	63	134
2006	13	25	23	16	24	83	184
2007	15	23	25	34	17	95	209
2008	29	46	46	19	23	120	283

2009	27	43	35	40	31	147	323
2010	23	47	45	42	39	185	381
2011	26	57	36	45	46	203	413
2012	31	58	49	49	64	266	517
2013	11	45	61	46	47	172	382
2014	33	79	94	64	71	350	691
TOTAL	**216**	**435**	**435**	**370**	**377**	**1684**	**3517**

Table 4 shows year wise authorship pattern of the research output on dengue disease. It indicates that out of the 216 contributions to single authors. Year 2014 is highest number i.e-33, since the year 2005 has the lowest number i.e-8 contributions .Out of the 435 contributions to two authors, Year 2014 is highest number i.e-79, since the year 2005 has the lowest number i.e-12 contributions. Out of the 435 contributions to three authors, year 2014 is highest number i.e-94, since the year 2005 has the lowest number i.e-21 contributions. Out of the 370 contributions to four authors, Year 2014 is highest number i.e-64, since the year 2005 has the lowest number i.e-15 contributions.

Figure: 3 Year Wise Analysis of Authorship Pattern

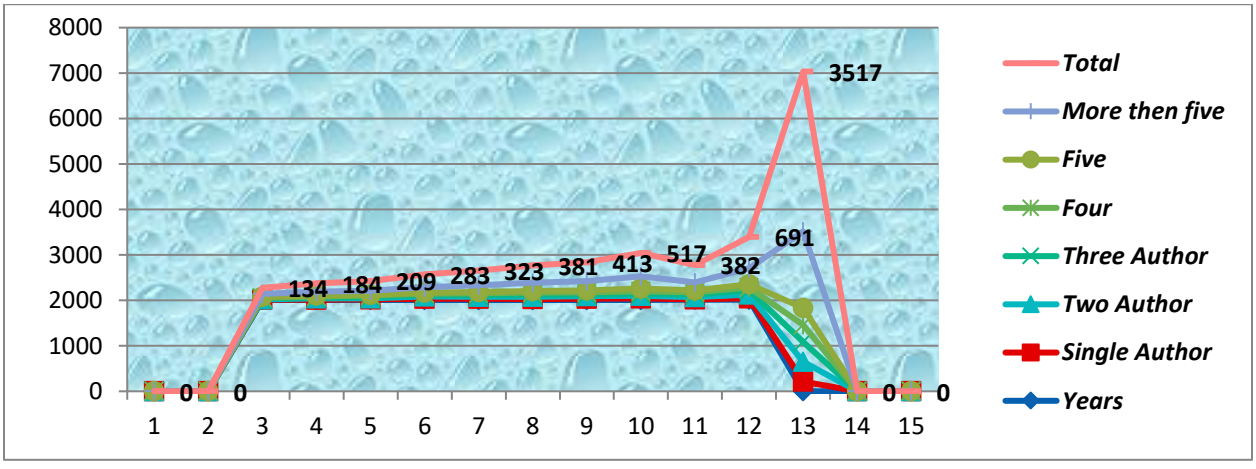


Table: 5 Analysis of Degree of Collaboration

Years	Single Author (NS)	Multiple Author (NM)	Total Authors (NS+NM)	Degree of Collaboration
2005	8	126	134	0.94
2006	13	171	184	0.93
2007	15	194	209	0.93
2008	29	254	283	0.90
2009	27	296	323	0.92
2010	23	358	381	0.94
2011	26	387	413	0.94
2012	31	486	517	0.94
2013	11	371	382	0.97
2014	33	658	691	0.95
Total	**216**	**3301**	**3517**	**0.93**

The table shows the details about the degree of collaboration which indicate tend in single and multiple authorship during 2005 – 2014 as shown in Table. The degree of collaboration ranges from 0.90 to 0.97 and the average degree of collaboration is 0.94. The DC is calculated by using the formula K.Subramaniyam, 1982. The formula is where

DC = Degree of Collaboration

NM = Number of Multi Authors

NS = Number of Single Authors

$$C = \frac{N_m}{N_m + N_s}$$

$$C = \frac{3301}{3301+216} = 0.93$$

In the present study the value of DC is 0.93.

As the result, the degree of collaboration in the study Dengue Disease is 9.36 which show the collaborations of multiple authors.

Table: 6 Analysis of keywords on Top 20 Only (5493)

S.No	Word	Records	TLCS	TGCS
1	DENGUE	2038	10794	33761
2	VIRUS	959	4858	18481
3	FEVER	462	2131	6377
4	INFECTION	448	2074	7410
5	AEDES	368	855	5075
6	DISEASE	327	1395	5713
7	AEGYPTI	280	688	4041
8	VECTOR	225	557	2867
9	CONTROL	190	573	3085
10	HUMAN	187	561	2684
11	MOSQUITO	180	372	2626
12	DISEASES	167	215	2392
13	INFECTIONS	156	716	2484
14	VIRAL	154	642	2548
15	PATIENTS	149	552	1754
16	PROTEIN	149	648	2750
17	HEMORRHAGIC	139	994	2517
18	CELLS	138	996	2755
19	DETECTION	131	340	1559
20	CHIKUNGUNYA	129	474	2497

We observed the majority of the keywords “DENGUE” in 2038 research output with TLCS- 10794 and TGCS in-33761 which we got the first position. The next keywords kindly concentrated by the World Scientists on Dengue Disease in 959 records of “VIRUS” which is observed with TLCS 4858 and TGCS in 18481 which we got second position, followed by the “FEVER”462 records with TLCS -2131 and TGCS-6377 which we got the third position.

Table: 7 Analysis of Ranking of Journals (840)

S.No	Journal	Records	Cumulative	TLCS	TGCS
1	PLOS NEGLECTED TROPICAL DISEASES	239	239	0	3892
2	PLOS ONE	183	422	0	1504
3	AMERICAN JOURNAL OF TROPICAL MEDICINE AND HYGIENE	143	565	886	2400
4	JOURNAL OF VIROLOGY	94	659	1101	3287
5	VACCINE	62	721	341	1340
6	JOURNAL OF INFECTIOUS DISEASES	52	773	706	1465
7	JOURNAL OF CLINICAL VIROLOGY	45	818	204	511
8	INTERNATIONAL JOURNAL OF INFECTIOUS DISEASES	42	860	114	306
9	TRANSACTIONS OF THE ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE	42	902	146	558
10	PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA	41	943	574	1991
11	TROPICAL MEDICINE & INTERNATIONAL HEALTH	40	983	218	609
12	VIROLOGY JOURNAL	39	1022	0	442

13	VIROLOGY	37	1059	266	787
14	ANTIVIRAL RESEARCH	36	1095	237	1015
15	EMERGING INFECTIOUS DISEASES	34	1129	363	1149
16	PARASITES & VECTORS	34	1163	0	119
17	BMC INFECTIOUS DISEASES	33	1196	0	388
18	MEMORIAS DO INSTITUTO OSWALDO CRUZ	32	1228	70	339
19	PLOS PATHOGENS	32	1260	0	1048
20	JOURNAL OF GENERAL VIROLOGY	31	1291	188	647
21	JOURNAL OF MEDICAL ENTOMOLOGY	31	1322	51	353
22	JOURNAL OF VIROLOGICAL METHODS	29	1351	88	390
23	ACTA TROPICA	27	1378	79	258
24	CADERNOS DE SAUDE PUBLICA	27	1405	86	239
25	PARASITOLOGY RESEARCH	27	1432	43	236
26	JOURNAL OF MEDICAL VIROLOGY	25	1457	86	295
27	REVISTA DA SOCIEDADE BRASILEIRA DE MEDICINA TROPICAL	25	1482	35	150
28	VECTOR-BORNE AND ZOONOTIC DISEASES	25	1507	80	374
29	SOUTHEAST ASIAN JOURNAL OF TROPICAL MEDICINE AND PUBLIC HEALTH	24	1531	10	59

30	INDIAN JOURNAL OF MEDICAL RESEARCH	23	1554	97	224
31	JOURNAL OF IMMUNOLOGY	23	1577	342	794
32	JOURNAL OF TRAVEL MEDICINE	23	1600	63	315
33	INFECTION GENETICS AND EVOLUTION	22	1622	59	252
34	BMC PUBLIC HEALTH	21	1643	0	190
35	EPIDEMIOLOGY AND INFECTION	20	1663	94	289
36	VIRUS RESEARCH	20	1683	25	203
37	ARCHIVES OF VIROLOGY	19	1702	52	162
38	BIOMEDICA	19	1721	3	29
39	JOURNAL OF INFECTION IN DEVELOPING COUNTRIES	19	1740	26	64
40	CLINICAL AND VACCINE IMMUNOLOGY	18	1758	118	307
41	MATHEMATICAL BIOSCIENCES	18	1776	107	256
42	JOURNAL OF CLINICAL MICROBIOLOGY	16	1792	153	513
43	JOURNAL OF THE AMERICAN MOSQUITO CONTROL ASSOCIATION	16	1808	18	134
44	FUTURE VIROLOGY	15	1823	15	61
45	VIRUSES-BASEL	15	1838	51	144
46	CURRENT OPINION IN INFECTIOUS	14	1852	184	434

	DISEASES				
47	MICROBES AND INFECTION	14	1866	64	143
48	HUMAN IMMUNOLOGY	13	1879	70	192
49	JOURNAL OF VECTOR BORNE DISEASES	13	1892	12	68
50	TRAVEL MEDICINE AND INFECTIOUS DISEASE	13	1905	6	45
51	ANTIMICROBIAL AGENTS AND CHEMOTHERAPY	12	1917	36	264
52	FEMS IMMUNOLOGY AND MEDICAL MICROBIOLOGY	12	1929	151	261
53	JOURNAL OF VECTOR ECOLOGY	12	1941	20	85
54	LANCET INFECTIOUS DISEASES	12	1953	143	663
55	TROPICAL BIOMEDICINE	12	1965	8	21
56	CLINICAL INFECTIOUS DISEASES	11	1976	105	414
57	HUMAN VACCINES	11	1987	63	191
58	JOURNAL OF THEORETICAL BIOLOGY	11	1998	48	108
59	REVISTA DO INSTITUTO DE MEDICINA TROPICAL DE SAO PAULO	11	2009	9	67
60	VIRAL IMMUNOLOGY	11	2020	62	165
61	BMC GENOMICS	10	2030	0	121
62	EUROSURVEILLANCE	10	2040	0	178
63	8 journals 9	72	2112	518	1751

64	10 journals 8	80	2192	807	2693
65	12 journals 7	84	2276	377	2174
66	18 journals 6	108	2384	280	1395
67	18 journals 5	90	2474	118	713
68	28 journals 4	112	2586	354	1115
69	54 journals 3	162	2748	704	2549
70	140 journals 2	280	3028	784	3564
71	489 journals 1	489	3517	1073	11012
72	**Total journals**	**3517**		**13191**	**60474**

Further, it was analyzed to find out the key journals in the field of Dengue Disease which have brought out with more number of publications made by the researchers. It was found that there were 840 journals Dengue Disease researchers got their articles published over a period of study. There have been 239 papers published by a single PLOS NEGLECTED TROPICAL DISEASES has published; 0 TLCS, 3892 TGCS. It ranked at first place of research output in the field of Dengue Disease. The second position is taken by PLOS ONE which is accented to 183 publications of Dengue disease researchers in the Indian scientists with; with 0 TLCS, 1504 TGCS. The journal of AMERICAN JOURNAL OF TROPICAL MEDICINE AND HYGIENE 143 Publications, 886 TLCS and 2400 TGCS are scaled and it stands in third position of the publication. JOURNAL OF VIROLOGY has published 94; 1101 TLCS, 3287 TGCS, and it ranked in fourth place. 'VACCINE' has published 62 with 341 TLCS, 1340 TGCS and it stands in fifth position.

Bradford's law of scattering

The aim of Bradford's law is to explain that a group of journals could be arranged in an order of decreasing productivity and this has revealed that journals which yield most productive articles come first while the most unproductive tail last. According to this law journals are to be

grouped into a number of zones each producing similar number of articles. However, the number of journals in each zone will increase rapidly. Then the relationship among the zones is l:a:n2.

Bradford in his study analyzed articles in Dengue Disease. The journals containing to that field in descending order of productivity and divided that list into three 'Zones' each containing roughly the same number of journals .Bradford observed that the number of journals contributing articles to each zone increased by the multiplications of about five. The distribution of journals in various zones is as follows.

Table 7.1 Zone wise analysis of Bradford's Law

Zones	Number of Journals	Number of Records
1	16	1163
2	77	1113
3	747	1241
Total	840	3517

According to Bradford's law of distribution based on equation 1 and 2 the relationship between the zones is $l:n:n^2$,But the relationship between the zones in the present study is contradictory in each as 16:77:747 which does not fit to Bradford's distribution. It is clear that core distribution of articles has been published by a very few journals which means less than what Bradford formulated.

Conclusion

From the conclusion of this present study, the efficiency of the author could be recognized. Therefore, the individual author may be stimulated to distribute more number of contributions to enhance the single author contributions. The atmosphere and infrastructure are also very effective for the entire development of 'Dengue Disease' research area. It should be required to necessitate, stimulate and encourage researchers and scientists in this field of 'Dengue Disease' to carry out research to recognize the impact of research output. It is mandatory to recruit specific research institutions to support research in the area on 'Dengue

Disease' research in the developing countries. The Universities and research institutions are to be provided with more financial assistance in the form of research grants to increase the quality of research.

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ISSN 0973-6190

JERE

JOURNAL OF EDUCATIONAL RESEARCH AND EXTENSION

Peer Reviewed Quarterly Journal with impact factor

Vol. 55 No. 3 July - September 2018

SRI RAMAKRISHNA MISSION VIDYALAYA
COLLEGE OF EDUCATION (AUTONOMOUS)
COIMBATORE - 641 020.

ISSN: 0973-6190

ENHANCING STUDENT-TEACHERS' MAP READING SKILLS THROUGH TRAINING PROGRAMME

7

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INTRODUCTION

In India, Social Science is one of the compulsory subjects taught at school level where it has been a part of 'Environmental Studies' before the upper primary stage and emerge as a separate subject at the upper primary stage. The social sciences encompass diverse concerns of society and include a wide range of content drawn from the disciplines of history, geography, political science, economics, and sociology (Position Paper of National Focus Group on Teaching of Social Sciences, 2005). Geography is an integral component of Social Science and introduced as one of the discipline under the umbrella of Social Sciences.

