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International Journal of Multidisciplinary Researches

A Peer Reviewed, Refereed & Quarterly Journal

Vol. 9 No. 2 November 2022 ISSN: 2349-8684

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INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCHES

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Vol. 9 **No. 2** **November 2022** **ISSN: 2349-8684**

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Vol. 9 No. 2 November 2022 ISSN: 2349-8684

ATTITUDE TOWARDS ENGLISH TEACHING OF HIGH SCHOOL TEACHERS AND ITS RELATION TO THEIR PERCEPTION ON DIGITAL COMPETENCE

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Abstract

Due to the development of Information and Communication Technologies, the educational environment has been undergoing constant transformation in recent years (ICT). Digital competence has become one of the challenges that teachers must overcome in order to incorporate these abilities into their teaching practice. Due to the development of Information and Communication Technologies, the educational environment has been experiencing a rapid transformation in recent years (ICT). Digital competence has become one of the hurdles that teachers must overcome in order to incorporate these abilities into their classroom instruction. The present study was aimed at exploring the attitude towards English teaching of high school teachers and its relation to their perception on digital competence. The methodology adopts a descriptive survey study, nine hundred seventy-six students one district of Salem district were selected through stratified sampling technique was adopted for the study. The results of the study showed that There is a significant positive relationship exists between the attitude towards English teaching and perception of digital competence of high school teachers. The results also indicated that the perception of digital competence and is significant predictor of attitude towards English teaching with the magnitude of 75% of variance.

Keywords: *Attitude towards English teaching, Perception of digital competence, High school teachers*

Introduction

In recent years, society's rapid advancement has resulted in a shift in the demands it places on citizens. Information and communication technology (ICT) have brought in several changes on a social, economic, and educational level (Starkey, 2020). In this regard, the European Council of Parliament's approval of the Digital Agenda for Europe 2020 enshrines the principle of ensuring that all Europeans acquire digital skills and literacy (Durán et al., 2019).In this line, the World Economic Forum's Future Jobs Report (2018), as well as the OECD's (OECD, 2014), predict that a large number of professions that exist today and will exist in the future will require digital skills to accomplish their task. As a result, technology is prevalent in today's and tomorrow's societies, and it is critical to encourage digital literacy, which provides citizens with the skills needed in today's Information Society (From, 2017).

Attitude towards English Teaching

Teaching is more than an academic subject; it is an art form, or, as the expression goes, great teachers are born, not produced (Brosh, 1996). It draws on the experiences and resources that are unique to the teacher's personality and cannot readily be transferred to or learned from others. The English language has spread around the world, and most non-English speaking countries are interested in studying it because of its importance.

Vol. 9 No. 2 November 2022 ISSN: 2349-8684

Additionally, persons who want to learn English have varying motivations and attitudes regarding the language .Although this is true, teachers must project an attitude and feeling toward the language to the students in order to teach it. In this sense, the personality of the teacher may be the most important factor in deciding the success or failure of the students (Karavas, 1996). English language awareness has consequences for English language teaching, according to Sifakis (2016), who specifies three components of English language awareness in English language teaching: awareness of language and language usage, awareness of instructional into knowledge, while also being able to communicate such information using various technological and digital media, acting responsibly.

Literature Review

An attitude, according to Munir (2010), is an emotional and neutral state of readiness that is organized by experience and has a directive or active impact on the individual's response to all events and situations. Garrett also claims that some attitudes are more strongly linked to achievement than others, particularly when views regarding teaching English as a second language are complex (2009). Thus, it is

Student- Teacher's Digital Competency Readiness During COVID- 19

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OPEN ACCESS

Manuscript ID:
ASH-2022-10014970

Volume: 10

Issue: 1

Month: July

Year: 2022

P-ISSN: 2321-788X

E-ISSN: 2582-0397

Received: 08.05.2022

Accepted: 10.06.2022

Published: 01.07.2022

Citation:
Parkavi, M., and R. Selvamathi Sugirtha. "Student- Teacher's Digital Competency Readiness During COVID- 19." *Shanlax International Journal of Arts, Science and Humanities*, vol. 10, no. 1, 2022, pp. 103–107.

DOI:
https://doi.org/10.34293/sijash.v10i1.4970

Abstract
The COVID-19 crisis changed the traditional method into online transformation among teachersand they should need digital competency in order to teach creative and innovative through digital platforms. Digital readiness is nothing but preparedness or act of readiness to do something in meaningful way. The purpose of the present study is to find out the level digital competency readiness among student - teachers during covid 19.The researcher used self developed questionnaire, it has 20 items about technical readiness, pedagogical readiness and readiness regarding time management. The result showed that there is no significant difference between male and female student teachers digital competency readiness and there is significant difference with respect to student – teacher's locality and major subjects.

Keywords: Digital Competency, Readiness, Student Teachers, Covid-19, Technical, Pedagogical, Time Management, Digital Platforms

Introduction

Readiness denotes the degree of student'ssingle-mindedness and their eagerness in learning something. Students can learn in a better way when they are physically, mentally, and emotionally ready to learn, and it do not happen well if they have no reason for learning new things. It is the teacher's utmost responsibility to make the students ready to learn and create interest to know the value of the subject. The readiness is a cycle of professional preparation where a senior student learns how to work formally and is supervised by a practicing teacher or a school representative in a block of time (Hamalik, 2009). Teaching internship is a required part of the curriculum of teacher education program. The primary purpose of this activity is to develop and strengthen student's competencies and educational responsibility and also to prepare them for the profession (Parveen and Mirza, 2012).If students may have certain purpose, they definitely shine in their career even they lack in their motivation. When students are ready to learn, they really near to the teacher's effort. Since learning is an active process, students should have enough rest in certain circumstances. Then only the students will be mentally and physically strong to acquire new knowledge.

Need and Significance

Digital readiness is the ability to use digital tools in an easy way. In other words, digital readiness refers to how ready or how comfortable when using digital technology.

And digital competence refers to the confident and critical usage of the full range of digital technologies for information, communication and basic problem-solving in all aspects of life.

Nowadays most of the people are feeling comfortable when using digital devices while chatting, sending messages. E mailing files, taking photos, but when they come to know the proper usage of the technical devices still, they are lacking in certain aspects. The research done by Pew Research Centre, the survey assessed Americans about digital readiness most of the people are never know to use the devices properly and 17% of the people only digitally ready.When it comes to schools, teachers and educators should be already aware of e- learning apps.In this digital era, especially during covid 19 all schools and colleges turned into digital transformation in every teaching aspect including attendance, digital teaching, assessment and evaluation.

Review of Related Literature

Tzafilkou, K. et al (2021) investigated Teachers' digital skills readiness during COVID-19 pandemic. The investigator made survey on teachers' perceptions about their digital skills which helps in their online teaching and their teaching responsibilities during the pandemic. Totally 800 teachers from different stream have participated in this survey regarding their digital technology or applications usage. The survey showed that most of the teachers used the digital devices for teachingthrough digital platforms, assessment, evaluation and finding educational resources through encyclopaedia and digital libraries. They also used the digital devices for personal purposes and accepted that they hardly used it for student's evaluation and feedback. It is very essential for teacher should be aware of digital tools and ready to move with it in long term assessment for successful digital or smart class room in this techno era.

Tzivian,L et al (2019) measured teachers-as-learners' digital skills and readiness to study online for successful e-learning experience. This study has taken place in Latvia, 1092 teachers participated in the study However,and this study indicated there is lack of studies done to measure teachers-as-learners readiness to study online in Latvia. The aim of the study to find out teachers' readiness through teaching online resources. The result showed that there was significant difference with demographic aspects like gender, age and place of living.

Kavtaradze, etal (2018) studied profiling the digital readiness of higher education students for transformative online learning in the post-soviet nations of Georgia and Ukraine. This study investigated the digital readiness of university students in Georgia and Ukraine under the dimensions - online collaborative learning, theorized as an educational pathway to democratic transformation. The investigator used Digital Competency Profilerto gather data from 150 students in Georgia and 129 in Ukraine about their digital competences. Findings showed that large percentages of Georgian and Ukrainian students are not-prepared for many online-learning activities, and there is generally have greater readiness on mobile devices than desktops/ laptops.

Objectives

- To study the importance of digital competency readiness among studentteacher's during covid 19
- To know the level of digital competency readiness among studentteachers
- To analyse the digital competency readiness between male and female student teachers
- To find out the level of digital competency readiness with respect to their gender, locality of the college and major subjects.

Hypothesis

- There is no significant difference in the level of perceived digital competency readiness among student teachers.
- There is no significant difference in the digital competency readiness between male and female studentteachers.
- There is no significant difference in the level of digital competency readiness with respect to their gender, locality of the college and major subjects.

Delimitation

- The present study conducted in Salem district only.
- The population of the study was the studentteachers of final year students only from government aided and private B.Ed. colleges.

Methodology

The researcher used survey method and educational colleges selected using simple random technique, self made questionnaire has been used to find out difference between male and female students' teachers with respect to their gender, locality and major subjects. Totally 20 items were finalized according to the suggestions of educator and experts. The researcher used split – half method to know reliability of the tool, was found to be 0.82. It was found to be highly reliable.

Analysis of Data

Table 1 Gender Wise Distribution of the Sample

Gender	Number	Percentage
Male	53	44
Female	66	55
Total	**119**	**99**

Out of 119 students taken for the study percent are male 44 and 55 percent are female.

Table 2 Showing the mean Difference of Students – Teacher's Digital Competency Readiness on the Basis of Gender

Gender	N	Mean	SD	t test	Significance
Male	53	28.52	5.304	0.359169	NS
Female	66	29.42	5.097		

The above table- 2 revealed that t value 0.03 was lesser than the table value 0.05 at level of significance.Hence the framed null hypothesis was accepted.

Table 3 Showing the mean Difference of Students- Teacher's Digital Competency Readiness on the Basis of Locality

Locality	N	Mean	SD	t test	Significance
Urban	59	30.423	6.873	0.950217	S
Rural	60	30.633	7.560		

The above table- 3 revealed that t value 0.95 was greater than the table value 0.05 at level of significance.Hence the framed null hypothesis was not accepted.

Table 4 Showing the Mean Difference of Students - Teacher's Digital Competency Readiness on the Basis of Major Subjects

Major Subjects	N	Mean	SD	t test	Significance
Arts	57	31.85	8.899	0.8695	S
Science	62	31.33	8.314		

The above table- 4 revealed that t value 0.86 was greater than the table value 0.05 at level of significance.Hence the framed null hypothesis was not accepted.

Findings of the Study

- There is no significant difference between the male students and female student teacher's digital competency readiness
- There is significant difference between the rural students and urban student teacher's digital competency readiness
- There is significant difference between the arts and science student teacher's digital competency readiness

Conclusion

Nowadays every field changed into digital transformation including educational sector. Teachers began to use digital technologies to teach effectively through digital platforms like Google meet, you tube, twitter, wat's up etc. For that they have to be ready or should be well prepared with their digital knowledge i.e., digital competency. Unless the teachers not ready to use digital tool, the teaching learning become inactive. To get succeed in teaching effectively in this digital era, the teachers who going to teach in future should be aware of digital applications and always ready to work with techno devices.

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We hereby certify that

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In recognition of the Publication of the Paper Entitled

Student- Teacher's Digital Competency Readiness During COVID- 19

Published in

Shanlax International Journal of Arts, Science and Humanities

P-ISSN: 2321-788X, E-ISSN: 2582-0397, Vol. 10, No. 1, July 2022

Dr. N. Ayyanathan
Editor in Chief

Er. S. Lakshmanan
The Publisher

Digitally Signed By:S SANTHI
Digitally Signed
Salem
Signing Date:26.04.2023 11:52

JOURNAL OF EDUCATION: RABINDRA BHARATI UNIVERSITY
ISSN: 0972-7175

HIGH SCHOOL ENGLISH LANGUAGE TEACHERS' DIGITAL COMPETENCE AND READINESS

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Abstract

The aim of this study is to examine the relationship between digital competence and readiness of high school English language teachers. The study was conducted with the survey method, one of the quantitative research methods. Data on digital competence of high school English language teachers were collected with the "Digital Competence Scale", and data on their readiness to teach were collected with the "Teaching Readiness Scale". The researcher used stratified random sampling technique for selecting the sample. The sample consists of 349 high school English language teachers. For analyzing data Percentage Analysis, 't' test, ANOVA and Pearson's product moment co-efficient correlation were the statistical techniques used. Finding of the study revealed that there was a significant positive correlation exists between the digital competence and readiness of high school English language teachers.

Key words: *Digital Competence, Teaching Readiness, High School English Language Teachers*

INTRODUCTION

As digital competence holds an important role, Spante, et.al., (2018) state that digital competences is defined as the general term used to describe or explain the ability (of a citizen, students, a teacher, etc.) to use Information Technology (IT) in a specific context. In addition, it has been analyzed that there are some definitions of digital competence by policy and research (Carretero et.al., 2017). The combination of those definitions reveals that digital competence as a degree of knowledge, skills, attitude and literacy in using ICT. The study of the digital competences is urgently needed because it has been spreading rapidly in the education language. The use of the internet as ICT would give way to a significant improvement in teaching and learning processes. But one of the challenges is how we as a teacher use these materials for teaching and learning purpose. There are some of the challenges teachers may face in utilizing materials from the internet proposed by Weddel (2009). Downing and Dyment (2013) examined teacher educators' readiness and preparation for as well as their perceptions of preparing preservice teachers in a fully online environment and found that teachers considered online teaching time-consuming. The current trends of technological usage force the global use of the internet in higher education institutions in Indonesia. Hadianto, et.al., (2013) state that the long-term success of internet use highly depends on the teacher's readiness in integrating the application in the teaching-learning process.

- Attitude readiness: Several e-learning programs do not emphasize the teacher's attitude towards the use of web resources in the classroom. Nevertheless, teachers' attitudes constitute one of the major factors affecting their initial acceptance of computer technology and their future behavior regarding computer usage. Teacher's attitude is also regarded as one of the important factors in adopting the new technology.
- Motivation readiness: Motivation is one of the major issues toward e-learning.
- Awareness readiness: To integrate technology into the classroom, the awareness factor should be possessed by teachers.

In the aim of this study is to examine the relationship between high school English language teachers' digital competence and readiness. Accordingly, answers to the following questions were sought in the study:

- What is the level of high school English language teachers' digital competence and teaching readiness levels?
- Do digital competence and teaching readiness differ significantly according to gender and locality level variables?
- Is there a significant relationship between digital competence and teaching readiness?

RESEARCH METHODOLOGY

Instrument

Digital competence questionnaire developed by investigator based on the digital competence tool was used as a data collection tool in the study. The questionnaire was prepared to cover five dimensions of digital competence (information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving). In the development of the questionnaire, an investigator for digital competence prepared by Carretero et al. (2017) was used. It was a 5-point Likert-type questionnaire ranging from 1 (strongly disagree) to 5 (strongly agree).20-items of teaching readiness instrument from the University of Toledo (2017), which had categorized the readiness skills into basic technical skills, learning management system experience, course planning and time management, and communication. It was a 4-point Likert-type questionnaire

Research Sample

Sample of the study consisted of 349 high school teachers teaching of English in high schools from Salem district. While determining the sample of the study, the researcher used stratified random sampling technique for selecting the sample of the study.

DATA ANALYSIS AND FINDINGS

Findings based on the objectives and followed by data analysis are given as follows;

Q:1 What is the level of high school English language teachers' digital competence and teaching readiness?

Table 1. The level of digital competence of high school English language teachers

DIMENSIONS	LOW		MODERATE		HIGH	
	N	%	N	%	N	%
Information and data literacy	88	25.21	146	42.69	115	32.95
Communication and collaboration	96	27.51	123	35.24	130	37.24
Digital content creation	93	26.65	137	39.25	119	34.09
Safety	102	29.23	138	39.54	109	31.23
Problem-solving	112	32.09	115	32.95	122	34.95

88 (25.21%) high school English language teachers have Low level while 115 (32.95%) have Moderate level in the dimension in formation and data literacy, 123 (35.24%)high school English language teachers have Moderate level in the dimension communication and collaboration, 119 (34.09%)high school English language teachers have High level in the dimension digital content creation, 102 (29.23%)high school English language teachers have Low level in the dimension safety while 112 (32.09%) high school English language teachers have Low level, 115 (32.95%) have Moderate level and 122 (34.95%) have high level in the dimension problem solving.

Table 2. The level of teaching readiness of high school English language teachers

DIMENSIONS	LOW		MODERATE		HIGH	
	N	%	N	%	N	%
Technical skills	99	28.36	136	38.96	116	33.23

Learning management system experience	114	32.66	128	36.67	107	30.65
Course planning and time management	86	24.64	115	32.95	148	42.40
Communication	101	28.93	129	36.96	119	34.09

99 (28.36%) high school English language teachers have Low level while 136 (38.96%) have Moderate level in the dimension technical skills, 128 (36.67%)high school English language teachers have Moderate level in the dimension Learning management system experience, 86 (24.64%)high school English language teachers have Low level and 148 (42.40%) high school English language teachers have High level in the dimension course planning and time management while 101 (28.93%) high school English language teachers have Low level, 129 (36.96%) have Moderate level and 119 (34.09%) have high level in the dimension communication.

Q:2 Do digital competence and teaching readiness differ significantly according to gender and locality variables?

Table 3. Difference in digital competence of high school English language teachers with reference to Gender

Digital Competence	Gender	N	Mean	S D	t value	p value
Information and data literacy	Male	114	28.70	4.619	2.271	0.004**
	Female	345	28.32	4.920		
Communication and collaboration	Male	114	21.70	3.271	2.552	0.013**
	Female	345	21.45	4.522		
Digital content creation	Male	114	17.57	3.559	2.623	0.001**
	Female	345	17.27	4.771		
Safety	Male	114	23.16	4.643	0.159	0.325*
	Female	345	23.25	4.937		
Problem solving	Male	114	16.46	3.364	2.197	0.002**
	Female	345	17.28	4.721		

****- Significant, *- Not Significant**

From the above table it is found that the calculated P value is greater than 0.05 and it is not significant at 5% level in the dimension safety. Hence the formulated hypothesis is accepted in this case. But the calculated P values are less than 0.05 and are significant at 5% level in the dimension's information and data literacy, communication and collaboration, digital content creation and problem-solving. Hence the formulated hypothesis is not accepted in these cases.

Conclusion

- Male and Female high school English language teachers do differ in the dimension safety of digital competence.
- Male and Female high school English language teachers do not differ in the dimension's information and data literacy, communication and collaboration, digital content creation and problem-solving of digital competence.

Table 4. Difference in digital competence of high school English language teachers with reference to Locality

Digital Competence	Locality	N	Mean	S D	t value	p value
Information and data literacy	Rural	220	30.72	4.295	16.460	0.000**
	Urban	129	25.43	2.505		
Communication and collaboration	Rural	220	21.26	5.155	6.877	0.000**
	Urban	129	22.06	2.767		
Digital content creation	Rural	220	16.13	3.288	7.443	0.000**
	Urban	129	13.81	4.047		

Safety	Rural	220	24.25	3.912	13.287	0.000**
	Urban	129	21.13	5.769		
Problem solving	Rural	220	15.60	2.748	14.997	0.000**
	Urban	129	13.92	1.787		

****-Significant**

From the above table it is noted that the calculated P value of digital competence of high school English language teachers are less than 0.05 and not significant at 5% level in all the dimensions information and data literacy, communication and collaboration, digital content creation, safety and problem-solving. Hence, the stated null hypothesis is accepted.

Conclusion

- Rural and Urban high school English language teachers do not differ in the dimensions information and data literacy, communication and collaboration, digital content creation, safety and problem-solving of digital competence.

Table 5. Difference in readiness of high school English language teachers with reference to Gender

Readiness	Gender	N	Mean	S D	t value	p value
Technical skills	Male	114	27.70	3.519	3.282	0.000**
	Female	345	26.32	4.870		
Learning management system experience	Male	114	22.70	2.171	4.509	0.013**
	Female	345	21.45	5.422		
Course planning and time management	Male	114	18.57	3.659	3.634	0.001**
	Female	345	17.27	4.671		
Communication	Male	114	22.16	4.543	1.155	0.005*
	Female	345	23.25	4.832		

****- Significant**

From the above table it is noted that the calculated P value of readiness of high school English language teachers are less than 0.05 and not significant at 5% level in all the dimensions teaching skills, learning management system experience, course planning and management, communication. Hence, the stated null hypothesis is accepted.

Conclusion

- Male and Female high school English language teachers do not differ in the dimensions teaching skills, learning management system experience, course planning and management, communication of readiness.

Table 6. Difference in digital competence of high school English language teachers with reference to Locality

Readiness	Locality	N	Mean	S D	t value	p value
Technical skills	Rural	220	29.72	4.278	13.520	0.000**
	Urban	129	27.13	2.542		
Learning management system experience	Rural	220	20.14	4.132	10.851	0.000**
	Urban	129	21.86	5.821		
Course planning and time management	Rural	220	15.19	3.178	9.443	0.000**
	Urban	129	12.73	2.275		
Communication	Rural	220	23.29	4.378	12.287	0.000**
	Urban	129	22.42	4.790		

****-Significant**

From the above table it is noted that the calculated P value of readiness of high school English language teachers are less than 0.05 and not significant at 5% level in all the dimensions

teaching skills, learning management system experience, course planning and management, communication. Hence, the stated null hypothesis is accepted.

Conclusion

- Rural and Urban high school English language teachers do not differ in the dimensions teaching skills, learning management system experience, course planning and management, communication of readiness.

Q:3 Is there a significant relationship between digital competence and teaching readiness high school English language teachers?

Table 7. Relationship between digital competence and teaching readiness of high school English language teachers

Variables	Pearson Correlation "r" Value	P value	Level of Significance
Digital Competence and Readiness	0.763	0.000**	Significant at 1% level

From the above table showing p values are less than 0.01, the null hypothesis not accepted at 1% level of significance. Hence it can be concluded that there is significant positive correlation exists in digital competence ($r=0.763$, $p<0.01$) among high school English language teachers in readiness.

Conclusion

- There is significant positive correlation exists between the digital competence and readiness of high school English language teachers.

FINDING OF THE STUDY

- The level of high school English language teachers' digital competence and teaching readiness is moderate.
- Male and Female high school English language teachers do differ in the dimension safety of digital competence.
- Male and Female high school English language teachers do not differ in the dimension's information and data literacy, communication and collaboration, digital content creation and problem-solving of digital competence.
- Rural and Urban high school English language teachers do not differ in the dimension's information and data literacy, communication and collaboration, digital content creation, safety and problem-solving of digital competence.
- Male and Female high school English language teachers do not differ in the dimensions teaching skills, learning management system experience, course planning and management, communication of readiness.
- Rural and Urban high school English language teachers do not differ in the dimensions teaching skills, learning management system experience, course planning and management, communication of readiness.
- There is significant positive correlation exists between the digital competence and readiness of high school English language teachers.

SUMMARY

From the present study it is found that the digital competence and readiness of high school English language teachers' is moderate. It is found out that there is a significant positive correlation

exists between the digital competence and readiness of high school English language teachers. The findings suggest the need for implementing a digital competence through teaching English classroom that will not only help realize operational skills but also informational and strategic ones. To facilitate the development of the digital competence required to use digital technologies in the classroom, these skills must be completely incorporated into all traditional art and design topics to establish a subject-based digital competence. Finally, formal art and design education curricula should explore incorporating the strength of informal approaches to the development of digital competence. With the help of diagnosable techniques, the consequences of an empirical study of teacher's readiness for training by interactive methods as a condition for the development of creative abilities are proposed. The aspects of teacher readiness that have been discussed are among the fundamental aspects that are essential to the high school English language teachers in improving their professionalism, especially in English in high schools. With an understanding and effective application in these aspects, the implementation of the teaching and learning process.

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Journal of Education
Rabindra Bharati University

ISSN: 0972-7175
A Peer Reviewed Journal

CERTIFICATE OF PUBLICATION

This is to certify that the article entitled

HIGH SCHOOL ENGLISH LANGUAGE TEACHERS' DIGITAL COMPETENCE AND READINESS

Authored By

Dr.R.Selvamathi Sugirtha

Assistant Professor of Biological Science, Sri Sarada College of Education (Autonomous), Salem-16

Published in

Journal of Education: Rabindra Bharati University
ISSN : 0972-7175

Vol. : XXIV, No. :1(XIX), 2022

UGC CARE Approved, Peer Reviewed and Referred Journal

Journal of Education
Editor
Journal of Education

Digitally Signed By:S SANTHI
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Salem
Signing Date:26.04.2023 11:52

Certificate of Publication

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS | ISSN: 2320 - 2882

An International Open Access, Peer-reviewed, Refereed Journal

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In recognition of the publication of the paper entitled

META-COGNITIVE AWARENESS OF PRE-SERVICE TEACHERS IN SALEM DISTRICT

Published In IJCRT (www.ijcrt.org) & 7.97 Impact Factor by Google Scholar

Volume 8 Issue 11 , Date of Publication:November 2020 2020-11-29 02:27:59

PAPER ID : IJCRT2011383

Registration ID : 201166

ISSN 2320-2882 IJCRT

International Journal of Creative Research Thoughts (IJCRT)

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Scholarly open access journals, Peer-reviewed, and Refereed Journals, Impact factor 7.97 (Calculate by google scholar and Semantic Scholar | AI-Powered Research Tool) , Multidisciplinary, Monthly Journal

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS | IJCRT

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Website: www.ijcrt.org | Email id: editor@ijcrt.org | ESTD: 2013

IJCRT | ISSN: 2320-2882 | IJCRT.ORG

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

META-COGNITIVE AWARENESS OF PRE-SERVICE TEACHERS IN SALEM DISTRICT

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Sri sarada college of education for women, Salem-16.

ABSTRACT

Meta-cognitive awareness is more essential for pre-service teachers. Because thinking about thinking give more critical thinking knowledge to planning , monitoring and evaluating situations. The study explain meta-cognitive scores of pre-service teachers in Salem district. 321 pre-service teachers meta-cognitive scores discussed in this study. High score of pre-service teachers are very benefited person in the teaching learning process.

1.1.INTRODUCTION

Self-understanding of individual to develop the strengths and decrease the weakness of person, and give the direction to what way of life you learn. Good understanding give self-confidence of the human being. Meta-cognitive awareness to prevent the person in critical situation. Knowledge, planning, monitoring, evaluating are the main process in teaching profession. So the awareness of the dimensions very useful and supportive success professional skill of pre-service teachers.

1.2.NEED AND SIGNIFICANCE OF THE STUDY

Today's Pre-service teachers are the future role model of teachers in the younger generation. So the present and future problem solving knowledge will be acquire in the meta-cognitive awareness. In the class room and outer side of the class room monitored by the pre-service teachers with the help of awareness only.