Geography is an essential field to every human being because it consists of knowledge of the world around us. Knowledge of geography and the ability to think geographically aids the individual in understanding and interpreting the realities of the world.Geography deals with many components and among the different components of geography, map work stands out very significantly. Hartshorne (1939) states that the use of maps in geographic work is so important that it seems fair to suggest that "if the problem cannot be studied fundamentally by maps, then it is questionable whether or not it is within the field of geography". According to Haggett (1990), "Geography is the art of the mappable". Ofomata (2006) opines that "maps aid the achievement of objectives of geography as the map is the distinctive tool of the geographer". The well-known geographers often define geography around maps and map use.

A map is considered to be a drawing to a scale of the whole or a part of the surface of the earth on a plane surface; it is a manually or mechanically drawn picture of the earth showing the location and distribution of various natural and cultural phenomena. The most universal use of maps is for locating places and things. A well-prepared map is worth hundreds of pages of a book in many respects.Maps are regarded as indispensable aid in the teaching and learning of Social Sciences, particularly Geography.

Though map reading is primarily taught in Geography, but map is a tool which is used by other disciplines also. Ample maps

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November 2018

An analysis of Research publication on Colorectal Cancer in Asian Countries

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An analysis of Research publication on Colorectal Cancer in Asian Countries

Abstract

This paper discusses colorectal cancer research output in Asian during 2000- 2017. The data has been downloaded from PubMed databases. A total of 2726 articles were found. Language distribution shows a majority of the papers are published in the English language 2661 (97.61%) irrespective of the native language of the country and those publications were in the form of journal articles i.e. 2225 (81.62%). The authorship pattern indicates the maximum number of papers was published by collaborative work of more than ten authors for which the mean value of Degree of Collaboration is 0.84 indicating the high ratio of collaborative research work undertaken by researchers. The Relative Growth Rate and Doubling Time of total publications show decreasing and increasing trend. The mean relative growth rate is 0.28. It is also found that the average exponential growth rate is 11.55% during the sample periods. The Geographical distribution of productivity of top 20 countries shows that Thailand has contributed 838 (30.74%) publications and ranked top among the countries in terms of publications. Among the authors engaged in CRC research, Wang J is the most productive author with 31 (1.13%) of total contributions. "Wang J' had collaborated with 82 researchers in colorectal cancer research. The most common keyword used by researcher is "human". Cluster Density view has identified 932 items with five different clusters, in which studies were grouped right from how alteration or changes take place in the cell or DNA to surgery or therapy or remedy related studies for CRC related cases.

Keywords: Scientometric, Colorectal Cancer, Colo Rectal, Cancer, Asia, PubMed Database

Introduction: As per World Health Organization factsheet Noncommunicable diseases like cardiovascular diseases, cancers, chronic respiratory diseases and diabetes kill forty million populations every year which is equal to seventy percent of death globally of which cancer accounts for 8.8 million. "Cancer is a dreaded one and the fear becomes real only when cancer touches oneself or those close to you"[1]. As per GLOBOCAN 2012 figure presented below, the estimated number of cases worldwide is 1, 40, 67,894 of which Lung, Breast, and Colorectal are in the top three cases. While comparing the estimated number of cases worldwide and Asia notice 67,63,030 cases i.e. 48.07% of the estimated number of cases is in Asia. Lung, stomach, Breast, and Colorectum are the most prevalent cases in Asia. It is one of the third most common cancers that affect men and second among the women. Pourhoseingholi (2012); J. Sung (2007) Increased burden of colorectal cancer in Asia reveals that there is an increasing rise in incidence

[1] Dr. Poonam Khetrapal Singh, Regional Director, WHO South-East Asia Region 13 January, 2016. http://www.searo.who.int/regional_director/speeches/2016/cancer_slt/en/

and mortality rate of Colorectal Cancer (CRC) in Asia which was considered previously low by Boyle & Levin (2008). Asia must take steps to prevent such emerging epidemic CRC related cases. Unlike developed countries most of the Asian countries access to health care for screening purpose is low, due to lack of awareness among the people Pourhoseingholi (2012); J. Sung, (2007); J. J. Sung et. al., (2005).

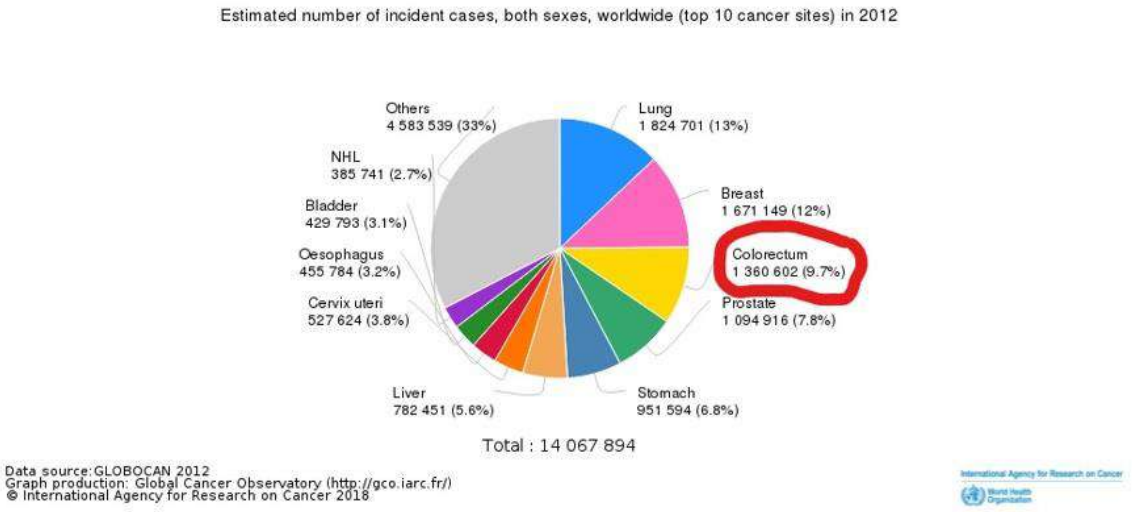


Figure-1: Estimated number of incidence cases World Wide

To reduce such impact and burden on society various agencies like world health organization, American Cancer society etc. along with several other organizations have been taking several steps. One among such steps is the 2030 agenda for sustainable development by WHO "Cancer Prevention and Control through an Integrated Approach" resolution 2017 to reduce the premature mortality from cancer[2].

[2] http://www.who.int/mediacentre/factsheets/fs297/en/

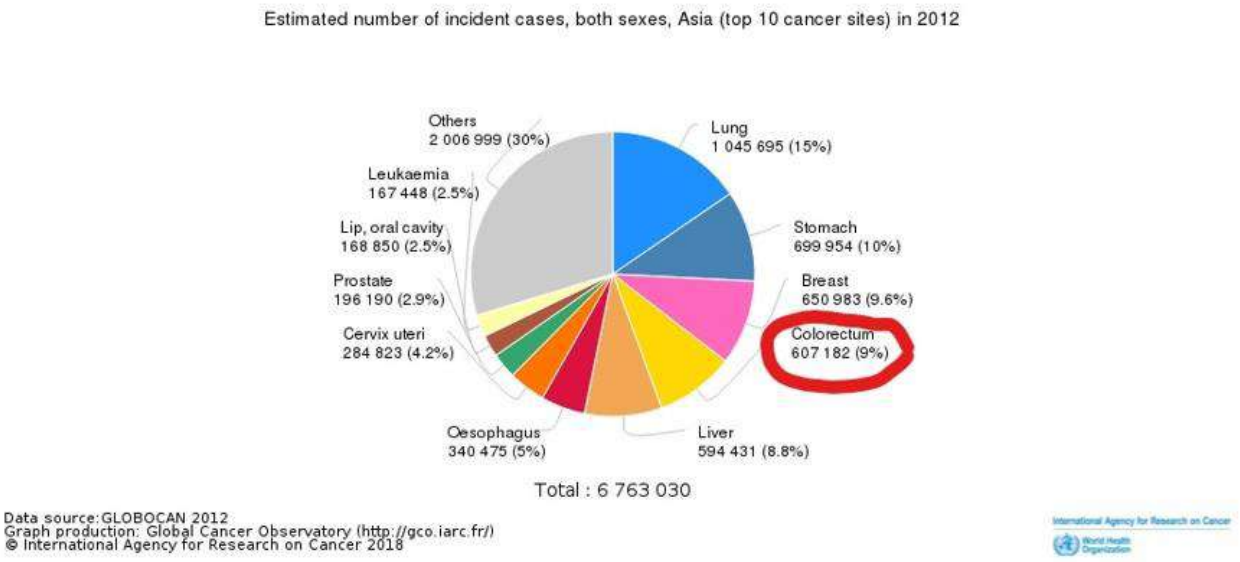


Figure-2: Estimated number of cancer incidence in Asia

AS per notifications of American Cancer society the abnormal changes in genes structure or abnormal growth of the cell in colon or rectum is known as colorectal cancer. Colorectal Cancer takes the form of a polyp (a noncancerous growth) that develops inside the colon or rectum and grows slowly, for over a period of time i.e. 10 to 20 years (Stryker et al., (1987); Winawer & Zauber, (2002). An adenomatous polyp, or adenoma, is the most commonly found among all individuals will eventually develop one or more adenomas Bond, (2000); Schatzkin et. al., (1994). Although all adenomas have the potential to become cancerous 10% are estimated to progress to invasive cancer Levine & Ahnen (2006); Risio (2010). The likelihood that an adenoma will become cancerous increases as it becomes larger Pickhardt et al., (2013). But it must be clear that adenocarcinoma accounts for approximately 96% of all CRCs Stewart et. al., (2006). Early CRC often has no symptoms, which requires screening. Screening facilities and lack of awareness are noticed among the Asian population which acts as a major hindrance from prevention of such CRC related threats; for which Asia must take immediate action to prevent and provide cost-effective screening facilities and extensive research and awareness on CRC Pourhoseingholi (2012); J. Sung (2007); J. J. Sung et al., (2005).

In line with this, from an academic point of view it is important to understand what are the steps taken by the academicians related to CRC research, i.e. exploring the types of scholarly communications available, who contribute extensively are there any collaboration in the CRC research and which countries in Asia contribute most.

There are number of studies conducted for different field of research by various authors like in the field of Oncology research by Patra & Bhattacharya (2013); Ranganathan (2014) covering different databases; based on various parameters like research growth, author productivity, authorship pattern, geographical distribution of the literature, global share of international collaborative papers and major partner countries and patterns of research communication. Similarly, in the field of cancer scholarly output like mouth cancer, lymphoma cancer, prostate

cancer and breast cancer were analyzed by several authors like and B. M. Gupta, Gupta, & Ahmed (2014); R. Gupta & Gupta (2014); Brij Mohan Gupta & Gupta (2015); Singh et. al., (2016) evaluated the literature growth, citation impact, share of international collaborative publications, publication output by geographical areas and type of research, treatment methods and geographical areas; publication productivity and citation impact of leading Indian organizations and authors.

Search results also revealed that scientific literature related to chronic diseases, virus etc. like diarrhea disease Khatun & Ahmed (2011), study on the publication of 'Osteoarthritis" research Thirumagal (2013), Ebola Virus Bhardwaj (2016), research efforts in measles Bala & Gupta (2012), Nephrology research output Murugan,C (2017), mycobacterial tuberculosis and leprosy in India Nishy & Rahul (2016), output in glaucoma research R. Gupta, Gupta, Kshitij, & Bala (2014) tuberculosis research output B. M. Gupta & Bala (2011), chronic liver disease research Naheem, Nagalingam, & Ramesha (2017), on aspects of allergy Dwivedi (2016), CVD research Saquib et. al., (2017), dental sciences studies Kaur & Gupta (2010), publication trends in food-borne disease research Kolle & Shankarappa (2017) were analyzed using Bibliometric and Scientometric by taking various databases like PubMed, Scopus, Thomson Reuters. A publication which includes growth, citation quality, format, Geographical contribution, subject-wise contribution, collaborative linkages, leading institutions, prolific authors, global publications share, citation impact, Time Series Analysis, Lotka's law, Bradford's law, Zipf Law, doubling time were analyses etc. using tools like Bibexcel, Histcite. Even in colorectal cancer output on Indian R. Gupta, Gupta, & Ahmed (2016) was found using Scopus database for a period of 2005-14. It was found that CRC research output using Scopus database for a period of 2005- 2014 concentrating on Indian publications considering aspects like i.e. international collaborative publications, publication output by geographical areas and, type of research, treatment methods and geographical areas and citation impact of leading Indian organizations and authors have been contributed in selected field of research. Since there is a vast difference between Scopus and PubMed, "Scopus is a type of "federated search interface", as it allows searchers to use a common/standardized search form to query the content found across its various sources. That means any database-specific functionality, for example the native PubMed search interface's ability to "map" to relevant Medical Subject Headings (MeSH) is not available when using the Scopus interface, nor is the ability to limit a search to the content of a single source database which is included in Scopus" Dina (2015). Now no one has made an attempt on this study will throw a light on CRC research output that is available on PubMed database.

The coining of the term by Nalimov (1969) "the application of these quantitative methods which deals with the analysis of science viewed as an information process". "The term had gained wide recognition by the foundation in 1978 of the journal Scientometric by Tibor Braun in Hungary Hood & Wilson (2001). According to Pritchard, Pritchard (1969) Scientometric is "to shed light on the processes of written communication and of the nature and course of development of a discipline by means of counting and analysing the various facets of written communication ... the application of mathematics and statistical methods to books and other media of communication". Both Bibliometric and Scientometric are related terms used to

describe part or all of this discipline. Each of these terms has a range of definitions that have been applied to them by the authors working in this field. These definitions indicate considerable overlap and they are not necessarily synonymous. Over time, the popularity (or usage) of the terms has changed, with the older term Bibliometric fairly stable and the newer terms and Scientometric gaining in usage Hood & Wilson (2001). It is one of the interdisciplinary research fields extended to almost all scientific fields. Scientometric applications are used to measure scientific publications indexed in databases. The application of Scientometric study is extremely valuable methods for evaluating research output, to know about the author productivity and citation analysis in science and technology. Scientometric tools can be used to measure and describe countries, universities, research institutes, journals, specific research topics and specific disciplines.

OBJECTIVES OF THE STUDY

1. To analyze the language distribution of Publications.
2. To study the growth pattern of publications during the period.
3. To find out the publication type and authorship pattern.
4. To find out the degree of collaboration, relative growth rate and doubling time.
5. To examine the Geographical distribution of publications.
6. To determine label and cluster analysis of colorectal cancer research.

METHODOLOGY AND DATA SOURCES

The data has been collected on research publications related to "Colorectal Cancer" from PubMed databases using the following search string retrieved on 5/04/2018: topic ("colorectal cancer") OR ("neoplasms colorectal") OR ("colorectal neoplasm") OR ("neoplasm colorectal") OR ("colorectal tumors") OR ("colorectal tumor") OR ("tumor colorectal") OR ("tumors colorectal") OR ("colorectal carcinoma") OR ("carcinoma colorectal") OR ("Carcinomas colorectal") OR ("colorectal carcinomas") OR ("cancer colorectal") OR ("cancers colorectal") OR ("colorectal cancers") AND ("Asian") Timespan: 2000-2017. A total of 2726 articles was retrieved from the database as a result of this limit, these were downloaded into text format and analyzed by using Bibexcel Software, tabulated and presented using MS Excel.

ANALYSIS AND INTERPRETATION

Language distribution

Table 1 shows the distribution of colorectal cancer literature based on language. It is found that scholarly communications are mostly in the English language in almost all the countries. It shows that the majority of the papers are published in the English language 2661 (97.61%); followed by Chinese 44 (1.62%), Japanese 13 (0.48%), Korean 5 (0.18), German 2 (0.07%) and French 1 (0.4%).

Table-1: Language wise distribution

S. No	Language	Records	%
1	English	2661	97.61
2	Chinese	44	1.62
3	Japanese	13	0.48
4	Korean	5	0.18
5	Germany	2	0.07
6	French	1	0.04
Total		**2726**	100

Growth pattern of publication on Colorectal Cancer

Table 2 shows the distribution of articles published on colorectal cancer research output in Asian Countries during 2000 - 2017 (18 years). A total of 2726 publications were published. The study reveals that the highest number of the articles was published in the year 2014 with 431 (15.81%) followed by 2015 with 358 (13.13%). The lowest number of publications was reported in the year 2001 with 18 (0.66%).

Table-2: Year wise distribution

Year	Records	%
2000	22	0.81
2001	18	0.66
2002	24	0.88
2003	36	1.32
2004	44	1.61
2005	58	2.13
2006	73	2.68
2007	89	3.26
2008	99	3.63
2009	107	3.93
2010	126	4.62
2011	174	6.38
2012	253	9.28
2013	312	11.45
2014	431	15.81
2015	358	13.13
2016	266	9.76
2017	236	8.66
Total	**2726**	**100**

Distribution by Publication Type

Table 3 reveals the share of bibliographical form among the published literature of colorectal cancer. It represents the 16 types of published documents during 2000 - 2017, such as; Journal Article, Comparative Study, Case Reports, Clinical Trial, English Abstract, Evaluation Studies, Comment letter, Letter, Historical Article, Consensus Development Conference, Controlled Clinical Trial, Review; Journal Article, News, and Lectures. Among these 2225 (81.62%) of publication were in the form of journal articles (highest contribution).

Table- 3: Publication Type

S. No	Document Type	Records	%
1	Journal Article	2225	81.62%
2	Comparative Study	252	9.24%
3	Case Reports	82	3.01%
4	Clinical Trial	64	2.35%
5	English Abstract	33	1.21%
6	Evaluation Studies	26	0.95%
7	Comment letter	13	0.48%
8	Letter	12	0.44%
9	Historical Article	5	0.18%
10	Consensus Development Conference	5	0.18%
11	Controlled Clinical Trial	3	0.11%
12	Review; Journal Article	2	0.07%
13	News	1	0.04%
14	Lectures	1	0.04%
15	Congresses	1	0.04%
16	Editorial	1	0.04%
	Total	**2726**	**100%**

Authorship Pattern

Table 4 depicts the authorship pattern of the papers based on collaborative research in the field of colorectal cancer during the period 2000- 2017. The highest number of papers i.e. 1230 had been contributed by collaborative work of more than ten authors followed by single author with 435, five authors with 180, two authors with 176, three and four authors with 108, ten authors with 160, seven authors with 98, eight authors with 96 and the least number of records were found by collaborative work of nine authors with 63 records.

Table- 4: Authorship Pattern

Year	1	2	3	4	5	6	7	8	9	10	10+	Total
2000	9	4	3	-	-	6	-	-	-	-	-	**22**
2001	3	4	3	8	-	-	-	-	-	-	-	**18**
2002	9	8	-	-	-	-	7	-	-	-	-	**24**
2003	12	10	6	8	-	-	-	-	-	-	-	**36**
2004	15	8	12	4	5	-	-	-	-	-	-	**44**
2005	22	16	3	12	5	-	-	-	-	-	-	**58**
2006	12	8	18	-	35	-	-	-	-	-	-	**73**
2007	16	14	6	16	15	6	-	16	-	-	-	**89**
2008	26	6	12	8	20	6	21	-	-	-	-	**99**
2009	14	6	3	24	30	-	7	8	-	-	15	**107**
2010	25	-	-	4	10	12	21	8	9	10	27	**126**
2011	17	4	6	4	15	12	-	8	-	-	108	**174**
2012	13	6	-	-	10	-	-	24	27	20	153	**253**
2013	43	6	3	-	-	6	7	8	9	40	190	**312**
2014	38	14	6	-	5	-	-	-	-	30	338	**431**
2015	49	14	3	4	-	6	7	-	9	20	246	**358**
2016	50	20	9	-	10	6	21	8	9	30	103	**266**
2017	62	28	15	16	20	12	7	16	-	10	50	**236**
Total	**435**	**176**	**108**	**108**	**180**	**72**	**98**	**96**	**63**	**160**	**1230**	**2726**

Degree of Collaboration

Table 5 represents the Degree of Collaboration in colorectal cancer research output. It was calculated by using the following Formula (K. Subramanyam, 1982)

$$C = \frac{NM}{NM+NS}$$

Where, C= Degree of Collaboration

NM= No. of Multi-authored papers

NS= No. of Single author papers.

The Degree of Collaboration ranges from 0.59 to 0.95 during the period of the study. The average mean value is found to be 0.84 indicate the increasing ratio of collaborative research work.

Table – 5: Degree of Collaboration

S. No	Year	Single Author(NS)	Multiple Authors(NM)	Total of (NS+ NM)	Degree of Collaboration (C)
1	2000	9	13	22	0.59
2	2001	3	15	18	0.83
3	2002	9	15	24	0.62
4	2003	12	24	36	0.66
5	2004	15	29	44	0.66
6	2005	22	36	58	0.62
7	2006	12	61	73	0.83
8	2007	16	73	89	0.82
9	2008	26	73	99	0.74
10	2009	14	93	107	0.87
11	2010	25	101	126	0.80
12	2011	17	157	174	0.90
13	2012	13	240	253	0.95
14	2013	43	269	312	0.86
15	2014	38	393	431	0.91
16	2015	49	309	358	0.86
17	2016	50	216	266	0.81
18	2017	62	174	236	0.74
Total		**435**	**2291**	**2726**	**0.84**

Relative Growth Rate and Doubling Time

Formula

$$R\,(1-2) = \frac{W2 - W1}{T2 - T1}$$

$$Dt(a) = \frac{0.693}{R(a)}$$

Where,
R (1-2) = Mean Relative Growth Rate over the Specified Period interval;
W1= log w1 (Natural log of the initial number of publications)
W2 = log w2 (Natural log of the initial number of publications)
T2-T1= the unit Difference between the initial time and final time.
R (a) = Relative Growth Rate per unit publication per unit of time (Year)

Table 6 reveals the Relative Growth Rate and Doubling Time of total publications. The Growth Rate is 0.60 in 2001 and which decreased up to 0.09 in 2017. The mean relative growth rate for the period of 2000- 2017 is 0.28, whereas the Doubling Time for different year gradually got increased from 1.15 in 2000 to 7.70 in 2017. The mean doubling time for the period of 2000-2017 is 2.85 which were increased gradually.

Table- 6: Relative Growth Rate and Doubling Time

Year	Total Articles	Total Cumulative	W_1	W_2	R(a) (W_2- W_1)	Mean R(a) (1-2)	Doubling Time Dt(a)	Mean Dt(a) (1-2)
2000	22	22	-	3.09	-		-	
2001	18	40	3.09	3.69	0.60		1.15	
2002	24	64	3.69	4.16	0.47		1.47	
2003	36	100	4.16	4.60	0.44		1.57	
2004	44	144	4.60	4.97	0.37	0.38	1.87	1.71
2005	58	202	4.97	5.31	0.34		2.04	
2006	73	275	5.31	5.62	0.31		2.23	
2007	89	364	5.62	5.89	0.27		2.56	
2008	99	463	5.89	6.14	0.25		0.77	
2009	107	570	6.14	6.34	0.20		3.46	
2010	126	696	6.34	6.54	0.20		3.46	
2011	174	870	6.54	6.77	0.23		3.01	
2012	253	1123	6.77	7.02	0.25		2.77	
2013	312	1435	7.02	7.27	0.25	0.19	2.77	3.99
2014	431	1866	7.27	7.53	0.26		2.66	
2015	358	2224	7.53	7.71	0.18		3.85	
2016	266	2490	7.71	7.82	0.11		6.30	
2017	236	2726	7.82	7.91	0.09		7.70	
Total	**2726**					**0.28**		**2.85**

Exponential Growth Rate

Table 7 indicates the exponential growth rate of publications in colorectal cancer research output during 2000 - 2017. The highest growth rate (1.50%) was found in the year 2003 with 36 records followed by 1.45% was found in the year 2012 (253 records). The least exponential growth rate was (0.74%) in the year 2016 with 226 records. It is found that the average exponential growth rate is 11.55% during the period. It shows the increasing growth from 2001 to 2014 and since the decreasing growth could be observed.

Table- 7: Exponential Growth Rate

S. No	Year	Publication	Exponential Growth Rate
1	2000	22	-
2	2001	18	0.82
3	2002	24	1.33
4	2003	36	1.50
5	2004	44	1.22
6	2005	58	1.32
7	2006	73	1.26
8	2007	89	1.22
9	2008	99	1.11
10	2009	107	1.08
11	2010	126	1.17
12	2011	174	1.38
13	2012	253	1.45
14	2013	312	1.23
15	2014	431	1.38
16	2015	358	0.83
17	2016	266	0.74
18	2017	236	0.88
Total		**2726**	**11.55**

The geographical productivity of colorectal cancer

Table 8 shows the distribution of productivity of top 20 countries during 2000-2017. It shows that Thailand has contributed 838 (30.74%) publications and ranked top among the countries in terms of publications; followed by the United States with 782 (28.69%) and England with 363 (13.32%) publications. India is also one among the top 20 countries in terms of colorectal cancer research and positioned in 11th rank with 29 (1.06%) publications

Table- 8: Performance of the Top-Twenty Countries

S. No	Country	Records	%
1	Thailand	838	30.74
2	United States	782	28.69
3	England	363	13.32
4	Netherlands	129	4.73
5	China	117	4.29
6	Japan	116	4.26
7	Germany	88	3.23
8	Australia	71	2.60
9	Greece	34	1.25
10	Korea (South)	30	1.10
11	India	29	1.06
12	Switzerland	26	0.95
13	Brazil	16	0.59
14	New Zealand	11	0.40
15	Denmark	11	0.40
16	France	10	0.37
17	Canada	8	0.29
18	Singapore	8	0.29
19	Egypt	7	0.26
20	Italy	5	0.18

Ranking the authors

The top 20 most productive authors were identified in colorectal cancer research and published 13 or more papers during 2000- 2017. Those 20 authors together contributed 359 (13.03%) papers. Among the top 20 authors, Wang J is the most productive author who contributed 31 (1.13%), followed by Zali MR with 29 (1.05%) of articles, Wang Y with 23 (0.83%) and Li J with 20 (0.73%) of articles.

Table- 9: Most prolific authors (Top 20)

S. No	Authors	Records	%
1	Wang J	31	1.13
2	Zali MR	29	1.05
3	Wang Y	23	0.83
4	Li J	20	0.73
5	Li L	20	0.73
6	Li X	19	0.69
7	Li Y	19	0.69
8	Tsugane S	17	0.62
9	Le Marchand L	17	0.62
10	Liu Y	17	0.62
11	Wang X	17	0.62
12	Wang L	16	0.58
13	Zhang X	15	0.54
14	Kono S	15	0.54
15	Sung JJ	15	0.54
16	Tajima K	15	0.54
17	Zhang Y	14	0.51
18	Liu L	14	0.51
19	Maxwell AE	13	0.47
20	Matsuo K	13	0.47
	Total	**359**	**13.03**

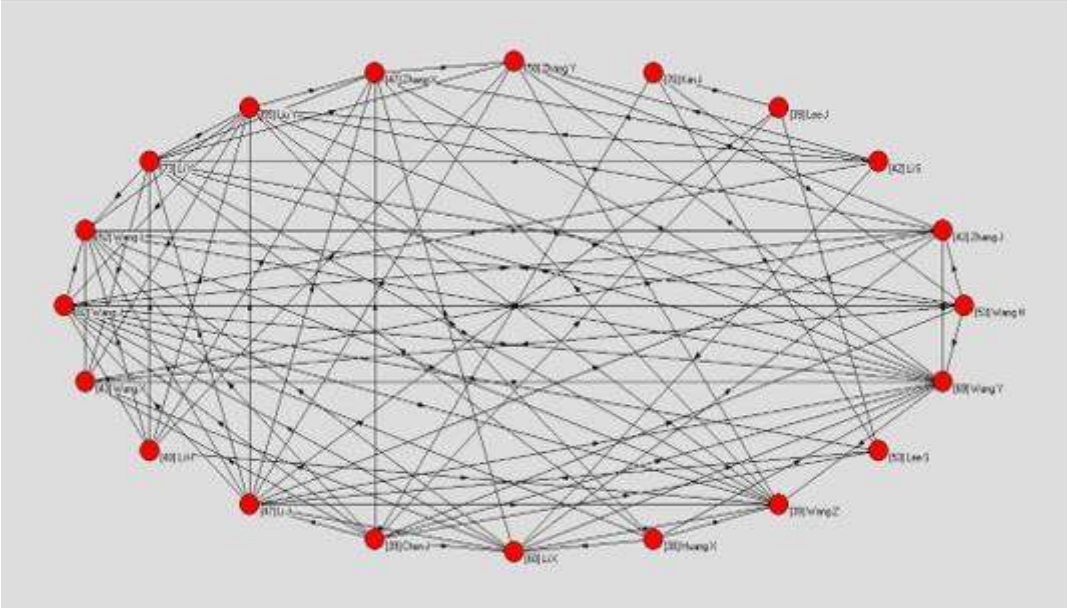


Figure- 3: Author Collaborations in Colorectal Cancer

Figure-3 shows the collaborative research work among the authors of Asian Countries in colorectal cancer. 'Wang J' had collaborated with 82 authors, followed by Li Y with 73, Kim J with 70 and Wang Y with 69.