1.3.STATEMENT OF THE PROBLEM

The present study is titled "**META-COGNITIVE AWARENESS OF PRE-SERVICE TEACHERS IN SALEM DISTRICT".**

1.4.DEFINITIONS OF KEY TERMS

Definitions of key terms in the title of the study are given below:

1.4.1.Meta-cognitive awareness

Meta-cognition is "thinking about thinking to improve learning". Meta-cognition includes knowing what you know and don't know; understanding person, task, and strategy variables; planning, monitoring, evaluating and reflecting. Meta-cognition is an invaluable skill for learning in every area: academic, socio-emotional, the arts, physical education, and service education.(The little golden book of meta-cognition by Susan Stevens,2017)

Meta-cognitive awareness means being aware of how you think. Meta-cognition is the awareness of one's thinking and the strategies one is using. It enables students to be more mindful of what they are doing, and why, and of how the skills they are learning might be used differently in different situations.

1.4.2.Pre-service teachers

Pre-service teaching is a period of guided, supervised teaching. The student teacher is gradually introduced in to the teaching role by a or co-operating teacher. The student teacher begins as an observer and finishes the pre-service teaching experience as a competent of professional.

1.5.VARIABLES OF THE STUDY

The investigator has chosen the gender, locality, type of management and year of study the independent variables and meta-cognition the dependent variable.

1.6.OBJECTIVES OF THE STUDY

1. To understand the meta-cognition awareness of pre-service teachers.

2. To find out whether there is any significant difference in the meta-cognition awareness scores of pre-service teachers with respect to gender, locality, year of study and type of management.

1.7.HYPOTHESES OF THE STUDY

Keeping in view the objectives of the study the following null hypothesis have been framed:

1. There is no significant difference in the mean scores of meta-cognition awareness of pre-service teachers based on their gender.

2. There is no significant difference in the mean scores of meta-cognition awareness of pre-service teachers based on locality.

3. There is no significant difference in the mean scores of meta-cognition awareness of pre-service teachers based on their year of study.

4. There is no significant difference in the mean scores of meta-cognition awareness of pre-service teachers based on the type of management.

1.8.METHOD OF THE STUDY

As the present study deals with the meta-cognition awareness of pre-service teachers , the investigator adopted the survey method which was found suitable to gather the essential and relevant data.

1.9.STATISTICAL TECHNIQUES USED

The investigator used descriptive analysis for the preliminary analysis of the data. The t-test and ANOVA was used to find out the significant difference between the mean scores of different groups of variables.

1.10.DELIMITATIONS OF THE STUDY

Research studies in general will have limitations due to many factors. It is the responsibilities of the researcher to see that study is conducted with maximum care in order to be reliable. However, the following limitations were unavoidable in the present study.

1. The study was confined to only Pre-service teachers of Salem educational District, Tamil Nadu.

2. The study is delimited to Salem District of Tamil Nadu.

In spite of the above cited limitations, sufficient care has been taken in selecting the sample, gathering reliable data, and applying appropriate data and statistical analysis etc.

1.11.SAMPLE

The investigator selected four colleges in Salem Educational District. For this present study 321pre-service teachers were selected as the sample from four colleges randomly. This sample includes male and female, study of first year and second year , rural and urban, government, aided and private pre-service teachers.

1.12.TOOL USED FOR COLLECTING DATA

The tool used to find the pre-service teachers meta-cognition awareness adopted the meta-cognition inventory scale, its reliability value was 0.83.

1.13.FINDINGS OF THE STUDY

The collected data were statically analyzed to realize the objectives of the study. In that process the following findings have been observed.

The mean difference in meta-cognition awareness of pre-service teachers based on gender was significant at 0.05 level. The mean score obtained for female pre-service teachers were found to be higher than male teachers. It shows that female teachers exhibit better awareness than male teachers.

The mean difference in meta-cognition awareness of pre-service teachers based on locality was significant at 0.01 level. The mean score obtained for pre-service teachers in urban were found to be higher than those in rural. It shows that pre-service teachers in urban exhibit better awareness than pre-service teachers in rural. The mean difference in meta-cognition awareness of pre-service teachers based on year of study was significant at 0.01 level. The mean difference in meta-cognition awareness of pre-service teachers based on the type of management was significant at 0.05 level. Pre-service teachers in aided were found to possess better awareness than pre-service teachers studied in government colleges. Also, pre-service teachers studied in private colleges were found to possess better awareness than pre-service teachers studied in government schools.

1.15.IMPLICATION OF THE STUDY

The findings of the study will be of immense use in understanding the meta-cognition awareness of pre-service teachers classified on the basis of gender, locality, year of study and type of management.

1.16.SUGGESSIONS FOR FURTHER RESEARCH

1. The present study was carried out in Salem district only. It can be extended all over the Tamil Nadu state.

2. The present study was confined to pre-service teachers . It may be extended to the teachers working at all levels.

1.17.CONCLUSION

Teaching-learning is a wonderful process. The process done by knowledge, planning of process, monitoring the situations, evaluating the knowledge with score are skill identification. In this process very effective and useful with the meta-cognitive awareness. So the pre-service teachers meta-cognitive awareness is more needed in present and future also.

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SELF-EFFICACY OF PROSPECTIVE TEACHERS

Authored By

Dr. R. Selvamathisugirtha,
Assistant Professor of Biological Science, Sri Sarada College of Education (Autonomous), Salem-16

Published In

Anvesak, **ISSN : 0378 – 4568**

Vol. 52, No. 02(I) : July – December 2022

UGC Care Group – 1, Peer Reviewed, bi-annual Journal

Editor
Anvesak

Digitally Signed By:S SANTHI
Digitally Signed
Salem
Signing Date:26.04.2023 11:52

शोध-प्रभा
Shodha Prabha

UGC CARE LISTED
ISSN : 0974-8946

CERTIFICATE OF PUBLICATION

This is to certify that the article entitled

LEARNING STYLES OF PROSPECTIVE TEACHERS

Authored By

Dr. R. Selvamathisugirtha,
Assistant Professor of Biological Science, Sri Sarada College of Education (Autonomous), Salem-16

Published in
Shodha Prabha; ISSN 0974-8946
Volume-47, Issue-1, No.15 : 2022
UGC Care Approved, Group I, Peer Reviewed and Referred Journal

ज्ञान-विज्ञान विमुक्तये
UGC
University Grants Commission

Digitally Signed By:S SANTHI
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Editor
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Shodha Prabha

JERE

ISSN 0973-6190

JOURNAL OF EDUCATIONAL RESEARCH AND EXTENSION

Peer Reviewed Quarterly Journal

January - March 2022 Vol. 59 No. 1

SRI RAMAKRISHNA MISSION VIDYALAYA
COLLEGE OF EDUCATION
(AUTONOMOUS)
COIMBATORE - 641 020.

VOL. 59 (1)
JANUARY - MARCH 2022

ISSN 0973-6190

Peer Reviewed Quarterly Journal

JOURNAL OF EDUCATIONAL RESEARCH AND EXTENSION

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COLLEGE OF EDUCATION (AUTONOMOUS)
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International Refereed & Blind Peer-Reviewed Research Journal

Vol. : 7, Issue : 1
Apr.-May-Jun. (2018), Pages : 87 - 92
ISSN : 2278 - 5949

MENTAL HEALTH AND INTERPERSONAL TRUST AMONG UNDER GRADUATE STUDENTS

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Received : 23/03/2018 *1st BPR* : 27/03/2018 *2nd BPR* : 05/04/2018 *Accepted* : 09/04/2018

ABSTRACT

Mental health and interpersonal trust are important for all round development of the personality of a person. This study attempts to investigate into the relationship between mental health and interpersonal trust of college students. The researcher has used the normative survey method for educational research. Survey method is the application and adaptation of the classical method. From the general findings of the study, in the early stage, the under graduate students had low interpersonal trust levels, and they rarely participated in group activities. However, life of a student's is essential to the welfare of human community; and their individual growth has played a vital role in their groups. If anyone loses communication opportunities with others for long period, it leads feelings of emptiness, depression and disappointment will haunt him/her.

INTRODUCTION

In the early 20th century they became apparent a commendable interest in the problems of mental health. The nature of mental health is not yet fully understood but is known about conditions of health. *Some of the physical conditions of well-being are care of body, cleanliness,* care of eyes and other sense *organs, dental care proper food, fresh air, adequate lighting, and type of activity,* or exercise, studied in the nature and need of the individual. The conditions of mental health and not fully understood, but a large number of simple and useful rules may help us in the task of maintaining poise, serenity self-control.

Human life is complex, at every instance the individual has to adopt himself the ever changing situations. He makes compromises, manipulates circumstance and enters into agreement with others for smooth functioning of life. He tries to fulfill and realize his needs and aspirations through intelligent management of the environment.

Good health depends on the state of both mind and body. Such events a direct influence on the othe but owing to the power of mind over matter, good mental health is supreme importance.

According to **Hadfield,** "Mental health is the full and harmonious functioning of the whol personality."

Metal health has received attention of psychologists and others engaged in the study of huma nature right from the beginning. Approaches to treatment of mentally ill people, however, have bee different from age to age and person to person. Traditional ideas die hard. Not with standing advances i ll branches of knowledge, numerous categories of people still have belief in demons, ghosts or witchcraft as a means of driving away the evil spirit from the mentally ill.

"Mental health is the various strains of the environment we meet in life and mental hygiene as th eans we take to assure the adjustment" **(Cutts. E and Nicholas, 1967.)**

The chief characteristic of mental health, it is evident, is adjustment, the greater the degree

ISSN: 2455-2631

© August 2019 IJSDR | Volume 4, Issue 8

EMOTIONAL INTELLIGENCE OF SECONDARY SCHOOL STUDENTS

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Salem.

Abstract: **The purpose of this research was to investigate the study on Emotional Intelligence of Secondary school students. In this Quantitative study, demographic questionnaire, the Emotional Intelligence scale (SCHUTTE), for this study was used. One fifty samples were chosen from Government, Government –aided and Private Schools in and around the Salem with randomized way allocated. The data were analysed using descriptive and inferential. Result exposed significant increase in Emotional Intelligence.**

Keywords: **Emotional intelligence, Secondary school students, Male and female.**

INTRODUCTION

Education is viewed as the most powerful instrument of social change, his contribution to educational thoughts is of paramount importance. He defines education as the manifestation of perfection that is already exists in man. Education is a continuous process; it should cover all aspects of life- physical, mental, emotional, moral, and spiritual. His attitude towards modernization is that the masses should be educated before anything else is done. He wanted to remove four major evils from India: priest-craft, poverty, ignorance and tyranny of the wise. He tried to make people understand that political and social strength should have their foundation of cultural strength.

Swami Vivekananda suggested that education should not be for stuffing some facts into the brain, but should aim at reforming the human mind. True education to him, was not for the carrier, but for the contribution of the nation. The supreme need of the education is to counteract the emotional, moral, and cultural collapse. Only a process of good system of education can bring about a healthy political and social life. Swami Vivekananda stands for this message is for all time.

As learning is an emotional process, under the control of the emotions, it is also important to help students know the emotional intelligence works to help or hinder the Emotional Intelligeneer success as a student.An emotion is a physiological response to a situation that is too important to leave to intellect alone, such as danger, painful loss, persisting towards a goal despite frustrations, bonding with a mate, building a family. In effect, man has two minds one that thinks and one that feels. While they use hundreds of words to describe emotions, they are commonly related to about eight basic emotions: anger, fear, happiness, sadness, love, surprise, disgust, and shame.

The four branches of emotional intelligence

Emotional Intelligence can be described as having four branches

The ability to accurately perceive Emotion. Perceiving emotions is the ability to identify emotion in self and other
Expressing emotion, Facilitating emotions is the ability to use information that explains felt emotion in order to prioritize direct thinking
Assimilating emotion into thought
Understanding emotion and regulating emotions in the self and others

REVIEW OF RELATED LITERATURE

Allahi, Abbas; Hosseinian, Siminet. al., (2019) studied the*Emotional intelligence as a moderator between perfectionism and happiness.*Happiness plays a key role in influencing adolescent performance in a variety of contexts. The present study was designed to investigate the relationships between perfectionism, emotional intelligence, and happiness and to test the moderating role of emotional intelligence in the relationship between perfectionism and happiness among Malaysian adolescents.

Gore, Ami(2018), studied the*emotional intelligence of self -regulated learners.*The study was conducted on self- regulated learners of senior secondary school. The main objectives of the study were to find out significant dimensions of emotional intelligence held by self- regulated learners. To compare the emotional intelligence dimensions of self- regulated learners, in terms of subject and gender. To find out the relationship between the self- regulated learning and emotional intelligence of self- regulated learners.The results show that there is a significant difference between boys and girls in respect to 'self- actualization'. It reveals that girls are more self -actualized than boys as girls are more enthusiastic, do work with more responsibility, and feel satisfaction in doing quality work. Results reveal that there is a positive correlation between self- regulated learning and emotional intelligence of self- regulated learners.

No : IJSDR / Vol 4 / Issue 8 / 042

International Journal of Science & Engineering Development Research
ISSN
2455-2631

R. Selvamathi Sugirtha

ct: Publication of paper at International Journal of Science & Engineering Development Research.

Author,

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tion ID : IJSDR_190940
: IJSDR1908042
Paper : EMOTIONAL INTELLIGENCE OF SECONDARY SCHOOL STUDENTS
actor : 5.47 (Calculate by Google Scholar)
:
l in : Volume 4 | Issue 8 | August-2019
: 257 - 263
URL : http://www.ijsdr.org/viewpaperforall.php?paper=IJSDR1908042
: Dr. R. Selvamathi Sugirtha

very much for publishing your article in IJSDR. We would appreciate if you continue rt and keep sharing your knowledge by writing for our journal IJSDR.

ief
Journal of Science & Engineering Development Research
2631)

INTERNATIONAL JOURNAL OF SCIENCE & ENGINEERING DEVELOPMENT RESEARCH
An International Open Access Journal
ISSN: 2455-2631

Certificate of Publication

The Board of

International Journal of Science & Engineering Development Research

Is hereby awarding this certificate to

Dr. R. Selvamathi Sugirtha

In recognition of the publication of the paper entitled

EMOTIONAL INTELLIGENCE OF SECONDARY SCHOOL STUDENTS

Published in

Volume 4 Issue 8, August-2019

ISSN 2455-2631

Co-Authors -

Paper ID - IJSDR1908042

Editor-in Chief

Self Directed Learning Attitude towards Mathematics and Cognitive Strategy of High School Students

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Abstract

In self- directed learning (SDL), the individual takes the initiative and the responsibility for what occurs, Individuals select, manage, and assess their own learning activities, which can be pursued at any time, in any place, through any means, at any age. In schools, teachers can work toward self- directed learning a stage at a time. Teaching emphasizes self- directed learning skills, process, and systems rather than content coverage and tests. For the individual, self -directed learning involves initiating personal challenge activities and developing the personal qualities to pursue them successfully. Attitude is a positive or negative reaction to a person, object or idea "An attitude is an organized and consistent of thinking, feeling and reacting with regard to people, groups, social issues or any event in one's environment. It's essential components are thoughts and beliefs, feelings and tendencies to react".

KEYWORDS :self-directed learning, cognitive strategy, attitude

INTRODUCTION

SELF-DIRECTED LEARNING

In self directed learning (SDL), the individual takes the initiative and the responsibility for what occurs, Individuals select, manage, and assess their own learning activities, which can be pursued at any time, in any place, through any means, at any age. In schools, teachers can work toward self directed learning a stage at a time. Teaching emphasizes self directed learning skills, process, and systems rather than content coverage and tests. For the individual, self-directed learning involves initiating personal challenge activities and developing the personal qualities to pursue them successfully.

ATTITUDE

Attitude is a positive or negative reaction to a person, object or idea "An attitude is an organized and consistent of thinking, feeling and reacting with regard to people, groups, social issues or any event in one's environment. It's essential components are thoughts and beliefs, feelings and tendencies to react".

COGNITIVE STRATEGY

Cognitive strategy instruction, which is sometimes referred to as general strategy instruction may be described as a way of supporting students to direct their actions to meet learning goals. Simply put, "a strategy is a tool, plan, or method used for accomplishing atask" it tends to concentrate and enhance effort. A cognitive strategy is "a strategy or group of strategies or procedures that the learner uses to perform academic

Wesleyan Journal of Research ,Vol.14 No1(XXXI)
ISSN : 0975-1386

Research Article : Commerce

PERCEPTION OF E-WASTE AWARNESS, MANAGEMENT AND DISPOSAL OF SECONDARY LEVEL TEACHER TRAINEES

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ABSTRACT

The purpose of this study was to find out the perception of e-waste pollution and its relationship between the dimensions viz management and disposal of secondary level teacher trainees. Environmental issues are the major threats for many consequences happening now a day. E-waste become one the most important environmental issues in today's electronic world. In this study, normative survey method was adopted. The sample consists of 1774 B.Ed, teacher trainees from Tamilnadu, India. The findings obtained from the research shows that gender doesn't made any significant difference among the B.Ed, teacher trainees. There was a significant difference obtained from the trainee teachers who were studying environmental as a subject, being a member of eco- club and studying science as a stream of study. Based on the findings of this study, it is recommended that introducing environmental education as a major subject and encourages the trainees to get participated in awareness programmes related to environmental issue which enable them to understand the environmental issues.

Keywords: E-waste pollution, awareness, management, disposal, Secondary level teacher trainees.

INTRODUCTION

Now a day's development of science and technology has bring the world in to our hands, by swiping with the android phones individuals assess information and get all sort of things through online markets. Electronic industries are increased in numbers due to urbanizing and all human activities are controlled by the electronic devices. Numerous types of electronic devices are used by the people hence urges the high level of production of electronic equipments by the industries. When the e-product fails to functioning within its life time, few internal technical problems, nearing its life time and expiry of its life times or reached end life are known as e-waste. Sometimes we refuse to repair and reuse the e-waste. The source of e-waste refers to all types unused, expired and unfit for usages of electrical and electronic products considered as waste by the users like televisions, mobile phones, remote controllers, kitchen appliances, washing machines, dish washers, air conditioners, microwave ovens, batteries, wires, digital calculators, computers, laptops, light emitting lamps, water heater, mobile phone chargers, head sets, kids electronic toys with remote controllers, personal hygienic equipments, digital clocks, printers, scanners, medical equipments and industrial electronic machineries, etc. E-waste contains rich source and valuable substances and also harmful substances are presents in the e-wastes which cause harmful effects to the environment, human and ecological components. There are various harmful chemicals like Mercury, Lead, Barium, Chromium Cadmium, Arsenic, Beryllium and Nickel on the other hand some non hazardous chemical substances like gold, copper, aluminum, iron, silicon, zinc are presents in the e-wastes. The harmful chemicals affect and create various types of issues to the environment especially the human, the toxic chemicals creates health issues to the humans, animals and plants. The hazardous arise due to improper awareness, management, recycling of e-waste and improper disposal. Most of the products can be used again, donated within their community people which leads to less harmful to our environment.

NEED AND SIGNIFICANCE OF THE STUDY

We are living in digital era; all the human activities are depended and controlled by the electronic devices. During pandemic period human beings mainly depending on electronic devices. These electronic devices become e-waste when its life time expires. Huge amount of e-waste generated every years which are harmful to our environment and living things. We are the first generation experiencing more environmental related issues compare to past generations. Awareness, management and

disposal were the primary source to overcome any sort of environmental issues. Most of the non-renewable resources were vanished by our generation; nothing was left out for our future generation. This is the crucial time for us to rectify our error by recycling, reusing our e-wastes for our betterment environment. Hence the present study deals with the e-waste pollution.

REVIEW OF RELATED LITERATURE

Pinar Ozdemir Deniz, et.al (2019) undertook a cross-sectional study on e-waste awareness in turkey. First year and fourth year engineering student**s** from various departments were selected. Findings showed that gender doesn't have any significant difference in e-waste pollution and also the positive low level of correlation exists between awareness and e-waste regulation. Most of the students keep the e-waste in their home and they were not ready to donate with their friends and family members. While disposal of e-waste most of them burry in the landfill and no idea about the disposal of e-waste. Awareness about e-waste should be incorporated with the curriculum at the graduate level and also practical session introduced rather than the theory session to increase the knowledge and awareness about e-waste pollution.

Ayse Nesibe Koklukaya, et.al (2017) pointed out the importance of electromagnetic pollution and its effects. The researcher undertook a study on pre-service teacher trainees' awareness level of electromagnetic pollution. 76 pre-service teachers were selected through purposive sampling method from Ankara, Turkey. The result revealed that gender does not make any significant difference towards the awareness level of electromagnetic pollution and the female had scored a higher mean score than the male. The second interesting result was made based on an environmental course. The trainees who are taking environmental as a subject had significantly differed from those who had not taken environmental as a subject. There was no relationship between the awareness level of electromagnetic pollution and using an electromagnetic device. The investigator suggested to include electromagnetic pollution and other related concepts should be incorporated with the curriculum.

C.D. Licy, et.al (2013) probed awareness level of school student household and e-waste in Kerala. The secondary and higher secondary student has participated in this study. The secondary students had attended environmental awareness programmes showed a high level of awareness compared to the higher secondary students evident that awareness programmes had a significant effect. The type of family had no significant difference in solid waste. The students are willing to co-operate with the disposal of e-waste and other solid waste management. Awareness programmes were vital for sustainable development.

Sindhu Bala and Sukirti Goel (2012) conducted a study on e-waste management. 200 undergraduate students which include professional and non-professional streams in Noida city had selected for the study, the findings indicated that there was no awareness regarding the awareness level of the undergraduate students. The science students had more awareness level than the art students. The undergraduate students show a low level of e-waste management. Finally, the researcher suggested that regarding the e-waste very low level of awareness and management had seen in the graduates. Proper awareness and management skills were needed to educate individuals.

OBJECTIVES OF THE STUDY

- To find out the differences in perception on e-waste pollution of B.Ed teacher trainees
- To compare the relationship between the dimensions of e-waste.

HYPOTHESES OF THE STUDY

- There is no significance difference between the male and female B.Ed teacher trainees towards the perception on e-waste pollution.
- There is no significance difference between the arts stream and science stream B.Ed teacher trainees towards the perception on e-waste pollution.
- There is no significance difference between the eco-club member and non-member B.Ed teacher trainees towards the perception on e-waste pollution.
- There is no significance difference between studying and studied environmental science as a subject B.Ed teacher trainees towards the perception on e-waste pollution.
- There is no significance relationship between the dimensions of perception on e-waste pollution.

RESEARCH METHODOLOGY

- ***Research method***: For the present study normative survey method was chosen.
- ***Sample***: The sample consists of 1774 secondary level teacher trainees who were studying two year B.Ed programme during the year 2017-2019. The trainees were selected from eighteen colleges from five districts namely Dharmapuri, Krishnagiri, Salem, Vellore and Thiruvannamalai in Tamilnadu, India.
- ***Sampling technique***: Stratified random sampling technique was used for the present study.
- ***Tool used***: E-waste pollution scale was developed by the researcher. It measures the awareness, management and disposal of pollution. Each dimension consists of seven questionnaires, totally twenty one items in the e-waste pollution questionnaire.
- ***Reliability of the tool***: Cronbach's alpha method was used. The values were calculated as, 0.834, 0.832 and 0.834 for e-waste pollution awareness, e-waste pollution management and e-waste pollution disposal respectively.
- ***Scoring procedure for e-waste pollution scale:*** The tool e-waste pollution consists of 21 items. E-waste pollution item were based on Likert scale of summated rating answer in terms of five alternatives, in the case of E-waste pollution awareness ,"Not at all aware, slightly aware, moderately aware, very aware, and extremely aware" weighing scores 1,2,3,4, and 5 respectively. All the items the tool was positive. E-waste management and disposal dimension items followed by five alternatives ranging from never (1), rarely (2), sometimes (3), often (4) and always (5) respectively. The E-waste disposal consist of (e-waste pollution) seven items, in which all the items are positive except the two items (16, and 20) are negative items and which are reversely scored

ANALYSIS AND INTERPRETATION OF DATA

The analysis of data for the present study was done on the basis of formulated hypothesis of the study. The resulting data were analyzed based on the hypothesis by using appropriate statistical techniques.

Hypothesis-1: There is no significance difference between the male and female B.Ed teacher trainees towards the perception on e-waste pollution.

DIMENSIONS	GENDER	N	MEAN	STANDARD DEVIATION	't' VALUE	S/NS LEVEL(0.5)
EWPA	Male	473	22.78	4.31	1.03	NS
	Female	1301	23.02	4.55		
EWPM	Male	473	21.37	5.60	0.86	NS
	Female	1301	21.63	5.51		
EWPD	Male	473	15.77	5.12	1.80	NS
	Female	1301	16.27	5.10		
EWP	Male	473	59.93	12.70	1.48	NS
	Female	1301	60.92	11.82		

Table-1: showing the mean difference of male and female B.Ed, teacher trainees on E-waste pollution

From the above Table-1, it is evident that the calculated value for e-waste pollution 1.48 is lesser than the critical value 1.96 which is not significant at 0.05 levels. In dimensions wise EWPA, EWPM and EWPD calculated 't' values were 1.03, 0.86 and 1.08 respectively. It indicates that the mean score of male and female do not differ significantly with respect to e-waste pollution and its dimensions. Thus the null hypothesis that there is no significance difference between the male and female B.Ed teacher trainees towards the perception on e-waste pollution is accepted. Further the mean score of EWP of female 60.92 which is higher than the mean score of male 59.93 with corresponding standard deviation 11.82 and 12.70 respectively. It may therefore, said that female were found to have slightly higher in e-waste pollution awareness, management and disposal as compared to their male counterpart. Thus it is concluded that "There is no significance difference between the male and female B.Ed teacher trainees towards the perception on e-waste pollution" is accepted at 0.05 level of significance.