Application of Zipf's Law in colorectal cancer research

Figure 4 reveals the type of keywords used in colorectal cancer research articles. The number of keywords used in the scientific publications can be identified using Zipf's law i.e. relation between the rank of a word and frequency of its appearance in a long text. If 'r' is a rank of a word and 'f' is its frequency the Zipf's law stated as flow: $rf = c$

For this colorectal cancer research, 25,753 keywords are used as Mesh heading. Top 20 keywords were taken for implementing Zipf's law

Table- 10: Keyword wise distribution

Year	Keywords	Records	%
1	Humans	2423	17.23%
2	Male	1761	12.52%
3	Female	1742	12.39%
4	Middle Aged	1478	10.51%
5	Aged	1221	8.68%
6	Adult	992	7.05%
7	Aged, 80 and over	493	3.51%
8	Case-Control Studies	432	3.07%
9	Prognosis	425	3.02%
10	Risk Factors	375	2.67%
11	Genetic Predisposition to Disease	367	2.61%
12	Asian Continental Ancestry Group	356	2.53%
13	Neoplasm Staging	297	2.11%
14	Follow-Up Studies	285	2.03%
15	Genotype	271	1.93%
16	Retrospective Studies	264	1.88%
17	Asian Continental Ancestry Group/ genetics	244	1.73%
18	Incidence	243	1.73%
19	Polymorphism, Single Nucleotide	209	1.49%
20	Odds Ratio	186	1.32%

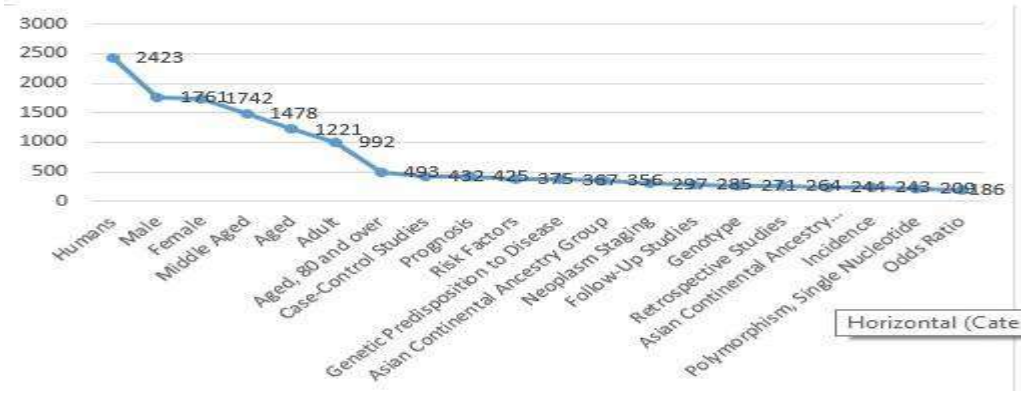


Figure- 4: Application of Zipf's Law

Label and cluster analysis of colorectal cancer research

For analyzing bibliometric network, VOS viewer is used. Maps are created by using VOS Mapping techniques and VOS Clustering techniques. The output file is created for the years 2017 on colorectal cancer research with the bib excel Software. Cluster Density view identified 932 items and cluster in five. The first cluster is given in red colour with 255 items, shows how alteration or changes takes place in the cell or DNA; Second cluster is given in green colour with 205 items related to modulation of gene expression process; third cluster is seen blue colour with 204 items, shows the study of particular genes carried by the individual groups or based on ethnicity or sequence difference. The fourth cluster is given yellow with 137 items studies related to screening related activities to detect the CRC and the fifth cluster is the purple color with 131 items related to surgery or therapy or remedy for CRC related cases.

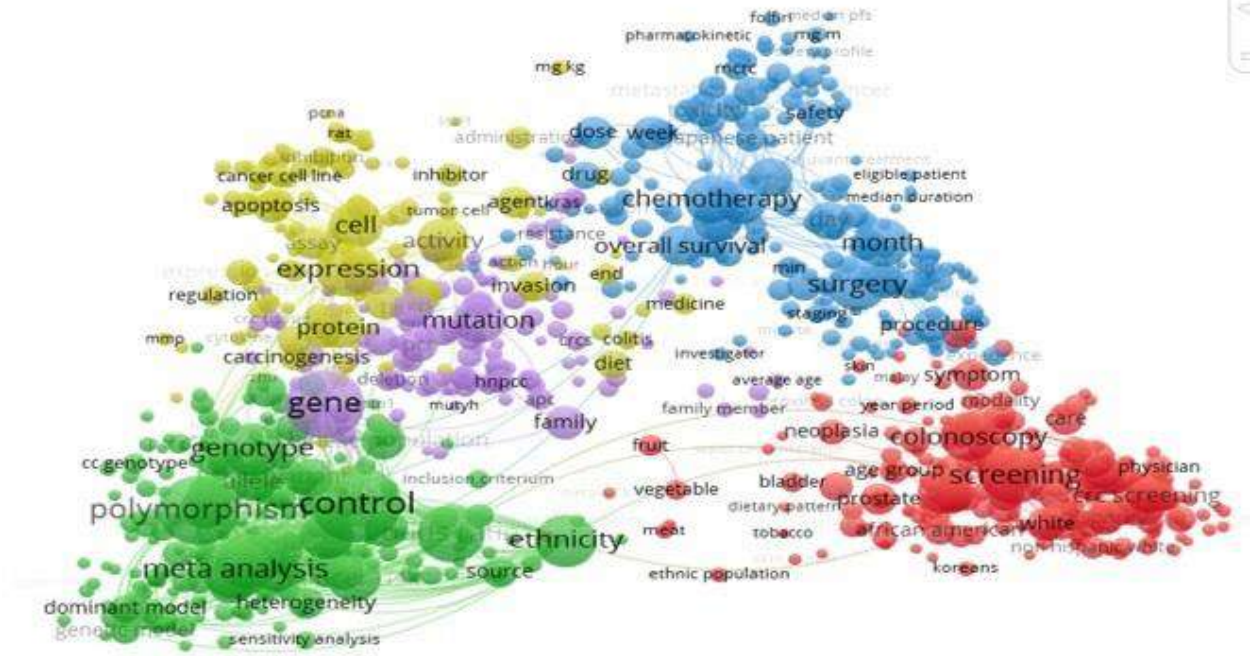


Figure- 5: Label view of Colorectal Cancer

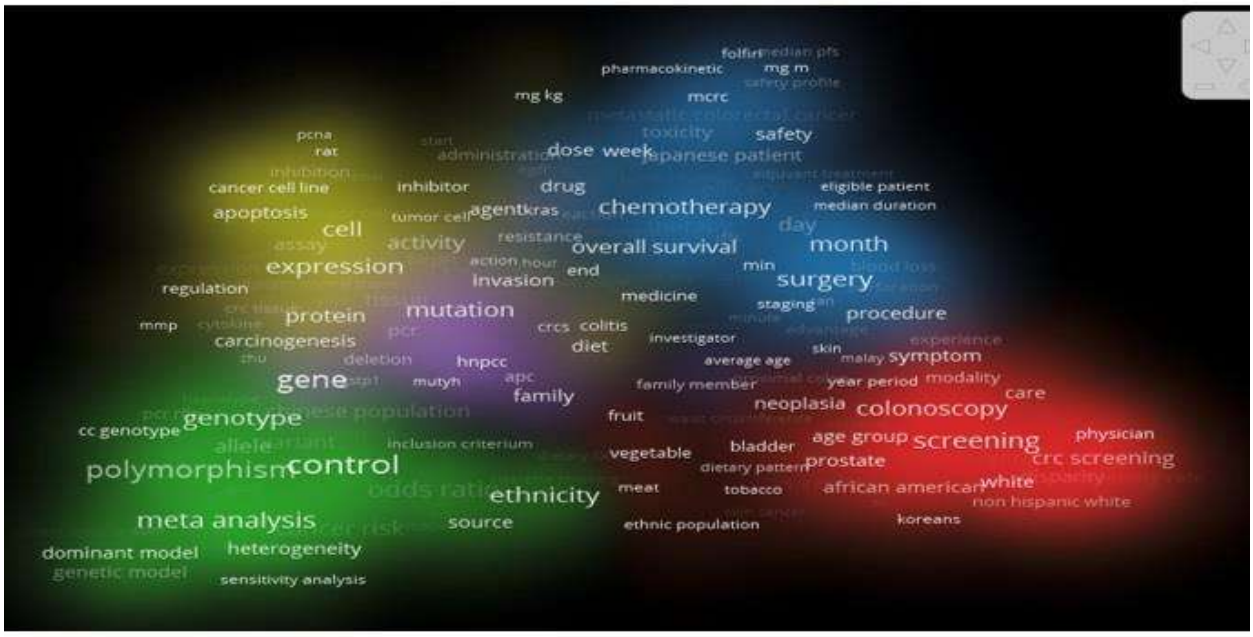


Figure- 6: Cluster view of Colorectal Cancer

Findings and conclusion

The distribution of colorectal cancer literature by language shows most common scholarly communication used is English irrespective of the native language of the country. i.e. the majority of the papers are published in the English language 2661 (97.61%).

The yearly distribution of articles published on colorectal cancer research output in Asian Countries during 2000 - 2017 (18 years). A total of 2726 publications was published. The highest number of publications 431 (15.81%) was published in the year 2014.

The source wise documents of distribution on colorectal cancer research output during the study period were in the form of journal articles i.e. 2225 (81.62%) publications were covered by Journal Articles.

The authorship pattern indicates the maximum number of papers was published by collaborative work of more than ten authors 1230. The lowest by a group of nine authors which amounts to 60.

The Degree of Collaboration ranges from 0.59 to 0.95 during the period of the study. The mean value is 0.84 indicate the high ratio of collaborative research work undertaken by researchers.

The Relative Growth Rate and Doubling Time of total publications show decreasing and increasing trend. The mean relative growth rate for the period of 2000 - 2017 is 0.28. The mean doubling time for the period of 2000 - 2017 is 2.85 which increased gradually.

It is found that the average exponential growth rate is 11.55% during the period.
The Geographical distribution of productivity, we have into top 20 countries during 2000 - 2017. It shows that Thailand has contributed 838 (30.74%) publications and ranked top among the countries in terms of publications.

The study reveals that the Wang J is the most productive author with 31 (1.13%) of total records.

The study found the “Wang J’ had collaborated with 82 researchers in colorectal cancer research. The most common keyword used by researcher is “human” i.e. used in 2423 records.

Unlike developed countries screening facilities and lack of awareness among the Asian populations acts as a major hindrance from prevention of such CRC related threats; for which Asia must take immediate action to prevent and provide cost-effective screening facilities and extensive research and awareness on CRC. The cluster-wise grouping of studies showed less concentration on screening related activities to detect the CRC and studies related to surgery or therapy or remedy for CRC related cases.

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International Journal of Pure and Applied Mathematics
Volume 119 No. 12 2018, 16639-16654
ISSN: 1314-3395 (on-line version)
url: http://www.ijpam.eu
Special Issue

ijpam.eu

USE OF E-RESOURCES AMONG THE SCHOLARS OF BIOSCIENCES SCHOOL IN PERIYAR UNIVERSITY, SALEM

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Abstract

The Study focus on the use of e-resources by the scholars of Bioscience schools in Periyar University, are aware and make use of E-Resource, highlight the Problems faced by the in accessing e-resources. A total number of 130 questionnaires were distributed among the Bioscience research Scholars in Periyar University. Out of the total 120(88.33%) respondents selected for the study, 38 respondents are from Biotechnology, 36 respondents from Microbiology, 32 respondents from and Biochemistry Research Scholars from collected the questionnaire. The major objective is to find out how academics evaluate E-Resources with print sources and how they recognize the advantages of E-Resources and problems for accessing them. This studies mostly the preferences of E-resources among the Scholars. It suggests for the development in the access facilities with high speed Internet Connections and subscription to more e-resources by the Bioscience Research Scholars in Periyar University.

Keywords: Use of E-resources, Impact of E-resource, Definition of e-resources.

1. Introduction

Today world is changing very fast. There was the day when the dissemination for information was like the speed of tortoise, but with the advent of information communication technology (ICT), the desired information is now accessed very fast even within a single click. Actually what we are accessing so speedily are the electronic resources available in internet. Electronic resource is valuable tools for study, learning and research. Electronic Resources can provide many advantages over traditional print-based resources: they contain current information because they update frequently, they offer advanced search capabilities, they offer flexibility in the storage of the result, and they enable access to information without the restrictions of time and location. Access is only as good as the resource has can be afforded the ability to work with the tools, and the network infrastructure that supports rapid and convenient connections. The ability to use e-resources efficiently depends on basic computer skills, knowledge of what is available and how to use it. There are various types of e-resources which are available on the internet; some of the popular ones that are gaining ground are the electronic. Our E-Resources include lots of things: full-text journals, newspapers, company information, e-books, dictionaries, encyclopedias, economic data, digital images, industry profiles, market research, career information, etc. E-Resource has become the most important tools in satisfying varied users. The Values and use of E-Resources practically have increased with the time.

2. Review of the Literature

Bhavanishankar and Raghavendra (2015) examined about that Use of helnet E-resources in health Science Libraries in Belagavi city, Karnataka. E-resources are term used to describe a variety of resources in the electronic format such as database, the e-journal-book, the web etc. Hence it is proposed to conduct the study in three methods for collection the data. This Paper says that that e-resource are popular these days because of their destines advantage. The Rajiv Gandhi University of Heath Science Should makes every attempt to convert the non-user into actual users of Helene E-resources by conducting the number of user education programmes. Helene database is the boon to health science institution.

Priyadharshini, Janakiraman, and Subramanian (2015) this article describes that awareness, access and use of electronic resources available in the Agricultural College and Research Institute, Madurai. The usages of electronic journals and electronic books have been

increased rapidly. The study focused on the use of different types of electronic information resources, awareness of users, access and use of digital resources freely available by the Post Graduate Students, Ph.D. Scholars and Faculty Members. This study evaluates the role of the Internet in access of e-resources through different search engines (e.g. Google, AltaVista, Msn, Yahoo, etc.), and offline databases in CD/DVD formats that can be accessed without the help of internet. Survey method of data collection followed. Data mainly collected using a pre-structured interview schedule. 137 copies of the questionnaire were distributed and 117 filled in copies of the questionnaire were received. It has been found that all Ph.D. scholars and Faculty members were using mainly e-resources.

Jotwani Daulat (2014) examined that marketing efforts being made by IIT libraries to improve the awareness and increase the usage of these resources. The survey exposed that IIT libraries use 27 out of 33 techniques listed in the questionnaire, to encourage their e-resources. 85.71 % of the IIT library portals provide links to access e-resources subscribed by them, while 57.14 % provide links to back files of e-journals, 42.86 % provide links to e-books and only one portal (14.28 %) provides access to electronic theses and dissertations. These libraries also make announcements of newly acquired resources, trial access, etc. through their website.

Dhingra (2013) discuss that assesses attitudes towards e-journals available through CeRA- Consortium and examines the current level of use of these electronic publications by faculty members of the Punjab Agriculture University, Ludhiana. A survey was conducted, using the questionnaire to collect data. The paper attempts to define this consortium, its objectives and scope also. This article explores that usage of e-journals has increased as compared to the printed journals as a majority of users have started accepting the journals in electronic form. The faculty is accessing these e-journals at their concerned departments more as compared to the library.

Prabakaran (2013) explained that use of E-Resources among Faculty Members of Engineering Colleges in Cuddalore District. The study was analyzed that using e-resources by institution wise respondents and sex wise distribution of respondents. Most of the respondent's access search engines are Google and preferable format for getting information are both print and electronic version. He suggested that necessary training facilities are to be provided to the users, so the library conducts the effective training programmes on how to use e-resources.

Kamble (2011) studied the use of e-resources accessed by software engineers in TCS library 45% of respondents are using the Internet every day, 42% respondents are using e-books, 37% of respondents are using e-journals and 19% of respondents are using online database. 43% respondents used e-resources for searching the information for their project purpose. 35% respondents acquired skills of e-resources from library e-mail notification. 25% of them learned to search and use e-resources with the help of library induction. 40% of the respondents preferred Google search engine followed by 25% of the respondents who used Yahoo. 46% of the respondents felt that e-resource helped them with easier and faster access to information. 29% of the respondents found that access to wide range of information is an advantage of using e-resources.

SampathKumar and Kumar (2010) conducted the perception and use of e-resources and the internet by the engineering, medical and management academics in Bangalore City, India. The prime objective is to find out how academics compare e-sources with print sources and how they perceive the advantages of e-sources and problems for accessing them. It further aims to establish the extent of internet use, the purpose of such use and factors influencing it. Study results show that the students and faculty who participated in this survey are aware of e-sources and also the internet. Even though a majority of the academic community uses electronic information sources for their academic-related work, most of them prefer print to electronic information sources.

3. About the Periyar University Library

In 1997, Periyar University Library was launched. 78,580 volumes of text and reference books on different subjects are available in Periyar University Library. In this library 180 National and International journals and 13 leading Newspapers were subscribed. The library is following the open access system and provides its service to meet the requirements of students, research scholars, and professors of Periyar University. It has different sections such as Reference Section, Textbook Section, Books for competitive Examinations, Thesis and Dissertations Section, Back Volumes Section, Reprographic Section, Question Banks etc. Library also extends its facilities to the students, Research scholars and faculties of affiliated colleges.

3.1 OPEN ACCESS SYSTEM IN PERIYAR UNIVERSITY

- Digital Library
- UGC - Info net Digital Library
- Online Journals: Subscribed
- Subscribed Periodicals (Print)
- Open Access Journals
- Wiley Online E-Books
- Open Access E-Book
-

Table.1: Digital Library Collections

S. NO	COLLECTIONS	TOTAL
01	Books	**78,580**
02	Journals and Magazines	**180**
03	Back Volumes	**3418**
04	Theses and Dissertations	**2661**
05	CDs/DVDs & Audio Cassettes	**2455**
06	Reports	**971**
07	News Papers	**13**
08	ERIC Database	**01**
09	EBSCO Database	**01**

4. Objectives

- To Know the gender-wise and department-wise analysis on the usage of E-Resources by scholars of Bioscience School in Periyar University.
- To Know the frequency of use of Electronic Resources
- To Know the Purpose of use Electronic Resources
- To Know the users' opinion and level of Satisfaction on current E-Resources.
- To Know the difficulties encountered by the users while use E-Resources

5. Statements of the problem

The Problem Under The Present Study Is "Use of E-Resources Among The Scholars of Biosciences School in Periyar University, Salem".

6. Methodology

For the proposed study, questionnaire method was adopted. Accordingly, a structured questionnaire was prepared to keep in mind the objective of the study. A total number of 120 questionnaires were distributed among the School of Social Science research Scholars at Periyar University. Out of the total 120(88.33%), respondents are selected for the study, 38 respondents are from Biochemistry, 36respondents from Microbiology, 32 respondents from and Biochemistry Scholars from collected the questionnaire. The Collected data were tabulated and then analyzed and interpreted.

6.1 Sampling Technique

In this research, the researcher selected Bioscience School in Periyar University. Therefore totally 120 questionnaires were distributed individually. Among them, 106 questionnaires were received from the respondents and the remaining 14 questionnaires were rejected due to incomplete and unable to receive the questioner from the respondents.

Table.2 Department wise distribution of respondents

S.No	School of Bioscience	No. of Questionnaire Distributed	Number of Questionnaire Received
1	Biotechnology	40	38(35.84%)
2	Microbiology	40	36(33.98%)
3	Biochemistry	40	32(30.18%)
Total		120	106(100%)

6.2 Scope and Limitations

The Scope of the present study is confined to the Bioscience Research Scholars of Periyar University, Salem. However, the Study is limited to:

- The survey is limited to Periyar University Bioscience School only and not any other Schools.
- The research is confined to the Bioscience school M.Phil and Ph.D. Scholars only.

7. Data Analysis

Table.3 Gender and Department -wise Distribution of Respondents

S.No	Department	No. of Respondents		Total
		Male	Female	
1	Biotechnology	20(52.64%)	18(47.36%)	38(35.85%)
2	Microbiology	20(55.56%)	16(44.44%)	36(33.97%)
3	Biochemistry	18(56.25%)	14(43.75%)	32(30.18%)
	Total	**58**	**48**	**106(100)**

Interpretation

Table 3 shows the gender and department -wise respondents. Among 58 male respondents, 20(52.64%) respondents belong to Biotechnology, 20(55.56%) respondents belong to Microbiology and 18(56.25%) respondents are from Biochemistry. Among 48 female respondents, 18(47.36%) respondents belong to Biotechnology, 16(44.44%) respondents belong to Microbiology and 14(43.75%) respondents belong to Biochemistry Department.

Figure 1 Mean and S.D for the Department wise analysis based on Gender

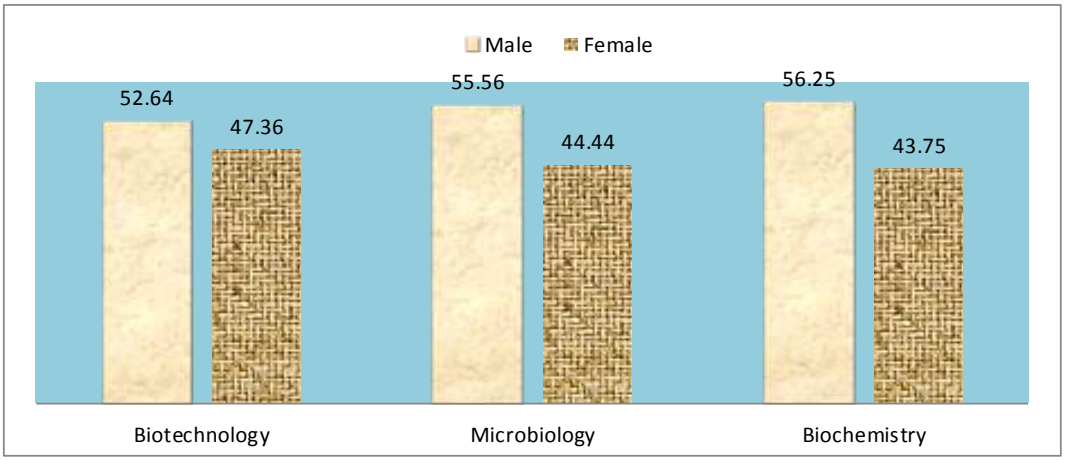


Table 4.Department –wise and Course Distribution of Respondents

S.No	Department	No. of Respondents		Total
		M.Phil	Ph.D	
1	Biotechnology	6(15.73%)	32(84.21%)	38(35.85%)
2	Microbiology	6(16.67%)	30(83.33%)	36(33.97%)
3	Biochemistry	4(12.5%)	28(87.5%)	32 (30.18%)
	Total	**16**	**90**	**106(100)**

Interpretation

The Table 4 shows that Department and Course-Wise distribution of Respondents. It is followed by,6(15.73%) respondents are Biotechnology M.Phil Scholars,32(84.21%) respondents are Biotechnology Ph.D scholars,6(16.67%) respondents are Microbiology M.Phil Scholars,30(83.33%) respondents are Microbiology Ph.D scholars Scholars,4(12.5%) respondents are Biochemistry M.Phil Scholars,28((87.5%) respondents are Biochemistry Ph.D scholars.

Table 5. Frequency of Using Electronic Resources

S. No	Frequency	No. of Respondents	Percentage
1	Daily	44	41.50
2	Twice in a week	25	23.59
3	Once in Week	20	18.87
4	Monthly Once	12	11.32
5	Occasionally	5	4.72
	Total	**106**	**100.00**

Interpretation

Table 5 describes the frequency of using electronic resources. Among the 106(100%) respondents, 44(41.50%) respondents are Electronic Resources used for Daily, 25(23.59%) respondents are Electronic Resources used for Twice in a week,20(18.87%)respondents are Resources used for Once in Week,12(11.32%) respondents are Electronic Resources used for Monthly Once and 5(4.72%) respondents are Resources used for Occasionally.

Figure 2. Frequency of Using Electronic Resources

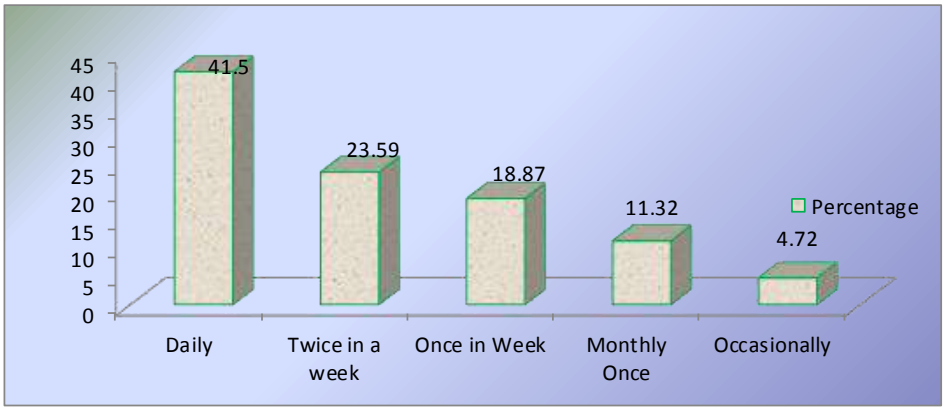


Table 6: Purpose of Using Electronic Resources

S. No	Purpose	No. of Respondents	Percentage
1	For study/ research	40	37.74
2	To keep Latest Information	12	11.32
3	For career development	22	20.76
4	For teaching preparation	08	07.55
5	For writing books/ research articles	14	13.20
6	For communication	10	9.43
	Total	106	100.00

Interpretation

Table 6 shows that Purpose of using electronic Resources. In this study, 40(37.74%) respondents are using the electronic Resources For study/ research in their subject area. This is followed by 12(11.32%) respondents are using the electronic Resources to keep Latest Information,22(20.76%) respondents are using the electronic Resources For career development,8(7.55%)%) respondents are using the electronic Resources For teaching preparation,14(13.20%) respondents are using the electronic Resources For writing books/ research articles and 10(9.43%)%) respondents are using the electronic Resources For communication.

Figure 3.Purpose of Using Electronic Resources

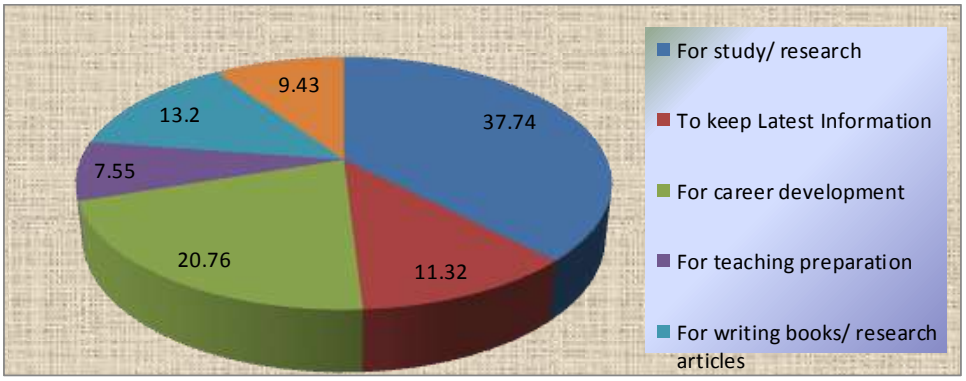


Table7.Level of Satisfaction e-resources

S. No	Satisfaction Level	No. of Respondents	Percentage
1	Highly Satisfied	20	18.87
2	Satisfied	36	33.97
3	Neutral	30	28.30
4	Dissatisfied	12	11.32
5	Highly Dissatisfied	08	7.54
	Total	**106**	**100**

Interpretation

Table 7 shows the Level of Satisfaction of E-resources.20 (18.87%) Respondents are Report that access of E-resources is Highly Satisfied, 36(33.97%) Respondents are report that access of E-resources is Satisfied, 30(28.30%) Respondents report that access of E-resources is Neutral, 12(11.32%) Respondents report that access of E-resources is Dissatisfied,8(7.54%) Respondents are report that access to E-resources is Highly Dissatisfied.