Hypothesis-2: There is no significance difference between the arts stream and science stream B.Ed teacher trainees towards the perception on e-waste pollution

DIMENSIONS	STREAM OF THE STUDY	N	MEAN	STANDARD DEVIATION	't' VALUE	S/NS LEVEL(0.5)
EWPA	Arts	529	21.00	4.08	12.93	S(0.5)
	Science	1245	23.85	4.33		
EWPM	Arts	529	19.85	5.21	8.86	S(0.5)
	Science	1245	22.30	5.52		
EWPD	Arts	529	14.11	4.25	12.23	S(0.5)
	Science	1245	17.00	5.21		
EWP	Arts	529	54.95	10.76	14.13	S(0.5)
	Science	1245	63.08	11.78		

Table-2: showing the mean difference of Arts and Science stream B.Ed, teacher trainees on E-waste pollution

From the above Table-2, it is evident that the calculated value for e-waste pollution 14.13 is greater than the critical value 1.96 which is significant at 0.05 levels. In dimensions wise EWPA, EWPM and EWPD calculated' values were 12.93, 8.86 and 12.23 respectively. It indicates that the mean score of Arts and Science as a stream of study do differ significantly with respect to e-waste pollution and its dimensions. Thus the null hypothesis that there is no significance difference between the Arts and Science as a stream of study B.Ed teacher trainees towards the perception on e-waste pollution is rejected. Further the mean score of EWP of science as a stream of study 63.08 which is higher than the mean score of arts 54.95 with corresponding standard deviation 11.78 and 10.76 respectively. It may therefore, said that science as a stream of study were found to have higher in e-waste pollution awareness, management and disposal as compared to their art as a stream of the study counterpart. Thus it is concluded that "There is no significance difference between the Arts and Science as a stream of study B.Ed teacher trainees towards the perception on e-waste pollution" is rejected at 0.05 level of significance.

Hypothesis-3: There is no significance difference between the eco-club member and non-member B.Ed teacher trainees towards the perception on e-waste pollution

DIMENSIONS	ECO-CLUB	N	MEAN	STANDARD DEVIATION	't' VALUE	S/NS LEVEL(0.5)
EWPA	Member	784	24.58	4.42	14.35	S(0.5)
	Non-member	990	21.67	4.05		
EWPM	Member	784	22.71	5.31	7.93	S(0.5)
	Non-member	990	20.65	5.54		
EWPD	Member	784	17.42	5.42.	9.45	S(0.5)
	Non-member	990	15.12	4.62		
EWP	Member	784	64.71	11.71	13.14	S(0.5)
	Non-member	990	57.45	11.37		

Table-3: showing the mean difference of eco-club member and non-member B.Ed, teacher trainees on E-waste pollution

From the above Table-3, it is evident that the calculated value for e-waste pollution 13.14 is greater than the critical value 1.96 which is significant at 0.05 levels. In dimensions wise EWPA, EWPM and EWPD calculated' values were14.35, 7.93 and 9.45 respectively. It indicates that the mean score of eco-club member and non-member do differ significantly with respect to e-waste pollution and its dimensions. Thus the null hypothesis that there is no significance difference between the eco-club member and non-member B.Ed teacher trainees towards the perception on e-waste pollution is rejected. Further the mean score of EWP of eco-club member 64.71 which is higher than the mean score of non-member 57.45 with corresponding standard deviation 11.71 and 11.37 respectively. It may therefore, said that eco-club member were found to have higher in e-waste pollution awareness, management and disposal as compared to their non-member counterpart. Thus it is concluded that "There is no significance difference between the eco-club member and non-member B.Ed teacher trainees towards the perception on e-waste pollution" is rejected at 0.05 level of significance.

Hypothesis-4: There is no significance difference between studying environmental science as a subject and studied B.Ed teacher trainees towards the perception on e-waste pollution

DIMENSIONS	YEAR OF STUDY	N	MEAN	STANDARD DEVIATION	't' VALUE	S/NS LEVEL(0.5)
EWPA	Studying	940	23.80	4.69	8.73	S(0.5)
	Studied	834	22.01	3.94		
EWPM	Studying	940	22.18	5.27	4.99	S(0.5)
	Studied	834	20.86	5.75		
EWPD	Studying	940	16.58	5.23	3.94	S(0.5)
	Studied	834	15.63	4.93		
EWP	Studying	940	62.57	12.04	7.17	S(0.5)
	Studied	834	58.51	11.74		

Table-4: showing the mean difference of studying environmental science as a subject and studied B.Ed, teacher trainees on E-waste pollution

From the above Table-4, it is evident that the calculated value for e-waste pollution 7.17 is greater than the critical value 1.96 which is significant at 0.05 levels. In dimensions wise EWPA, EWPM and EWPD calculated' values were 8.73, 4.99 and 3.94 respectively. It indicates that the mean score of studying environmental science as a subject and studied environmental science as a subject do differ significantly with respect to e-waste pollution and its dimensions. Thus the null hypothesis that there is no significance difference between the studying environmental science as a subject and studied environmental science as a subject B.Ed teacher trainees towards the perception on e-waste pollution is rejected. Further the mean score of EWP of studying environmental as a subject 62.57 which is higher than the mean score of studied 58.51 with corresponding standard deviation 12.04 and 11.74 respectively. It may therefore, said that science as a stream of study were found to have higher in e-waste pollution awareness, management and disposal as compared to their studied environmental as a subject counterpart. Thus it is concluded that "There is no significance difference between the studying environmental science as a subject and studied B.Ed teacher trainees towards the perception on e-waste pollution" is rejected at 0.05 level of significance.

Hypothesis-5: There is no significance relationship between the dimensions of perception on e-waste pollution.

E-WASTE POLLUTION	EWPA	EWPM	EWPD
EWPA	1	.449	.458
EWPM		1	.461
EWPD			1

Table-5: showing the Relationship between the dimensions of E-waste pollution of B.Ed, teacher trainees

The above Table-5 shows the calculated 'r' values of e-waste pollution between the dimensions. Significant relationship was found in all cases. Hence the formulated null hypothesis is rejected in all the cases. There is a moderate positive significant relationship exists between the dimensions of EWPA and EWPM, EWPA and EWPD and EWPM and EWPD.

DISCUSSION AND RECOMMENDATIONS

The findings of the above mentioned hypotheses indicate the perception of e-waste pollutions and its dimensions based on demographic variables. Gender does not make any significance which confirms the result of Deniz P.O. et.al (2019) and Ayse Nesibe Koklukaya, et.al. (2017) also found no significance based on gender. In present study female had higher mean score which confirms with the result of Ayse Nesibe Koklukaya, et.al. (2017). Furthermore the study revels science trainees had significant difference with arts which confirms the result of Sindhu Bala and Sukirti Goel (2012) also found science students differ from art students. the present study reveals that studying environmental as a subject differ significantly with their counterparts which confirms the result of Ayse Nesibe Koklukaya, et.al. (2017) who also found that environmental subject taking students differ significantly compare to the non taking environmental paper. From the study it is evident that there is moderate positive relationship exist between the dimensions of e-waste pollutions which is contrast with the findings of Deniz P.O. et.al (2019) who found low positive relationship between the awareness level of e-waste pollution.

Based on the findings, it is recommended that environmental education subject should be incorporated in all levels of education starting from primary level to university level. Awareness programmes and seminars regarding environmental issues should be conducted in every academic year. By increasing the number of environmental course will definitely raise the awareness level and also environmental literacy.

CONCLUSION

The present study aimed to find out the perception of e-waste pollution awareness, management and disposal. The level of e-waste pollution awareness, management and disposal and its consequences were influenced by multiple factors of gender, stream of the study, member of eco club and studying environmental course as a subject. There is a moderate positive significant relationship exists between the dimensions of e-waste pollution. As the result obtained by the analysis of data it has been found that, gender does not made any significant difference in e-waste pollution and its dimensions. The findings of the present study reveals that the B.Ed, teacher trainees who were studying environmental as a subject, being a member of eco-club and science as a stream of study has a significant difference in e-waste pollution awareness, management and disposal compared with their counterparts. The reason may be they gaining theoretical as well as practical knowledge on e-waste pollution and its consequences. The knowledge with relation to the basic environmental related concepts help the trainees to implement in to practices. From the result it is evident that importance of environmental education and also awareness programmes related to current environmental issues. The B.Ed teacher trainees are going to impart the environmental knowledge, basic concepts to their next generation to raise environmentally responsible citizen.

LIST OF ACRONYM

EWP	-	Electronic Waste Pollution
EWPA	-	Electronic Waste Pollution Awareness
EWPM	-	Electronic Waste Pollution Management
EWPD	-	Electronic Waste Pollution Disposal
E-waste	-	Electronic Waste
B.Ed	-	Bachelor of Education

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Shodhsamhita
शोधसंहिता

ISSN No. 2277-7067

CERTIFICATE OF PUBLICATION

This is to certify that

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For the paper entitled

EFFECTIVENESS OF CONTENT BASED INSTRUCTION AND LANGUAGE DEVELOPMENT OF VIII STANDARD STUDENTS

Volume No. VIII, Issue 2(I), 2021-2022
in
Shodhsamhita

UGC Care Group 1 Journal

Digitally Signed By:S SANTHI
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Salem
Signing Date:26.04.2023 11:52

Editor-in-Chief

SHODHSAMHITA
शोधसंहिता
ISSN 2277-7067
UGC CARE Group 1

EFFECTIVENESS OF CONTENT BASED INSTRUCTION AND LANGUAGE DEVELOPMENT OF VIII STANDARD STUDENTS

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Abstract

The present study focused on the Effectiveness of content based instruction and language development of VIII standard students. The method adopted for the present study is experimental study. Sample for the present study is VIII standard students from Government Higher Secondary School Sarkar Kollapatti at salem district. There were 60 students in total (30 students in experimental group and 30 students control group). In content based instruction, Theme based model is used for the present study. Simplified lesson plan, content oriented learning materials and language games and songs were taught by the investigator for the treatment of experimental group.50 objective type questions prepared from the content to test the Effectiveness of content based instruction.

Keywords: Content Based Instruction ,language development, models of CBI, sample.

Introduction

"Learning another language is like becoming another person"

-Haruki Murakami.

Language is very important in any type of communication. Because it expresses our opinions, feelings towards others. Developing language skills from childhood makes an individual to be good at language. In second language learning, classroom it is always a difficult task for the students to learn the language. The phobia of learning a second language is never ends. Students always have a negative opinion of learning a new language. Especially in schools students suffer difficult to make a sentence or to construct a sentence with certain grammar rules and regulations need to be learned. When we look into communicative approach the students became free to talk and learn the language. For learning a language there are number of approaches and methods are available. As the scenario changes teaching learning methods changes. To make it simple and make the language learning easier this Content-Based Instruction is much helpful for the students.

Review Of Related Literature

Vanichvasin, Patchara (2019)assessed the Effects of Content-Based Instruction on English Language Performance of Thai Undergraduate Students in a Non-English Program. The sample group was nineteen Thai UG students. The findings of the study is content-based instruction created positive results and could be used as an effective methodology and essential aid in engendering opportunities to use English, which resulted in increased English language performance.

Jaelani, and Selamet Riadi (2017) studied the Treating of Content-Based Instruction to Teach Writing Viewed from EFL Learners' Creativity. The research method of this research was quasi-experimental research. The techniques of collecting data were creativity test and writing test given to the both classes. The data were analyzed by using Multifactor Analysis of Variance (ANOVA) test of 2 × 2 and Turkey test The results revealed that Content-Based Instruction was more operational than Problem-based learning to teach writing.

Content-Based Instruction

Content-based instruction is an approach to language teaching that focuses not only the language itself, but rather on what is being taught through the language; that is, the language becomes the medium through which something new is learned. The principles of content based instruction are heavily rooted on the principles of communicative language teaching since they involve an active participation of students in the exchange of content.Since CBI in language learning plays crucial part in language as well as content learning the components of CBI are ever growing models. The Sheltered Model: It is mostly used at university where the goal of teachers is to enable their ESL students to study the same content material as regular English L1 students. Sheltered CBI is called "sheltered" because learners are given special assistance to help them understand regular classes. The Adjunct Model: Undertaken by ESL teachers. The aim of Adjunct classes is to prepare students for "mainstream" classes where they will join English L1 learners.The Theme Based Model: These classes can be taught by EFL teachers who create content material based on the needs and interests of the students.The model adopted for the present study is theme based model.

The Theme Based Model

Theme Based learning enables students to gain deep understanding for practical learning. That is topic is selected by the interest of student from that they will learn different facts about a particular topic. For example in this study researcher took unit 2, prose lesson about Sir Issac Newton in VIII standard English Content . The theme of the prose is learning about Issac Newton. The given prose is in past tense, and direct speech. The students directly learn the past tense and direct speech from the lesson as well they learn more about the inventions of Newton and the Laws he created.

To make learning more interesting video clippings were played and past tense songs were taught by the researcher to the experimental group in addition to that Newtons inventions were prepared as album by the investigator and handouts, board activity were given to the students. On the other hand there is no treatment given to the control group students. The experimental group students expand interest on language learning and they gain long time retention of content.

Operational Definitions

CBI : Content Based Instruction is a simplest way of teaching the content with the help of second language. This content based instruction combines three models of teaching

and learning. Content based instruction reduces the burden and phobia of second language learning.

Theme based model: Theme Based Model of teaching is one of the best way for teachers to gain the attention of students towards learning. This model captures the interest of students and kindles their thoughts and helps them to come up with their own creative ideas. It is the best model in CBI especially for the school students.

VIII std students refers to those who are obtaining upper primary or middle school education from any Government, Aided or Matriculation Schools.

Objectives

i. To design theme based model for the select content in standard VIII English.
ii. To access the effectiveness of content based instruction in English language teaching.
iii. To find out the pre and post-test scores of control group students.
iv. To find out the pre and post-test scores of experimental group students.
v.

Hypotheses Of The Study

1. Control group and experimental group students do not differ in their gain scores.
2. Control group and experimental group students do not differ in their pre and post test scores
3. Experimental group students do not differ in their pre and post test scores

Research Method Adopted

The researcher had used the pre-test and post-test equivalent group design. In educational research, .Experimentation is the most scientifically sophisticated research method. It is defined as observation under controlled condition. Experimentation is therefore the name given to the type of educational research in which the investigator controls the educational factors to which a single or group is subjected during the period of inquiry and observes the resulting achievement. One must start the experiment with some measurement of the initial attainment of the group in the trait or ability to be influenced. The investigator, then subject the group to the experiment factor such as the particular method of teaching, for the duration of the experiment. At the end, the investigator applies a final test for the purpose of determining the gain in learning that has resulted from the application of the experiment.

Methodology adopted for the study:

- The static-group comparison design adopted for the present study. This design compares the status of a group that has received an experimental treatment with one that has not.
- Control group (30 Students) = pretest----------no treatment---------post test
- Experimental group (30 Students) = pretest----------treatment---------posttest

Sample Selection For The Study

The investigator purposively selected Government higher secondary school, S.Kollapatti at Salem district to serve as both experimental and control groups. There were 30

students in each group. In this study, a total number of 60 VIII standard students were choosen as samples.

Tools Used For The Study

For treatment the following methods were used

1. Simplified lesson plan for English content
2. Language oriented games (word building, past tense reading)
3. past tense songs
4. theme based models from the content (Issac Newton inventions, handouts, video clippings)

For the present study, the investigator prepared a standardized question paper from the prescribed content.

1. Fill in the blanks with suitable tense (20x1=20) [Sir Issac Newton –the ingenious Scientist ,paragraph)
2. Circle the past tense from the sentences (10x1=10)
3. Multiple choice question (20x1=20)

Collection Of Data

The data was collected from the pre and post test in the name of diagnostic and objective type questions were given just before and after the teaching program.

Statistical Technique

The collected data were statistically analyzed using "t" test to find out the significant difference between pre and post-test means and gain scores of both groups.

Analysis Of Data

The data on selected variables were analyzed and the obtained results are presented in Table I,II and III. Mean values of pre and post test and gain scores among select subjects are graphically represented in figure I and II.

Testing Hypothesis

Hypothesis-1

Control group and experimental group students do not differ in their gain scores

From the below table 1 the calculated " t " value is higher than the table value hence the null hypothesis is rejected. There is significant difference between the means of control and experimental group students in their gain scores.

Hypothesis-2

Control group and experimental group students do not differ in their pre and post test scores

From the below table 2 the calculated" t" value of pre test of control and experimental groups are not significant hence the null hypothesis is accepted.

The post test of experimental and control group students are significant at 0.05% level. Calculated t value is comparatively higher than the table value hence the null hypothesis is rejected. There is significant differences between post test scores of control group and experimental group students.

Hypothesis-3

Experimental group students do not differ in their pre and post test scores

Table-1

Showing the mean difference of gain scores of Control group and experimental group.

GROUP	N	MEAN	SD	t-value	Level of significance
Control group	30	41.66	16.37	7.47	Significant at 0.01 level
Experimental group	30	71.03	14.04		

Table-2

Showing the mean scores and, standard deviation of VIII standard students in pre-test and post-test of control and experimental group students

Students	Group	Pre-test		t value	Post-test		t value
		Mean	SD	NS	Mean	SD	
VIII standard students	Control group	3.76	1.92	**0.67**	1.5	2.64	significant 4.70
	Experimental group	3.57	2.22		6.2	4.8	

Table-3

Showing the mean scores and, standard deviation of VIII standard students in pre-test and post-test of experimental group

Students	Group	Pre-test		Post-test		t value
		Mean	SD	Mean	SD	
VIII standard students	Experimental group	3.57	2.22	6.2	4.8	2.73

Results And Discussion On Findings

The result of the study indicated that, there is a significant difference exists between the gain scores of control and experimental groups. Also there is a significant difference exists between the pre and post test scores of experimental group. Hence the researcher's null hypothesis rejected. Based on the results this study is highly effective for the students to be well versed in content as well as language.

This study will also be helpful for the primary students , they can learn from childhood so it became their habit. It will help them to proceed with their higher classes.

This study can be used for all the levels of school education as well as higher education level especially those who are hesitate the Second language learning will be benefited through this CBI instruction.

Educational Implications

There are many students from regional languages shifting to a second language for the development of communicative skills. This study focuses on the importance of communicative skills. The ever-changing society needs ever-growing students in all fields. So far, multilingualism culture renders its hands to develop a common language. For that, along with the content, second language development is possible. English Language

Enhancement skills. Generally, language learning has no boundaries. According to the usage of the language and emerging technology, the ever-growing vocabularies provide an opportunity to create naming words and onomatopoeia words. The language foundation hardly relies upon the skills of Listening, speaking, reading and writing. Nowadays, a lot of skills are to be obtained to get proficiency in language learning. Not only the LSRW but also body language play an important role in language learning. Most of the language studies were focused mainly on one particular skill or general skill. Very few studies were concentrated on all the basic skills of English. The two variables of the study cannot be separated as both focused on the enhancement of content and language.

Conclusion

This content based instruction is highly helpful for the learners. It creates interest towards learning. And theme based model make the students to participate actively in their class , content may be instructed through theme make them to came out with new ideas and they find their desire and they described it. They gained knowledge and interest of language learning and they are good in content learning too.

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How to Cite:
Kokila, N., & Priya, V. (2022). Content-based instruction and enhancement of English language skills of VIII standard students. *International Journal of Health Sciences*, *6*(S3), 5569–5578. https://doi.org/10.53730/ijhs.v6nS3.7174

Content-based instruction and enhancement of English language skills of VIII standard students

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***Abstract*---**Language is the vehicle that transfers a person's thoughts to others. In a local community, the mother tongue plays a vital role in sharing their thoughts. However, there is a need for additional Language for communicating a person's thoughts to other communities. The additional Language may be the second, third, or fourth language, but they are helpful to understand people of different cultures and customs. As an alternative language, English is considered a second language in India due to language diversity and unity. In the present Indian scenario, the English Language is used more to communicate different states of people in Indian. Establishing the CBI method in classroom teaching enables the professional development of teachers and personal growth of social skills. Also, it allows the learners to be good at their subject as well as in language. According to the modern era, this CBI helps a lot in improving the skills of language and cognitive skills. Language and content integration can be incorporated into a variety of instructional programs.

***Keywords*---**content-based instruction, English language, skills, standard students.

Introduction

Language is the vehicle that transfers a person's thoughts to others. In a local community, the mother tongue plays a vital role in sharing their thoughts. However, there is a need for additional Language for communicating a person's thoughts to other communities. The additional Language may be the second, third, or fourth language, but they are helpful to understand people of different

cultures and customs. As an alternative language, English is considered a second language in India due to language diversity and unity. In the present Indian scenario, the English Language is used more to communicate different states of people in Indian. Hence, the promotion of English learning has become a vital development theme now. Learning the English Language and its methodology are revisited for language development among school students. Generally, language learning has no boundaries. Language enhancement can be done through multiple sources. When it comes to systematic process, teaching methodology and the strategies we select are more important than anything else.

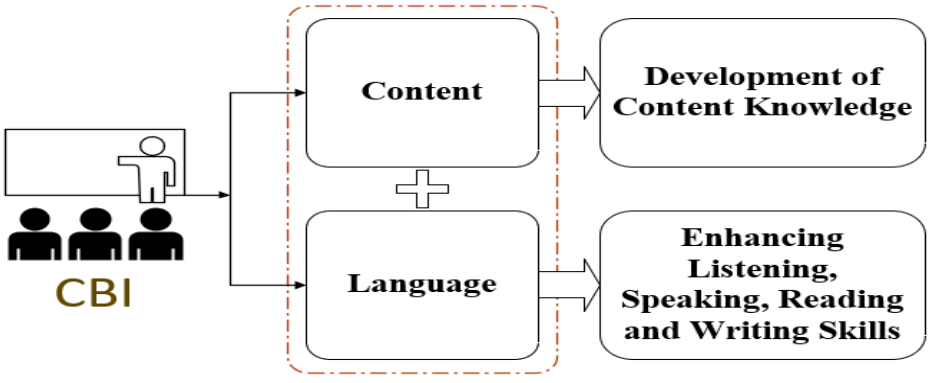
Concept of content based instruction

Content-Based Instruction (CBI) is a set of approaches for teaching actual content through language rather than traditional ways of expressly teaching language. Brinton(2003) and Met (1999) defined CBI as integrating language and content instruction, concentrating on the content rather than the language to teach academic subject matter. Still, at the same time, it develops second language skills. Hence, (Richards & Rodgers, 2014) recommended that teaching English to be organized around the content rather than a linguistic type of syllabus. Thus, with CBI, Learners learn content and language at the same time. Moreover, each supports the development of the other.

Integration of Content and Language

As an English Teacher, the researcher studied various methods to find a way to enhance language skills and opt for the **Content-Based Instruction** method for her research study. Further, the researcher explored the CBI towards beneficial of learning and teaching the English language. According to Briton et al. (1989), the history of CBI dates back to 389 A.D. A well-defined illustration of content-based language teaching is Immersion Education, which started in 1965. After the II world war, in the late 50s and 60s, the developments in the world economy changed, and results in science and technology were created. It has a considerable demand for language for technical and commercial purposes (Jordan, 1997; Hutchinson and Waters, 1987; Evans and John,1998).

Content-based instruction proved to be an engaging learning method, especially in language classrooms. Apart from that, CBI is used for other subject areas to develop content knowledge among the learners. In the CBI method, the topic is arranged based on the interest and choice of the student. Hence it is a student-centered approach. Each student gets the opportunity equally in their learning task. The learner develops their language proficiency by discussing, listening, speaking, and writing. It nurtures language skills simultaneously. The content with the language which they learn helps them to relate the similar concepts and content. It enriches the learners' learning and understanding capacity and develops language skills such as writing, reading, speaking, and listening.



Need and significant of the study

In India, 22 major languages have been recognized, and they have a history and literature dating back 1000 years. This diversity is a many-faceted phenomenon. It manifests itself in language history and linguistic geography. Any search for unity amid this diversity must consider the cultural miscegenation of the past thousand years. The fusion of race of people and families of languages unites the country into one cultural entity. After reviewing the literature and research reviews, the researcher, as an English teacher, attempted to identify new pedagogical practices to integrate the content and language skills. As a result, the researcher develops a new teaching model devised from the existing Content-Based Instruction. The significance of this Content-Based instruction will be taken by the policymakers and recommended on English teaching. Further, this study can give a new trend for language teachers to handle the students in subject classes. They easily focus on their subject and the language.

Title of the study

Enhancement of English language skills among VIII standard students through Content-based Instruction.

Objectives of the Study

- To determine the existing English language skills among VIII Standard Students in the control and experimental group before treatment.
- To find out the existing language skills among VIII standard Students in control and experimental group before and after implementing the method of Content-Based Instruction
- To find out the difference in language skills among VIII standard Students in control and experimental group before and after implementing the method of Content-Based Instruction
- To find out the effect of the program implemented on developing language skills among VIII standard Students in the experimental group at the exit level

Assumptions

- The CBI strategy in teaching will help the learners to develop language skills among themselves.
- Content-Based instruction in teaching will help the learners to nurture the content knowledge and understanding through second language English.
- Including the language activities and content assignments together help the learner develop higher-order thinking skills.

Hypotheses of the Study

The following are the hypotheses of the study.

- There is no significant difference between experimental and control groups' mean scores in English skills before treatment.
- There is no significant difference between experimental and control groups' mean scores in English skills post-test.
- There is no significant difference between experimental group's English skills scores in pre and post-test.
- There is no significant difference between control group's English skills scores in pre and post-test
- To find out the effect of the program implemented on developing English skills among class VIII Students in the experimental group at the exit level

Hypothesis 1: There is no significant difference between experimental and control groups' mean scores in English skills before treatment.

Table 1
Multivariate Test – pre-test scores of experimental and control group in English skills

Effect		Value	F	df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.987	2160.759	2.000	56.00	.000	.987
	Wilks' Lambda	.013	2160.759	2.000	56.00	.000	.987
	Hotelling's Trace	77.170	2160.759	2.000	56.00	.000	.987
	Roy's Largest Root	77.170	2160.759	2.000	56.00	.000	.987
Type of School	Pillai's Trace	.027	.384	4.000	114.00	.820	.013
	Wilks' Lambda	.974	.378	4.000	112.00	.824	.013
	Hotelling's Trace	.027	.372	4.000	110.00	.828	.013
	Roy's Largest Root	.022	.631	2.000	57.000	.536	.022

One-way MANOVA was used to determine whether there is a difference between experimental and control groups' pre-test English language skills scores among the GOVT, AIDED, PRIVATE school students. There is no significant difference between Pre-test English skill scores of Control and experimental group based on school, F(4, 112) = 0.378, p = 0.824; Wilk's lambda = 0.974, partial eta squared = 0.013.

Tests of Between-Subjects Effects							
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	Experimental _Pretest	16.933	2	8.467	.630	.536	.022
	Control _Pretest	6.533[b]	2	3.267	.164	.849	.006
Intercept	Experimental _Pretest	40977.067	1	40977.067	3049.207	.000	.982
	Control _Pretest	41291.267	1	41291.267	2075.121	.000	.973
Type of School	Experimental_Pretest	16.933	2	8.467	.630	.536	.022
	Control _Pretest	6.533	2	3.267	.164	.849	.006
Error	Experimental _Pretest	766.000	57	13.439			
	Control_Pretest	1134.200	57	19.898			
Total	Experimental _Pretest	41760.000	60				
	Control _Pretest	42432.000	60				
Corrected Total	Experimental _Pretest	782.933	59				
	Control _Pretest	1140.733	59				

Furthermore, there is no significant effect of Type of school on existing English test score of Experimental group, F(2, 57) = 0.630, p = 0.536, partial eta squared = 0.022. and Control group, F(2, 57) = 0.164, p = 0.849, partial eta squared = 0.06. Hence, the null hypothesis is accepted and concludes that there is no significant difference between the experimental and control groups on the English test score of the GOVT, AIDED, PRIVATE school students of class VIII before treatment.