Figure 4. Level of Satisfaction Electronic Resource

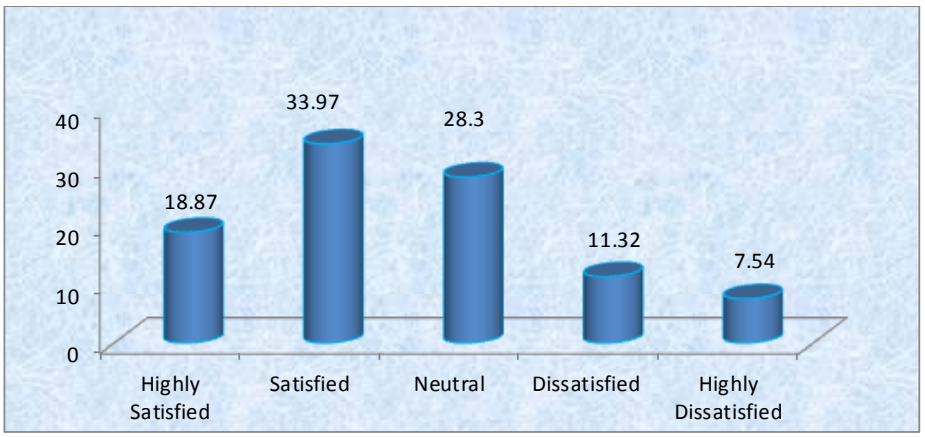


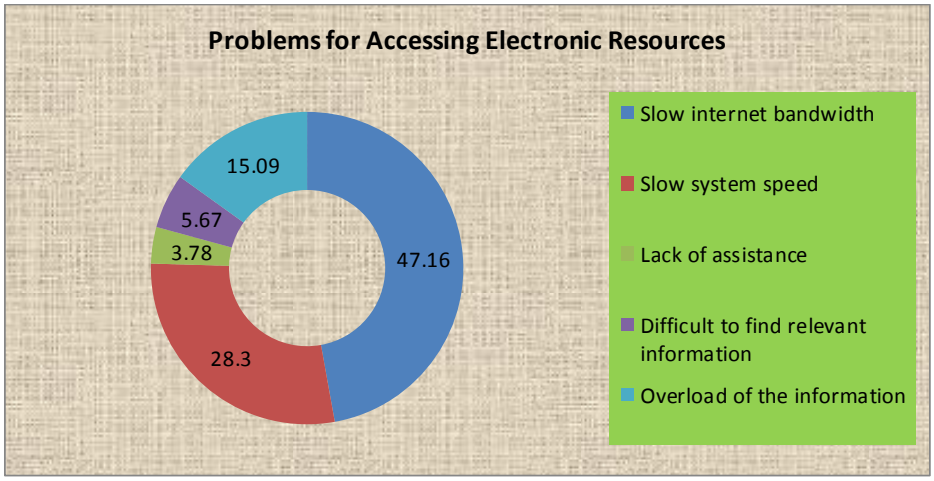
Table 8. Problems for Accessing Electronic Resources

S. No	Problems	No. of Respondents	Percentage
1	Slow internet bandwidth	50	47.16
2	Slow system speed	30	28.30
3	Lack of assistance	4	3.78
4	Difficult to find relevant information	6	5.67
5	Overload of the information	16	15.09
	Total	106	100.00

Interpretation

The users were asked to indicate the problems they encountered for accessing e-resources as shown in Table 5.18. The majority of the users, 50(47.16) Respondents are faced Slow internet bandwidth, 30(28.30%)) respondents are faced Slow system speed,4(3.78%)Respondents are faced Lack of assistance,6(5.67%)respondents are faced Difficult to find relevant information and 16(15.09%)respondents are faced Overload of the information.

Figure 5.Problems for Accessing Electronic Resources



8. Summary of Findings

The findings of the study can be summarized as below:

- The data raveled that the majority of Male 20(52.64%) respondents were Biotechnology department, 18(47.36%) respondents were Female Biotechnology department at Periyar University.
- Out of the 106(100%) respondents, a majority of them are Ph.D. Scholars 28(87.5%) and the remaining is Microbiology Department M.Phil Scholars 6(16.67%).
- Out of the 106(100%) respondents, 44 (41.50%) Majority of respondents were accessed the E-resources facility daily.
- Out of the 106(100%) respondents, 40(37.74%) Majority of respondents are using the electronic Resources For study/ research in their subject.
- Out of the 106(100%) respondents, 36(33.97%) Majority of Respondents reported that access of E-resources is satisfied.
- The majority of the users, 50(47.16) Majority of Respondents were faced Slow internet bandwidth in my study.

8.1 SUGGESTIONS

The following recommendations are complete for the Uses of E-Resources among research scholars of a school of Bioscience Studies of Periyar University.

- Highly speeds Wi-Fi University grounds needs to be industrial by Central Library in Periyar University.
- Experienced Staff should be appointed to provide the expert guidance to users about e-resources
- The speed of Internet requirements to be improved for speedy access to the accessible E-Resources.

9. CONCLUSION

There is no doubt that e-resources are contributing a lot towards research, development, and higher education. These resources have converted into knowledge disseminating center. These resources are being accessed by user community at a very fast pace. After analysis, it has been found that e-resources are being used widely by research scholars of Periyar University. Central Library is not lagging behind in adopting new tools, techniques, and technology for maintaining maximum access to reading materials and to provide the right information to right reader at the right way.

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GLOBAL RESEARCH TRENDS IN ENTOMOLOGY DURING 2012 – 2016: AN ANALYTICAL STUDY

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GLOBAL RESEARCH TRENDS IN ENTOMOLOGY DURING 2012 – 2016: AN ANALYTICAL STUDY

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Abstract

The present study explores the quantum of productivity in the field of Entomology. For this study, the data were downloaded from the 'Web of Science Core Collection' database and there were 1671 records contributed globally level over a period of five years i.e. 2012-2016. The study contributes to the different aspects of Entomology research, such as year wise distribution, country wise, authorship pattern, the degree of collaboration, and most prolific authors etc. The highest number of records was published in the year 2016, while lowest numbers of records was published in 2012. The doubling time for publications at the decreased level has been computed during 2013 - 2016. The frequency occurrence of words among the publications revealed that the word 'Diptera' is found more with 276 (16.5%). Lotka's law with regard to author productivity of Entomology research output was applied. It could be seen that the proportion of all output based on single contribution is important. The total numbers of publications in entomology with collaboration among the top 10 countries are presented. Largest contribution of USA was 307 (18.4%), followed by South Korea with 264 (15.8%).

Keywords: *Entomology, Relative growth rate, Authors collaboration, Country, Scientometrics*

INTRODUCTION

The term “Scientometrics” was originated from a russian term for the application of quantitative methods to the history of science, that lead to the quantitative aspects of science. It was suggested by Dolrov and Kormoni who often used with same meaning as the bibliometrics to denote to ‘the application of quantitative methods to history of science’. This term came into existence with the founding of the journal known as ‘Scientometrics’ by T. Braun in 1977, which originally published in Hungary and currently from Amsterdam, the Netherlands.

Scientometrics is used to mean the communication process in science including socio-cultural aspects, and appears to be almost synonymous like science of science with more emphasize on its quantitative aspects. It is also used as a generic term for a system of knowledge, which endeavors’ to study the scientific (and technological) system by using a variety of approaches within the domain of science and technology.

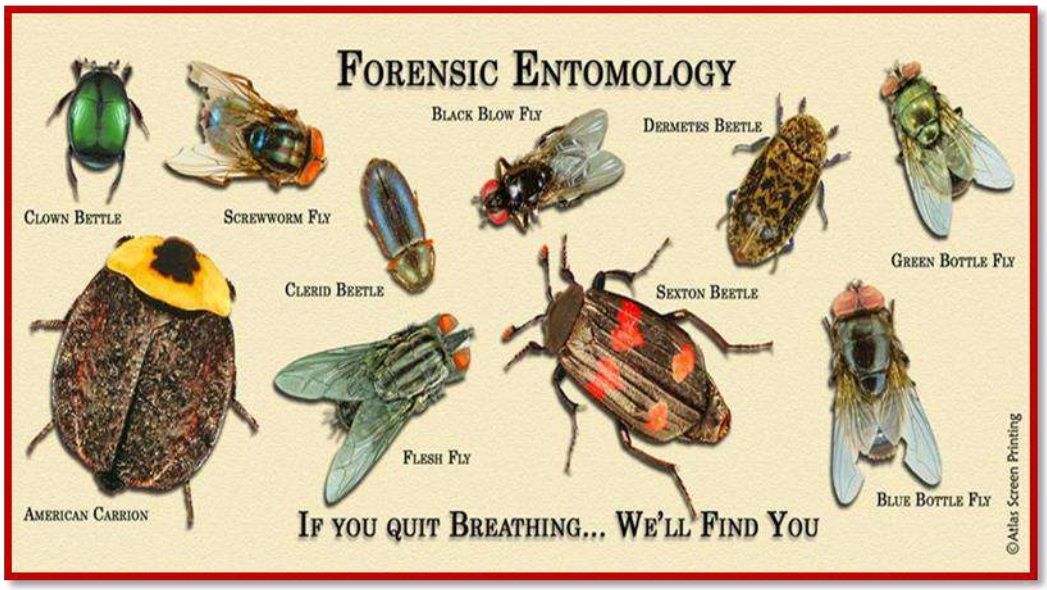
Scientometrics is mostly concerned with the quantitative features and characteristics of scientific research. It becomes the most emerging research areas in Library and Information Science. Investigation of scientific publications is a significant feature of research exertion in information science in recent times. The present study stresses the devotion on the scientometric investigation of the pattern of publication, authorship and country wise distribution using the keyword analysis.

Entomology is a branch of biology which mainly focuses on the study of insects, which gives an improved perception of the environment and biology. An insightful of entomology is required to concentrate the general economic sufferers in crops and health issues caused by insects. The study of insects is widely known as entomology. The study of insects includes their development, anatomy, physiology, life history, behavior, environment, and classification. Entomology gives people a better understanding of the environment, biology, and the world in which they live. An understanding of entomology becomes mandatory to reduce the extensive economic loss in crop damage and health problems caused by insects. Agricultural entomologists identifies the insects which affect

the production of foods and fibers. Experts in Agriculture involved to work in the areas of agronomy, animal science, horticulture, floriculture, forestry, and wood processing.

Entomologists are now familiar with the lessons of the past and aided by advances in insecticidal chemistry, biological and cultural control, and visionary for new technologies based on genetic modification of plants and animals. Entomologists face new challenges from invasive species which focused the increased movement of people and goods in the global economy. Global warming threatens to dramatically alter the geographic ranges of plant and animal species, including agricultural crops and their pests, as well as vectors of human and animal pathogens.

SAMPLE INSECTS



Available at - http://mrcatlee.weebly.com/entomology.html, accessed 10 August 2018

RELATED WORK

Neelamma, G., & Anandhalli, G. (2016) aimed at analyzing the research output in Botany. Citation analysis of all the journal articles of Botany was taken from Web of Science (on-line version database) for the period of ten years (2005-2014). A total of 12051 references was cited in 1183 records in 572 journals. The study elaborated on distribution of citations for

document type, language wise citations, and country wise publication of citations. Further, the study also listed out the most important journals in the field of Botany. The investigation showed that out of 12051 citations, research articles (61.96%) contribute the highest number of citations and it is the most chosen source of information preferred by researchers.

Jeyasekar, J.J., & Saravanan, P. (2014) attempted to bring out the development of Forensic Science literature, authors' productivity, the top position source journal, and the country-wise output. Data for the study were taken from the SCOPUS database. They have retrieved 13626, records and analyzed using Microsoft excel sheet. They considered three journals, such as Journal of Forensic Sciences, Forensic Science International, and Science & Justice which contribute almost half of the total forensic science literature. The study found that highest number of records was found from the United States of America which contributed 30% in Forensic Science.

Garg, K. C., & Tripathi, H. K. (2014) analyzed the scientific output of India in Crop Sciences as reflected in three different databases i.e. SCOPUS, CAB Abstracts and ISA (Indian Science Abstracts) during 2008-2010. It indicated that highest number of papers was published on rice and wheat crops. Agricultural universities and institutions under the aegis of Indian Council of Agricultural Research (ICAR) were the most dynamic institutions. Most of the papers was published in Indian journals with low impact factor. Environment and Ecology, Indian Journal of Agricultural Sciences and Research on Crops were the most chosen journals of the Indian scientists. The major research is focused on 'genetics and plant breeding' followed by 'soil, climate and environmental aspects' and 'agronomic aspects'. The authorship pattern reveals that co-authored papers accounted for 72% of the total output.

Niu, B., Loáiciga, H. A., Wang, Z., Zhan, F. B., & Hong, S. (2014) explored groundwater research among the top twenty institutions for collaborative papers. A bibliometric analysis was conducted to evaluate groundwater research from different perspectives during 1993–2012 and based on the Science Citation Index-Expanded (SCIE) database. They summarized the output on categorical, geographical, and institutional patterns, as well as research hotspots in global groundwater studies. Groundwater research experienced notable growth in the past two decades. "Environmental sciences", "water resources" and "multidisciplinary geosciences" were the three major subject categories. Ground water research is considered to be a major category in

environmental science and water resources in global level. United States was a leading country to global groundwater research with the largest number of independent and collaborative papers, i.e. 12 of the top 20 most active institutions.

Yaoyang, X., & Boeing, W. J. (2013) studied the sustainable and renewable energies, biofuels, and related research which have been expanded along with an exceptional growth of scientific knowledge. Based on the Science Citation Index Expanded from the Web of Science, a bibliometric evaluation of research output was carried out to map the research activities and tendencies of the global biofuel field. The results indicated that annual output of scientific articles topped during the past decade (2003–2012). The United States of America (USA) leads biofuels research and collaborated mainly with other productive countries (China, United Kingdom, Germany, Canada and South Korea). International collaborative publications were resulted in more citations than single country publication. Institutional collaborations became increasingly prevalent over a period of time and the 15 most productive institutions of USA tended to collaborate with each other. Most research publications on biofuels were appeared in the journals *Biomass and Bioenergy* and *Bioresource Technology*. Biofuels research was based on combination of multi-subject categories including "Energy and fuels", "Biotechnology and applied microbiology", "Chemical engineering", "Environmental sciences" and "Agricultural engineering". Keyword analysis has confirmed the production of biodiesel from microalgae as the mainstream of recent biofuels research. Biorefinery was the most common technology for conversions of biological feedstock and life cycle assessment which was the most popular tool of decision support to evaluate the sustainability of biofuel development.