Hypothesis 2: There is no significant difference between experimental and control groups' mean scores in English skills post-test.

Post-test	School	N	Mean	Std. Deviation	Min	Maxi
Experimental Group	Government	20	62.40	1.729	59	65
	Aided	20	62.70	2.536	58	68
	Private	20	63.60	2.945	58	68
	Total	60	62.90	2.468	58	68
Control Group	Government	20	29.50	4.395	22	36
	Aided	20	28.90	3.401	22	34
	Private	20	30.00	4.449	20	40
	Total	60	29.47	4.065	20	40

It is indicated that the Enhanced English language skills mean score of the control group of government schools is 29.50, whereas the experimental group flourished and the mean score 62.40. Aided school of the control group in

enhanced mean is 28.90 and in experimental group 62.70. The mean of the private school control group is 30.0 as its average and the experimental group 63.60 as its mean score.

Hypothesis 3: There is no significant difference between experimental group's English skills scores in pre and post-test.

Multivariate Tests							
Effect		Value	F	df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.999	27433.225	2.000	56.000	.000	.999
	Wilks' Lambda	.001	27433.225	2.000	56.000	.000	.999
	Hotelling's Trace	979.758	27433.225	2.000	56.000	.000	.999
	Roy's Largest Root	979.758	27433.225	2.000	56.000	.000	.999
Type of School	Pillai's Trace	.065	.956	4.000	114.000	.434	.032
	Wilks' Lambda	.936	.942	4.000	112.000	.442	.033
	Hotelling's Trace	.068	.929	4.000	110.000	.450	.033
	Roy's Largest Root	.049	1.383	2.000	57.000	.259	.046

One-way MANOVA was used to determine whether there is a difference between pre and post-test English language skills scores of experimental groups among the GOVT, AIDED, PRIVATE school students.
There is no significant difference between Pre and post-test English skill scores of experimental group based on school, F(4, 112) = 0.942, p = 0.442; Wilk's lambda = 0.936, partial eta squared = 0.033.

Hypothesis 4: There is no significant difference in post-test scores among the control group's GOVT, AIDED, PRIVATE school students.

Table 2
Descriptive data control group students' English Language Skills after treatment

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Government	20	29.50	4.395	.983	27.44	31.56
Aided	20	28.90	3.401	.761	27.31	30.49
Private	20	30.00	4.449	.995	27.92	32.08
Total	60	29.47	4.065	.525	28.42	30.52

Table 28
ANOVA - Post-test scores of the GOVT, AIDED, PRIVATE school students of Control group

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.133	2	6.067	.359	.700
Within Groups	962.800	57	16.891		
Total	974.933	59			

A one-way ANOVA revealed that the means scores of the three control group schools (GOVT, AIDED, and PRIVATE) were equal, F(2,57) = 0.359, p = 0.700. the p-value is more than 0.05. Hence, the null hypothesis is accepted and concluded that there is no significant difference in post-test scores among the GOVT, AIDED, PRIVATE school students of the control group

Obj-2: To find out enhanced English language skills among VIII Standard Students in the control and experimental group after treatment.

Table 3
Descriptive analysis - Students' English language skills after treatment

Post-test	School	N	Mean	Std. Deviation	Min	Maxi
Experimental Group	Government	20	62.40	1.729	59	65
	Aided	20	62.70	2.536	58	68
	Private	20	63.60	2.945	58	68
	Total	60	62.90	2.468	58	68
Control Group	Government	20	29.50	4.395	22	36
	Aided	20	28.90	3.401	22	34
	Private	20	30.00	4.449	20	40
	Total	60	29.47	4.065	20	40

It is indicated that the Enhanced English language skills mean score of the control group of government schools is 29.50, whereas the experimental group flourished and the mean score 62.40. Aided school of the control group in enhanced mean is 28.90 and in experimental group 62.70. The mean of the private school control group is 30.0 as its average and the experimental group 63.60 as its mean score.

Hyp.1: There is no significant difference in pre-test scores of English language skills among the experimental group's GOVT, AIDED, PRIVATE school students.

Table 4
Descriptive data -Experimental group students'English Language Skills before treatment

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Government	20	26.80	3.139	.702	25.33	28.27
Aided	20	25.50	2.819	.630	24.18	26.82
Private	20	26.10	4.745	1.061	23.88	28.32
Total	60	26.13	3.643	.470	25.19	27.07

Table 5
ANOVA – Pre-test scores of GOVT, AIDED, PRIVATE school students in experimental group

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16.933	2	8.467	.630	.536
Within Groups	766.000	57	13.439		
Total	782.933	59			

A one-way ANOVA was performed to compare the effect of three different school students on their English skill scores. A one-way ANOVA revealed that the means of the three experimental group schools (GOVT, AIDED and PRIVATE) were equal, $F(2,57) = 0.630$, $p = 0.536$. the p value is more than 0.05. Hence, null hypothesis is accepted and concluded that there is no significant difference in pre-test scores among the GOVT, AIDED, PRIVATE school students of the experimental group

Hyp.2: There is no significant difference in pre-test scores of English language skills among the control group's GOVT, AIDED, PRIVATE school students.

Table 6
Descriptive data -Control group students' English Language Skills before treatment

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Government	20	26.60	5.862	1.311	23.86	29.34
Aided	20	26.30	3.389	.758	24.71	27.89
Private	20	25.80	3.722	.832	24.06	27.54
Total	60	26.23	4.397	.568	25.10	27.37

Table 7
ANOVA – Pre-test scores of GOVT, AIDED, PRIVATE school students in Control group

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	6.533	2	3.267	.164	.849
Within Groups	1134.200	57	19.898		
Total	1140.733	59			

A one-way ANOVA was performed to compare the effect of three different school students on their English skill scores. A one-way ANOVA revealed that the means of the three control group schools (GOVT, AIDED and PRIVATE) were equal, $F(2,57) = 0.164$, $p = 0.849$. the p-value is more than 0.05. Hence, the null hypothesis is accepted and concluded that there is no significant difference in pre-test scores among the GOVT, AIDED, PRIVATE school students of the control group

To find out the effect of the program implemented on developing English skills among class VIII Students in the experimental group at the exit level

The gain ratio value varies from -1 to +1. The negative value indicates there is no gain, and the positive value indicates there is gain. Here, the mean of the gain ratio score of individuals from the experimental group is calculated to find the effectiveness of the intervention program.

Table 8
Gain Ratio of the Variables

Variables	Gain Ratio	Gain Ratio in Percentage
Experimental group Students' English Skill through CBI(over all)	0.6322	63.22%
a) Government School students' English skills	0.6223	62.23%
b) Aided School students' English skills	0.6332	63.32%
c) Private School students' English skills	0.6408	64.08%

From this result, it is inferred that the intervention programme CBI has made a positive impact on Experimental group students' on their English skills (63.22%) in overall. The Experimental groups' government school gained 62.23%, Aided school students gained 63.32%, and Private school students gained 64.08%.

Findings of the study

The prime focal point of the study is to enhance the English language skills among the VIII grade students on the application of content-based instruction. The research design of the study was carried out correctly. The Impact of CBI was more in the enhancement of English language skills. The results indicate that the experimental group developed their language skills, and the cause of the enhancement may be the method of Content Based Instruction. The investigator

employed inferential analysis to find out the development of individual language skills such as LSRW. Hypotheses were tested, and the tenability was found. This study focused on VIII standard students and engaged them with various activities, language songs, public speaking, self-introduction, and group discussion theme-oriented learning. All languages will be taught more effectively using innovative and experiential methods. It includes gamification and apps and weaving in cultural aspects of the languages such as films, theatre, storytelling, poetry, and music, and drawing connections with relevant subjects and real-life experiences. As a result, language education will also be focused on experiential learning methodology.

Conclusion

Establishing the CBI method in classroom teaching enables the professional development of teachers and personal growth of social skills. Also, it allows the learners to be good at their subject as well as in language. According to the modern era, this CBI helps a lot in improving the skills of language and cognitive skills. Language and content integration can be incorporated into a variety of instructional programs.

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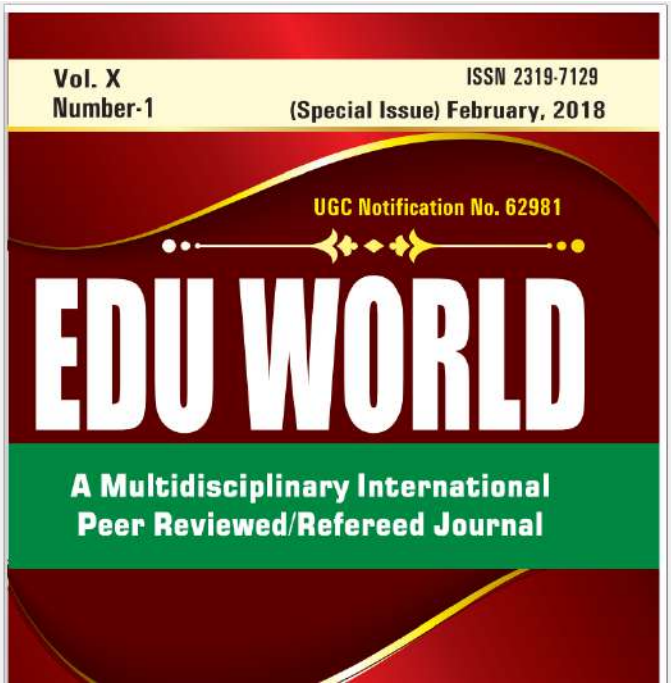

A Study on the Influence of Emotional Intelligence on Transactional Styles Among School Teachers

Shanmugavadivu K.P.* and Janani Selvaraj**

ABSTRACT

Education is meant to be the pillar of any country and teachers are an integral part of the educational system. The assessment of the quality of teachers is crucial since they mould students in becoming eminent citizens of the country. Several studies have been undertaken to scrutinize the effectiveness of the social psychology of the teachers by analysing several factors. In this regard, the present study is an attempt to explore the association of emotional intelligence and transactional styles factors associated with the transactional styles and emotional intelligence among school teachers. The study has incorporated a survey based methodology though which the school teachers were tested for different questions and the effectiveness scores related to the transactional styles and emotional intelligence have been computed. Statistical techniques were applied to the data and a significant relationship was observed between emotional intelligence and transactional style.

INTRODUCTION

Education has always been accorded an honoured place in our Indian society. At the rim of the 21st century, our nation is in the position to patronize the challenges present in the society and mould the eminence citizens for both the development of the nation and also for the life of individuals. Hence, education is considered to be the most valuable tool to meet the challenges. It is universally accepted that 'the development of any nation depends on the quality of its citizens'. The eminent citizens depend on the quality of education they receive whereas the quality of education depends on the excellence of teachers. Hence the teachers are indeed considered as the real architects of a nation and the importance of teachers is crucial.

QUALITIES OF EFFECTIVE TEACHERS

Basow, (1995) & Hativa (2013a and 2013b) established that the best professors were described as caring, helpful & knowledgeable. Money (1992) acknowledged that teacher effectiveness included knowledge, effective communication, well-organized material, skills to motivate and inspire students, friendly and open behaviour, and good classroom management. Gardner (1983) has summarised personal intelligences in a nutshell, which developed in his theory of 'multiple intelligence'. He declared that Interpersonal intelligence is the ability to understand other people: what motivates them, how they work, how to work co-operatively with them.

TRANSACTIONAL ANALYSIS

Eric Berne, the pioneer of transactional analysis, made complex interpersonal transactions comprehensible when he acknowledged that the human personality is made up of three "ego states". Each ego state is an entire system of thoughts, feelings, and behaviours from which we interact with one another. The foundation of transactional analysis theory is Parent, Adult and Child ego states and an interaction between them form Ego states are a regular pattern of thinking, feeling and behaviour. Berne's tripartite model is an explanation of three main events that happen to all of us, they are

- Childhood,
- The development of rational,
- Logical thinking and exposure to parental or significant influences of others. It is the idea that each person has the potential of these three functioning of ego states that separates TA from other approaches

TRANSACTIONAL STYLES

James (1975) has suggested that, in general, the concepts of OK and not OK can be used to understand how superiors behave. Avary (1980) has similarly proposed OK and not OK dimensions of the six ego states; Pareek (2002) has discussed the OK and not OK dimensions of the two parent ego states. The four general interaction styles can be elaborated by combining them with the ego states. Two dimensions of the parent ego state (critical or regulation and nurturing), three of the child ego state (adaptive, reactive and free or creative) and the adult ego state are used. All three-ego states and the sub-ego states are significant and perform distinct functions respectively. The transactional style of an individual depends on the person's combination of ego states with life positions. Combining the six ego states (two parent, one adult and three child) with the two life positions (OK and not OK), we obtain 12 styles.