Kalisdha, A., Balasubramani, R., Surulinathi, M., & Amsaveni, N. (2013) attempted to study on Indian contribution to medicinal plants research: A scientometric study. The objective of the study is to analyze the scientometric parameters for Medicinal plants research output in India. They have analyzed the productivity and Global Citation Scores of the scientists. It can be seen that during the period 1956-2012, a total of 12083, publications was published in india and the data has been reflected in Scopus online database. Since the researchers depend mainly on the Library and Electronic resources library provide more scholarly information and hence this kind of studies become relevant in identifying thrust areas of research.

Dutt, B., Kumar, S., & Garg, K. C.(2010) analyzed 2566 papers published during 1987 - 2008 and indexed Science Citation Index – Expanded which indicated a gradual rise in the quantum of output. About 80% of the papers appeared in journals originating from USA, the UK, the Netherlands, France and Germany. Total output came from 74 countries of which 17 countries contributed 87% of the total output. The highest number of publications came from USA, followed by India. However, in the later block (1998–2008) the proportion of output of both USA as well as India showed decline as compared to the first block (1987–1997). More than half of the scientific output is concentrated among the four sub-disciplines of Microbiology & Virology, Immunology & vaccine, Epidemiology and Entomology. Among the prolific institutions, the publication output of institutions from the US and Taiwan had higher impact. Of all the papers published, 17% did not receive any citations. Incidence of High Quality Papers, Citations per Paper (CPP) and Relative Quality Index (RQI) were more than the average. The proportion of co-authored papers increased significantly in 2008 compared to 1987. The proportion of popular authored papers was found from the Netherlands, Taiwan, China, Cuba, Brazil, France and Japan.

Sagar, A., Kademani, B. S., & Kumar, V. (2007) explored the growth of Mass Spectrometry research in Nuclear Science and Technology with regard to the publication output as reflected in International Nuclear Information System (INIS) database (1970-2005). A total of 10913, papers was published in various domains such as Chemistry, Materials and Earth Sciences (5286) (48.44%), Physical Sciences (2367) (21.69%), Engineering and Technology (1434) (13.14), Life and Environmental Sciences (1212) (11.11), other aspects of Nuclear &Non-Nuclear Energy (492) (4.51%) and Isotopes, Isotope and Radiation Applications (122) (1.12%). Only three papers were published in 1970. The highest number of papers (816) was published in 2004. United States topped the list with 2247, publications followed by Germany with 1333, publications, Japan with 820 publications, France with 525 publications, and India with 460 publications. As far as Authorship and collaboration is concerned multi-authored papers i.e 81.83 percent was collaborative and multidisciplinary in nature.

OBJECTIVES

- To analyze the year wise distribution of articles
- To study the Relative growth rate and Doubling time on the distribution

- To identify the authorship pattern of the contributions in Entomology
- To find out the top ten prolific authors in the chosen field
- To trace the keyword distribution of the articles

METHODOLOGY

Data for the study has been collected from Web of science Core Collection database published and maintained by Clarivate Analytics between 2012-2016. The data was used to find out the authorship pattern, relative growth rate, year wise publication and keyword analysis etc. in the field of Entomology. The collected data were analyzed using His cite software and VOS viewer for making the presentation lucidly. Lotka's law has also been applied in this study.

RESULTS AND DISCUSSION

Table-1 Year wise distribution of publications

S.No	Publication Year	Records	Percentage (%)	TLCS	TGCS
1	2012	270	16.2	402	1978
2	2013	292	17.5	403	2128
3	2014	376	22.5	268	1658
4	2015	339	20.2	116	967
5	2016	394	23.6	32	505
Total		1671	100	1221	7236

It can be identified that the maximum number of records i.e. 394(23.6%) was published in 2016 and the minimum number of records i.e. 270 (16.2%) was published in the year 2012.

Figure - 1 Year wise distribution of publication

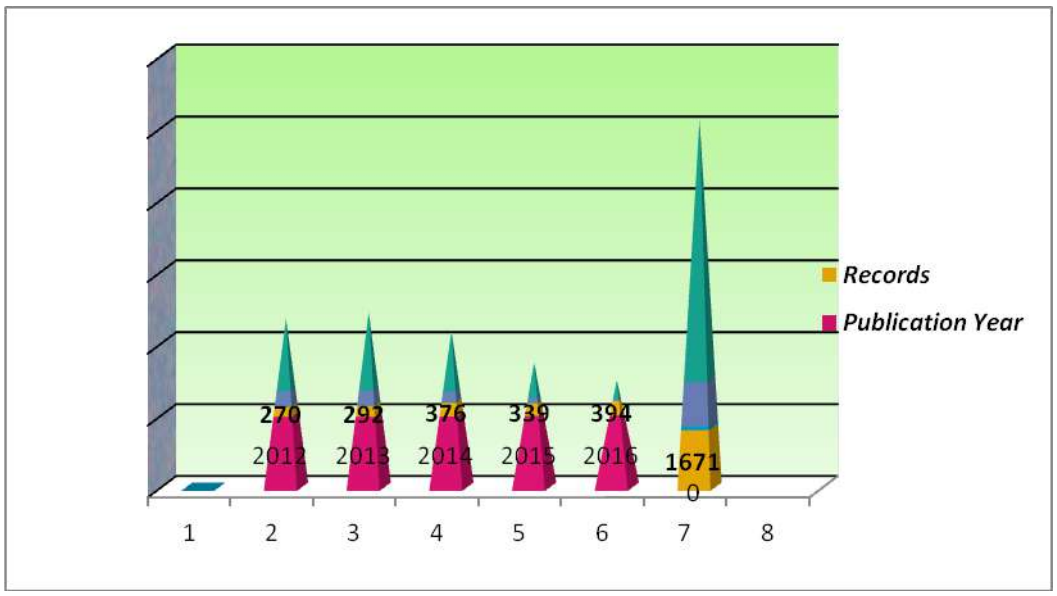


Table 2 - Authorship pattern

Year	1	2	3	4	5	6	7	8	9	10	Above 11	Total
2012	26	112	228	164	120	96	98	40	-	40	90	1014
2013	21	134	168	176	165	150	154	72	36	20	122	1219
2014	33	158	267	256	275	138	77	56	54	-	142	1458
2015	29	108	201	224	250	216	119	64	72	30	132	1448
2016	41	142	207	280	250	150	147	120	72	80	214	1703
Total	150	654	1071	1100	1060	750	595	352	240	170	700	6842
Percentage (%)	2.1	9.5	15.6	16	15.4	10.6	8.6	5.1	3.5	3.4	10.2	100

It reveals the authorship pattern of the articles published during the period of study. The highest number of articles was contributed by four authors with 1100 (16%) papers. The lowest number of articles was contributed by single authors i.e. 150 (2.1%) papers.

Table 3- Degree of Collaboration

Year	Total no. of articles	Total no. of authors	No. of single authors articles	No. of Multi authors Articles	Degree of collaboration
2012	270	1014	26	988	0.97
2013	292	1219	21	1198	0.98
2014	376	1458	33	1425	0.97
2015	339	1448	29	1419	0.97
2016	394	1703	41	1662	0.97
Total	1617	6842	150	6692	0.97

As far as the degree of collaboration is concerned keywords analysis on entomology is done. The formula given by K. Subramanyam (1982) was used.

$$C = \frac{N_m}{N_m + N_s}$$

$$C = \frac{6692}{6692 + 50} = 6842$$

The average value of C is C = 0.97

where, C = degree of collaboration

Nm = Number of multi- authored publications

Ns = Number of single- authored publications

It indicates that the degree of author collaboration is 0.97, which clearly shows its dominance upon multiple author contributions.

Figure – 2 Degree of Collaboration

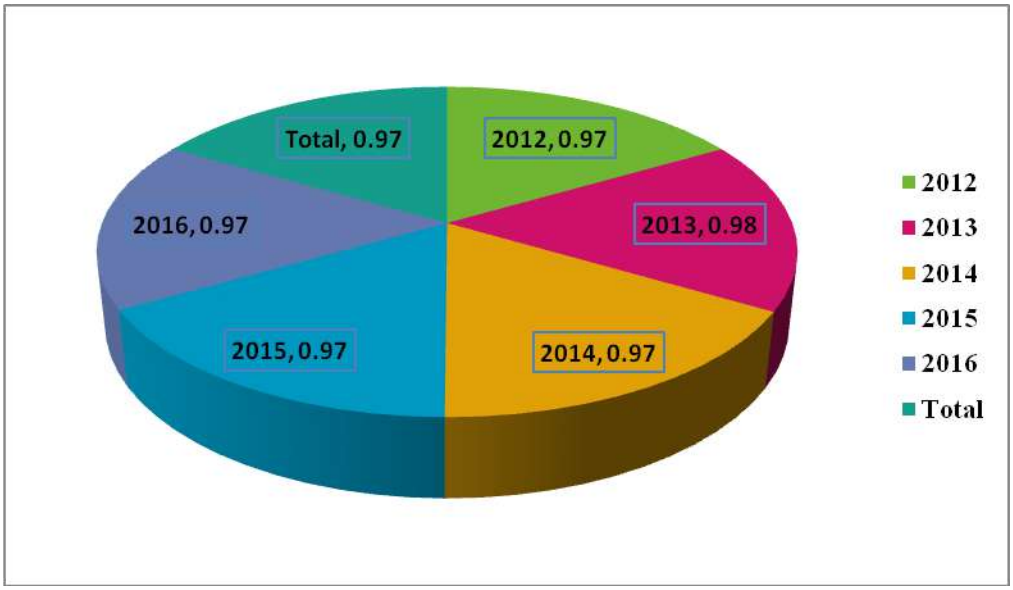


Table 4 - Relative Growth Rate and Doubling Time

Year	No .of .Articles	Cumulative No. of Articles	W_1	W_2	R(a) (W_2-W_1)	Mean R(a)1-2	Doubling Time	M Dt(a) 1-2
2012	270	270	-	5.59	-	0.55	-	0.56
2013	292	562	5.59	6.33	0.74		0.93	
2014	376	938	5.92	6.84	0.92		0.75	
2015	339	1277	5.82	7.15	1.33	1.44	0.52	0.48
2016	394	1671	5.98	7.52	1.54		0.45	
Total	1671					1.99		1.04

The growth rate is increased upto 1.54 in 2016. The mean doubling time for publications during the period was 1.04. The doubling time for publication got increased in 2013.

The relative growth rate is found increased with regard to number of publications or pages per unit of time. A specified period of interval can be calculated using the following equations.

$$R(1-2) = \frac{W_2 - W_1}{T_2 - T_1}$$

Where R (1-2) is mean relative growth rate over the specified period of interval.

W1 = LogW1: (Natural log of initial number of Publications/pages)

W2 = LogW2: (Natural log of final number of Publications/pages)

T2 – T1 = The unit difference between the initial and final time.

The corresponding doubling time for publications and pages can be calculated by using the following formula.

$$\text{Doubling time (Dt)} = \frac{0.693}{R}$$

Therefore,

$$\text{Doubling time for publications Dt (a)} \quad \frac{0.693}{R\,(a)}$$

Table 5 -Author wise distribution of publications

Rank	Author	Records	Percentage (%)	TLCS	TLCS/t
1	Lee S	44	2.6	13	3.07
2	Lee SH	34	2.0	13	3.82
3	Jin BR	26	1.6	18	5.13
4	Tomberlin JK	24	1.4	55	16.82
5	Lee KY	19	1.1	8	2.33
6	Amendt J	18	1.1	79	24.10

7	Park CG	16	1.0	9	2.83
8	Lee JH	15	0.9	5	1.40
9	Lee KS	15	0.9	14	3.90
10	Li ZZ	14	0.8	0	0.00
TLCS- Total local citation core, TGCS – Total global citation score					

It is understood that the top ten prolific authors (listed) are based on the number of publications. Lee S (44 records) and Lee SH (34 records) published the highest number of records in the field of entomology research during the study period. Li ZZ (14) published the lowest number of records.

Figure – 3 VOS viewer screen shot of Authors

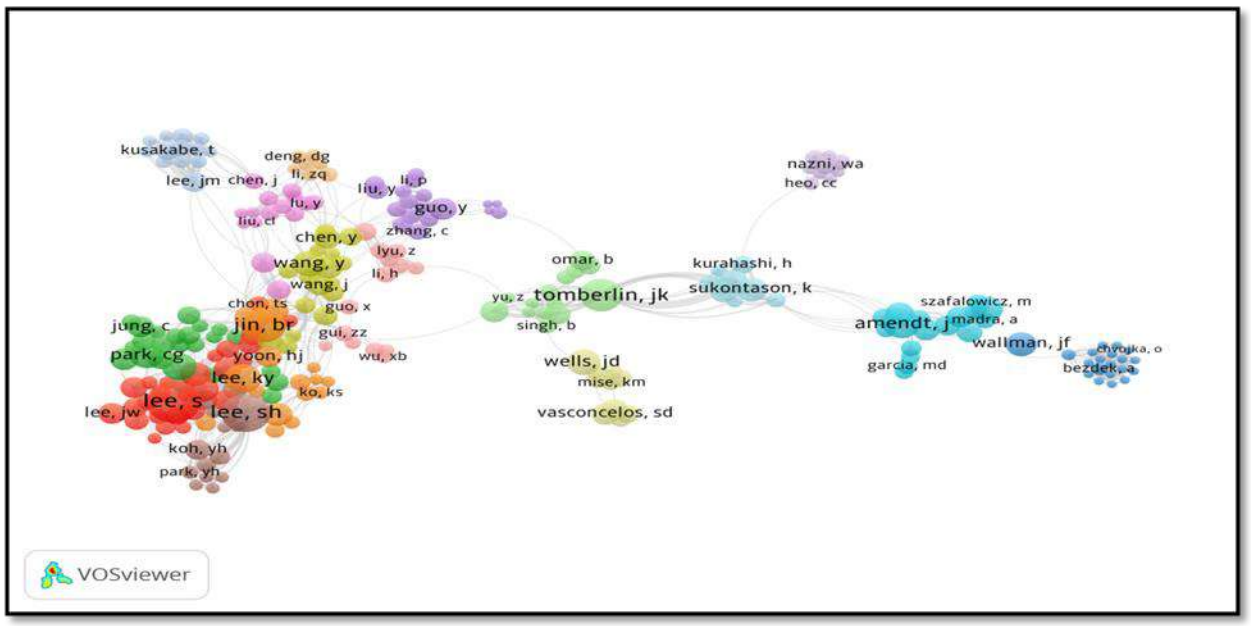


Table 6 – Keywords wise distribution

Rank	Word	Records	Percentage (%)	TLCS	TGCS
1	Diptera	276	16.5	420	1358
2	Species	243	14.5	192	735
3	New	197	11.8	40	294
4	Coleoptera	137	8.2	124	372
5	Calliphoridae	123	7.4	227	662
6	Entomology	121	7.2	127	420
7	Forensic	118	7.1	248	538
8	Hemiptera	108	6.5	29	186
9	Genus	107	6.4	15	143
10	Development	95	5.7	93	334
TLCS- Total local citation core, TGCS – Total global citation score					

As far as keywords appeared in entomology is concerned the word ‘Diptera’ is found high with 276 times (16.5%) frequent occurrence of words. The term ‘Species’ occurred in 243 (14.5%) publications, ‘New’ occurred in 197 (11.8%) publications, and followed by the word ‘Coleoptera’ with 137 (8.2%) and ‘Calliphoridae’ with 123(7.4%) ‘Entomology’ with 121(7.2%) and ‘Forensic’ with 118 (7.1%). ‘Hemiptera’ appeared in 108 (6.5%) and remaining keywords i.e. ‘Genus’ 107(6.4%) and ‘Development’ 95 (5.7%), were also noticed.

Figure – 4 VOS viewer screen shot of Keywords

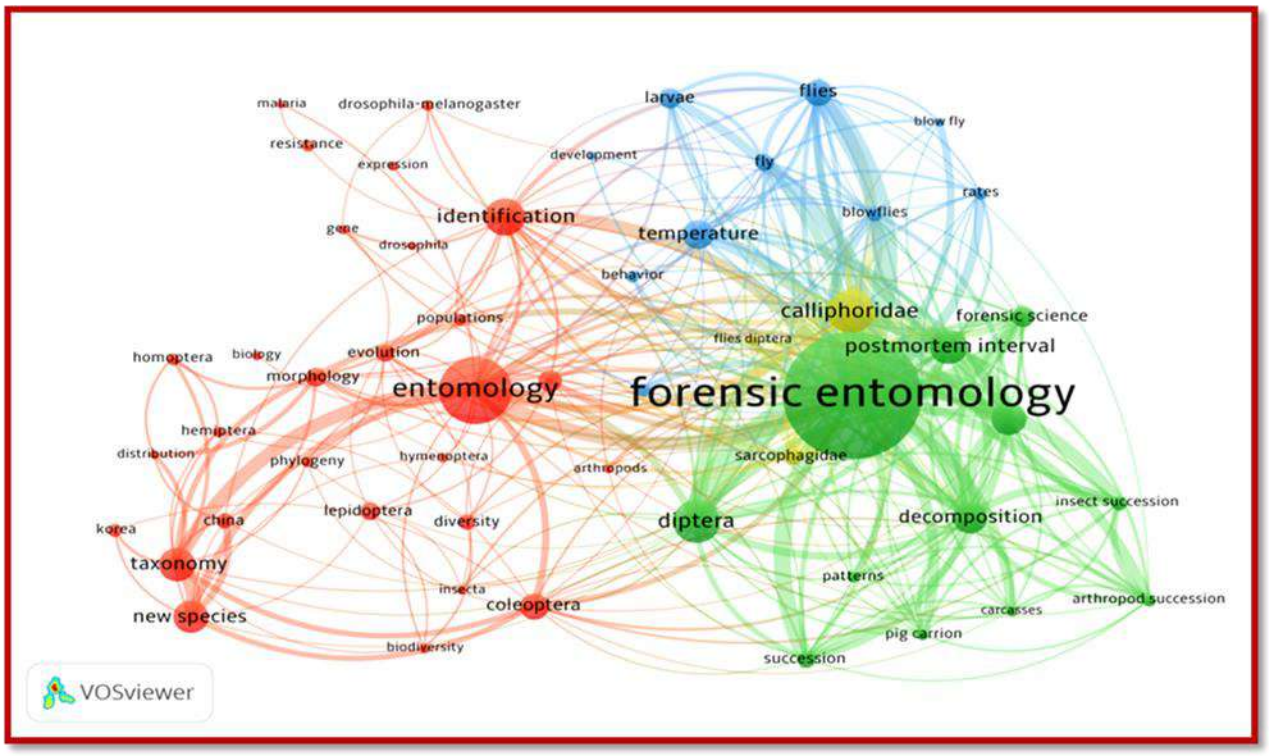


Table 7- Country wise distribution of publications

Rank	Country	Records	Percentage (%)	TLCS	TGCS
1	USA	307	18.4	187	1827
2	South Korea	264	15.8	93	762
3	Peoples R China	229	13.7	77	862
4	Brazil	178	10.7	123	571
5	UK	98	5.9	93	864

6	India	90	5.4	22	412
7	Australia	89	5.3	133	680
8	Japan	65	3.9	19	135
9	Poland	63	3.8	132	336
10	Germany	57	3.4	107	412
TLCS- Total local citation core, TGCS – Total global citation score					

The total numbers of publications with collaboration (period 2012 – 2016) among the top 10 countries are listed globally. Largest number 307 (18.4%) come from USA, followed by South Korea with 264(15.8%). Research output from Peoples R China was 229 (13.7%) followed by 178 (10.7%) from Brazil. UK produced 98 (5.9%), papers, India contributed 90(5.4%), articles and Australia published 89 (5.3%). Japan contributed 65 (3.9%) papers and lowest contribution of the records was seen from Poland (3.8%) and Germany (3.4%). It is noteworthy to mention that the USA published the highest number of the records among the top ten countries.

Figure - 5 Country wise distributions of publications

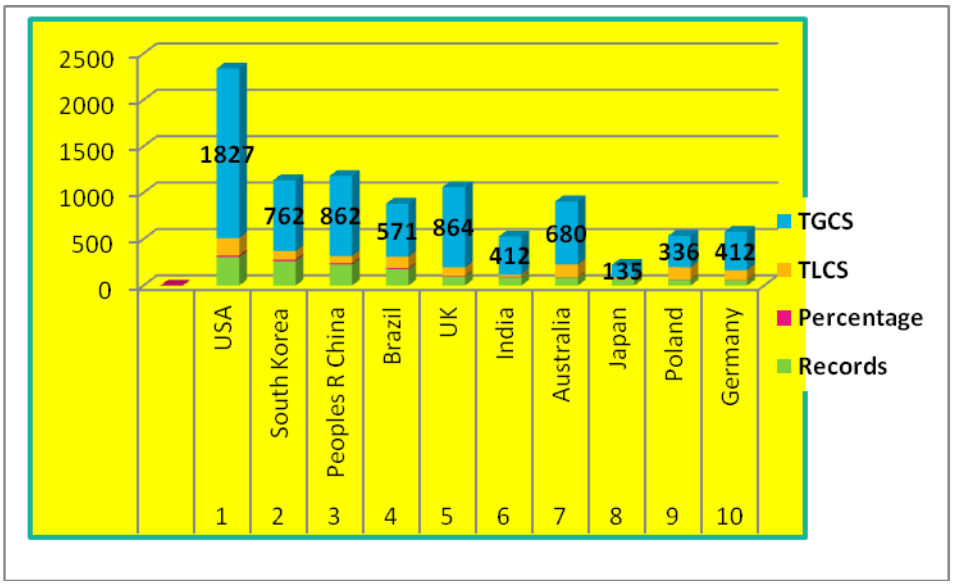


Table 8- Lotka's Law of Author productivity

X	Y	ΣX = log X	ΣY = log Y	ΣX*Y	ΣX*X
1	156	0	5.04	0	0
2	327	0.69	5.79	3.99	0.47
3	357	1.1	5.88	6.47	1.21
4	275	1.39	5.61	7.80	1.93
5	212	1.60	5.36	8.58	2.56
6	125	1.79	4.82	8.62	3.20
7	85	1.95	4.44	8.65	3.80
8	44	2.08	3.78	7.86	4.32
9	26	2.2	3.26	7.17	4.84
10	17	2.30	2.83	6.51	5.29
11	14	2.40	2.64	6.34	5.76
12	9	2.48	2.2	5.45	6.15
13	4	2.56	1.39	3.55	6.55
14	3	2.64	1.1	2.90	6.97
15	2	2.71	0.69	1.87	7.34
16	3	2.77	1.1	3.05	7.67
17	3	2.83	1.1	3.11	8.00

19	1	2.94	0	0	8.64
20	3	2.99	1.1	3.29	8.94
21	1	3.04	0	0	9.24
22	2	3.09	0.69	2.13	9.54
26	1	3.25	0	0	10.56
45	1	3.80	0	0	14.44
	1,671	52.6	58.82	97.34	127.88

Where N is the number of data pairs considered

X is the logarithm of x (x=number of articles) and

Y is the logarithm of y (y=number of authors)

$$n = \frac{N\sum XY - \sum X \sum Y}{N\sum X^2 - \left(\sum X\right)^2}$$

$$= \frac{23\,(97.34) - (52.6)(58.82)}{23\,(127.88) - (52.6)^2} = -4.9009$$

The constant C is calculated using the formula:

$$c = \frac{1}{\left[\sum_{1}^{p-1} \frac{1}{x^n} + \frac{1}{(n-1)\left(p^{n-1}\right)} + \frac{1}{2p^n} + \frac{n}{24(p-1)^{n+1}}\right]}$$

$$c = \frac{1}{0.2718 - 0.0806 + 0.1189 - 24504.5}$$

Hence $c = \frac{1}{-24504.1899} = -0.00004080$

C = - 0.4080

Lotka's law has been applied to ensure the real productivity in Entomology research output. It is fact that the tabulated value (observed value) is more than expected value. Thus the present analysis clearly invalidates the Lotka's law and productivity is attributed to several factors.

The productivity Entomology Science research in India was verified so as to find out the conformity with Lotka's inverse square law using Pao's (1985) method. It showed that different number of authors 'n' value is 4.9009.

Therefore 'n' is substituted with the value -4.9009 and 'c' - 0.4080 (value) is used while 'p' is assumed to be 20 by replacing the values of 'n' and 'c' for the calculation and validation.

CONCLUSION

The present study was carried out on keyword which covered 1671 records during 2012 - 2016. The highest number of records i.e. 394(23.6%) was published in the year 2016 and the lowest number of records i.e. 270 (16.2%) was published in the year (2012). The authorship pattern reveals a significant difference between the number of single author and multiple authors. Entomology is considered to be one of the emerging research areas in Life Sciences. Basic entomology (also known as general, pure, fundamental, or theoretical entomology) deals with studies such as biochemistry, biogeography, cytology, ecology, insect development, ethology, genetics, histology, morphology (insect anatomy), pale entomology, physiology, reproduction, phylogeny and taxonomy. The field of entomology is in a constant flux that evolved like the insects. Entomology is in the true sense of multidisciplinary discipline in nature.

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Review of Research
UGC APPROVED
International Online Multidisciplinary Journal

Volume - 7 | Issue - 11 | August - 2018

5.7631(UIF) 2249-894X

STUDENT-TEACHERS' VIEWS OF DIFFICULT AREAS IN ELEMENTARY TEACHER EDUCATION SOCIAL SCIENCE CURRICULUM



Research by



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ABSTRACT:-This study employed the mixed-research design with both quantitative and qualitative approaches. The quantitative

Editor - In - Chief - Ashok Yakkaldevi

REVIEW OF RESEARCH
IMPACT FACTOR : 5.7631(UIF) UGC APPROVED JOURNAL NO. 48514 ISSN: 2249-894X
VOLUME - 7 | ISSUE - 11 | AUGUST - 2018

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ABSTRACT



This study employed the mixed-research design with both quantitative and qualitative approaches. The quantitative approach was employed to investigate student-teachers' views of difficult topics in elementary teacher education first year social science curriculum. Besides, qualitative approach was employed to discover the major reasons for perceiving a particular topic as difficult by majority of the student-teachers. The study was guided by two research questions and the sample for the study was 218 second year student-teachers from five District Institutes of Education and Training (DIET) in Tamil Nadu. The "Difficult Area Identification Checklist in Social Science" (DAICSS) was used as an instrument for the collec of both quantitative and qualitative data. The quantitative data obtained were analysed by using freque and percentages whereas the qualitative data were analysed using content analysis technique to discove major reasons for perceiving a particular topic as difficult by the student-teachers. The results of the s revealed that the topic "Reading the Globe, Maps and Atlas" is the difficult topic than all other topics i elementary teacher education first year social science curriculum. The reasons for perceiving this top difficult by the student-teachers were also discovered. Further, the recommendations to the social sci lecturers on how to tackle student-teachers' difficulty in learning the topic "Reading the Globe, Maps Atlas" were also given based on the results of the study. The study has also come up with some u implications to all the stakeholders of education.

KEY WORD: *Student-teachers; Difficult topic; Elementary teacher education; Social Science curriculum.*

INTRODUCTION

The goal of social science education is to prepare young people to be good citizens in a world th becoming increasingly complex. In the Indian context, the inclusion of social science in the school curric right from primary to secondary classes signifies the importance of the subject and the role it plays student's life. Social science perspective and knowledge are indispensable to building the knowledge for a just and peaceful society (NCF, 2005). It aims at understanding all aspects of society as well as fir solutions to deal with social problems.

The National Focus Group Position Paper on Teaching of Social Sciences, 2006 states that "S sciences encompass diverse concerns of society and include a wide range of content drawn from disciplines of history, geography, political science, economics, and sociology". In India, the social sci subject is generally perceived as easy among the school subjects, probably because they deal with issues processes that surround us all the time. However, the social science curriculum of the 'Diplom Elementary Education' (two year elementary level teacher education programme) in Tamil Nadu is exception to this general perception.