The four general interaction styles can be elaborated by combining them with the ego states. Two dimensions of the parent ego state (critical or regulation and nurturing), three of the child ego state (adaptive, reactive and free or creative) and the adult ego state are used. All three-ego states and the sub-ego states are important and perform distinct functions. Each ego state meets a basic need. Avary has planned that six basic needs are met by the six ego states, which can be OK or not OK:

- The need to state love and care, manifested as nurturing parent (OK) or rescuing parent (not OK).
- The need for power, faith and self-confidence as firm parent (OK) or critical parent (not OK).
- The need to think and evaluate information as an adult (OK) or any (not OK) ego state.
- Biological needs and the need to feel and experience stimulation as a natural child (OK) or a person (not OK).
- The need to be creative or intuitive as a little professor (OK) or a rebellious or defensive child (not OK).
- The need for approval and safety as an adapted child (OK) or a helpless child (not OK).
- The transactional style of an individual depends on the person's combination of ego states with life positions.

Roger Benette (2010) analysed a transactional analysis approach of corporate marketing behaviour .Pareek's well-established and extensively validated 36-item instrument for assessing ego-states and life positions within individuals is adapted for completion by marketing executives in connection with the activities of their firms. Thollander et al. (2013) studied the use of Transactional Analysis (TA) in PhD student supervision and it is an attempt to enhance understanding of this complex and important process.

EMOTIONAL INTELLIGENCE

Emotional Intelligence is the ability to identify, assess and control the emotions of oneself, of others, and of groups. Thorndike,R.L., and Stein, S.(1937) explained the concept of social intelligence as the ability to get along with other people. Wechsler, D. (1940) recommended that affective components of intelligence may be essential to get success in life. Payne, W. L. (1985) coined the term emotional intelligence. There are two types of competencies in Emotional Intelligence. They are personal and social competencies. These competencies include five major factors namely

- Self awareness
- Self control
- Self motivation
- Empathy
- Social skills

A teacher has strong emotional bondage with his or her students. An effective teacher must not only be a master of his or her subject matter, but can understand his students well and transacts the curriculum as per the needs and interests of his students. Also at work place beside other factors, emotional intelligence of employee's plays a significant role in that organization's "decision making, leadership, strategic and technical breakthrough, open and honest communication, trusting relations and teamwork, custom, loyalty and creativity as well as innovation"(Cooper & Sawaf, 1998). Thus Emotional intelligence also contributes for assurance and management of quality in any organization. In case of educational organization, the teacher is the key person whose Emotional Intelligence is of great relevance not only for the organization but also helps in the development of emotionally intelligent individuals.

Perry et al. (2004) discussed the concept of emotional intelligence and defends the development of such a measure specifically related to the situations in the teaching environment, an environment where emotional intelligence is considered to influence teachers' thoughts and actions. Alnabhan Mousa (2008) assessed the level of the emotional intelligence (EI) of high school teachers in Karak district of Jordan 222 teachers was randomly selected and filtered on the basis of an inconsistency index as a sample. A scale of 55 items measuring empathy, emotions regulation, interpersonal management, self-management, and adaptability was applied.

OBJECTIVE

This study is an attempt to explore the influence of emotional intelligence on transactional styles of school teachers. This study will be helpful to understand the emotional competency of teachers. However emotional intelligence skills are used to reduce their stress and anxiety level.

STUDY AREA AND DATA SOURCES

For the present study Dharmapuri district in Tamil Nadu was selected as the sample due to the recent achievement while concerning education sector, since previously Dharmapuri district ranked in 22nd place in its educational achievement but from the academic year 2013- 2014 onwards it drastically increased to the 12th position. Particularly people in Tamil Nadu magnetize towards +2 and 10th results of Dharmapuri district. To maintain homogeneity of the samples selected it was decided to focus only high school and higher secondary schools for this study. Dharmapuri district comprised of 212 Government high schools and higher secondary schools, 7 Government Aided high school and higher secondary schools. Further the district has 91 matriculation and 40 CBSE schools.

Total numbers of teachers working in Dharmapuri District schools were 5434. Since the teacher's emotional intelligence has been differed by the type of school they were working, the researcher applied stratified random sampling method to select a sample of 570 teachers from the universe.

TRANSACTIONAL STYLE (TSI-TE)

To measure transactional style of teachers the tool used was Teacher styles: Transactional Inventory – Teachers (TSI- Te). The inventory was developed by Udai Pareek (2003). It consisted of 12 styles and composed of 48 statements and each style has 4 statements. All the items were tested with the small group of sample and thus the inventory was finalized (Table 1). By using this inventory, the researcher identified transactional styles (12 kinds of styles) and type of transactional styles (Total o.k, not o.k and mixed styles)

Table-1: Description of Transactional Style inventory

S.No	Name of the styles	Item numbers	Total Items
1.	Supportive	1,13,25,37	4
2.	Sulking	2,14,26,38	4
3.	Normative	3,15,27,39	4
4.	Aggressive	4,16,28,40	4
5.	Problem solving	5,17,29,41	4
6.	Bohemian	6,18,30,42	4
7.	Resilient	7,19,31,43	4
8.	Rescuing	8,20,32,44	4
9.	Confronting	9,21,33,45	4
10.	Prescriptive	10,22,34,46	4
11.	Innovative	11,23,35,47	4
12.	Task obsessive	12,24,36,48	4

Table 2: Responses of Transactional styles inventory

Response	Score
Rarely / Never	1
Occasionally	2
Sometimes	3
Often	4
Almost Always	5

SCORE INTERPRETATION

Each transactional style has been assessed by 4 statements on a 5 point scale. Among the 12 transactional styles, 6 of them are o.k. styles and another 6 are not o.k. styles. For the o.k. transactional styles, as the score increases the level of that styles is also increases whereas for the Not o.k. transactional styles, the lower the score is good. The transactional styles of the teachers has been classified as Low, Medium and High respectively if the scores are less than 12, 12 to 15 and 16 and above(Table 2).

EMOTIONAL INTELLIGENCE (EISE)

This study utilized the Emotional Intelligence Self Evaluation (EISE) by Nicholas Hall (2002). This rating scale consisted of 30 items, which measured five dimensions and each dimension has 5 statements. All the items were tested with the small group of sample and thus the tool was finalized (Table 3).

Table-3: Description of Emotional Intelligence Self-evaluation (EISE)

S.No	Emotional competency	Item numbers	Total items
1.	Emotional Awareness	1, 2, 4, 17, 19, 25	6
2.	Managing one's Emotions	3, 7, 8, 10, 18, 30	6
3.	Self-Motivation	5, 6, 13, 14, 16, 22	6
4.	Empathy	9, 11, 20, 21, 23, 28	6
5.	Coaching others' Emotions	12, 15, 24, 26, 27, 29	6

Table-4: Responses of EISE

Response	Score
Disagree Very Much	1
Disagree Moderately	2
Disagree Slightly	3

SCORE INTERPRETATION

Emotional intelligence has five dimensions and each dimension has been assessed by six statements with 6 point scale(Table 4). The score has been assigned from 1 to 6 based on the preferences of each statement. Hence, the possible scores are between 6 and 36. Based on the scores, the level of emotional intelligence of each dimension has been categorized as definite strength, Needs some development and Needs substantial development respectively if the score has been 30 and above, 24 to 29 and below 24. Similarly the overall emotional intelligence has been categorized into three categories namely definite strength, Needs some development and needs substantial development if the scores are 150 and above, 120 to 149 and below 119 respectively.

METHODOLOGY

Survey method was adopted. On evaluating the transactional styles and emotional intelligence scores, statistical techniques were applied to test the association of emotional intelligence and transactional styles. Correlation analysis was performed and also step wise regression was done to check whether emotional intelligence is an influential factor contributing to the transactional styles.

RESULTS

Table-5: Pearson Correlation coefficient between Emotional Intelligence and Transactional style

Dimensions	Emotional Awareness	Managing Emotions	Self Motivation	Empathy	Coaching Others' Emotions	Overall Emotion
Supportive	0.367***	0.419***	0.474***	0.424***	0.401***	0.444***
Sulking	0.015	0.051	-.005	0.049***	0.054**	0.047***
Normative	0.461***	0.396***	0.455***	0.424***	0.390***	0.472***
Aggressive	0.147***	0.197***	0.188***	0.185***	0.202***	0.204***
Problem Solving	0.250***	0.358***	0.443***	0.383***	0.380***	0.398***
Bohemian	0.192***	0.247***	0.267***	0.312***	0.305***	0.303***
Resilient	0.367***	0.400***	0.447***	0.443***	0.426***	0.462***
Rescuing	0.376***	0.402***	0.498***	0.492***	0.469***	0.501***
Confronting	0.293***	0.426***	0.453***	0.402***	0.419***	0.447***
Prescriptive	0.347***	0.301***	0.367***	.363***	0.332***	0.380***
Innovative	0.412***	0.391***	0.495***	0.506***	0.504***	0.530***
Task Obsessive	0.115**	0.164***	0.207***	0.233***	0.220***	0.230***

** significant at .01 level *** significant at .001 level

emotional intelligence and transactional style is statistically significant. All the variables are having positive correlation except empathy and self-motivation, because these two variables have negative correlation.

Table 6 shows the results of the stepwise multiple regression analysis for the variables related to emotional intelligence with the transactional styles. It was observed that R^2=25.6% indicating that 26% of the emotional awareness variation has been explained by these three variables. The R^2=26.9% indicates that 27% of the managing emotions variation has been explained by these three variables. The R^2=36.4 indicates that 36% of the self-motivation variation has been explained by these six variables. The R^2=36.4 indicates that36% of the empathy variation has been explained by these four variables. The R^2=31.1 indicates that 31% of the empathy variation has been explained by these four variables. The R^2=36.17 indicates that 37% of the empathy variation has been explained by these five variables.

Table-6: Stepwise Multiple regression analysis of the emotional intelligence variables with transactional styles

	Transactional Styles	Unstandardized Coefficients	Standardized Coefficients	T	Sig.
Emotional Awareness	Constant	10.908	1.173	9.297	0.000
	Normative	0.501	0.078	6.383	0.000
	Innovative	0.271	0.075	3.592	0.000
	Supportive	0.218	0.070	3.094	0.002
Managing emotions	(Constant)	11.041	1.174	9.401	0.000
	Confronting	0.371	0.063	5.927	0.000
	Supportive	0.362	0.070	5.190	0.000
	Normative	0.297	0.074	4.013	0.000
Self Motivation	(Constant)	7.547	1.184	6.375	0.000
	Rescuing	0.203	0.085	2.386	0.017
	Innovative	0.230	0.082	2.811	0.005
	Supportive	0.282	0.074	3.831	0.000
	Confronting	0.199	0.067	2.956	0.003
	Normative	0.213	0.078	2.711	0.007
	Problem Solving	0.160	0.074	2.149	0.032
Empathy	(Constant)	9.362	1.158	8.088	0.000
	Innovative	0.414	0.080	5.163	0.000
	Rescuing	0.329	0.084	3.915	0.000
	Supportive	0.208	0.073	2.838	0.005
	Resilient	0.178	0.079	2.261	0.024

	Transactional Styles	Unstandardized Coefficients	Standardized Coefficients	T	Sig.
Coaching other Emotions	(Constant)	8.599	1.208	7.120	0.000
	Innovative	0.478	0.083	5.732	0.000
	Rescuing	0.286	0.089	3.206	0.001
	Confronting	0.197	0.071	2.775	0.006
	Supportive	0.189	0.077	2.443	0.015
Overall Emotional Intelligence	(Constant)	51.054	4.966	10.288	0.000
	Innovative	1.611	0.344	4.681	0.000
	Rescuing	0.994	0.359	2.771	0.006
	Normative	1.126	0.332	3.387	0.001
	Confronting	0.793	0.282	2.812	0.005
	Supportive	0.859	0.309	2.781	0.006

DISCUSSION

When discussing the correlation between transactional style and emotional intelligence, there were limited number of studies related to the relationship between transactional style and emotional intelligence. But while concerning the present study, it exhibited a statistical significant relationship with transactional style and emotional intelligence. A positive correlation existed for all the variables but for the dimensions of emotional intelligence like empathy and self-motivation negative correlation was existed.

Empathy is nothing but tuning into others' feel. But due to emotional imbalance, teachers have a gap in open communication in the class room. Teachers also prefer only one way flow of information. Hence the teachers do not maintain a caring relationship with their students and there is a gradual decrease in the performance of students. Lower the passionate about the subject of teachers and lower the self-motivation among the teachers. Hence this creates the environment of the classroom unfavourable to learning.

CONCLUSION

The present study examined the emotional intelligence of teachers and identified their transactional styles of teachers. On the basis of this, it is found that regarding overall emotional intelligence 47.4% of teachers need some improvement and most of the teachers adopted functional transactional styles and majority of the teachers are under the category of adaptive child ego state. This study is also attempted to find out the relationship between emotional intelligence and transactional styles and it is found that there is a significant relationship between emotional intelligence and transactional style.

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IMPACT: International Journal of Research in Business Management (IMPACT: IJRBM);
ISSN(Print): 2347-4572; ISSN(Online): 2321-886X
Vol. 10, Issue 8, Aug 2022, 27–32

A STUDY ON HIGH SCHOOL TEACHERS' SUCCESSFULNESS

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Received: 12 Aug 2022 **Accepted:** 17 Aug 2022 **Published:** 19 Aug 2022

ABSTRACT

The present study aimed to find the High School Teachers' Successfulness. In the present study, Normative Survey method is adopted. Random sampling technique is used in the selection of the sample for 200 High School Teachers. The tool used in this study is the Teachers' Successfulness Scale constructed by Bhella (2001). The findings shows that the High School Teachers have high level of Successfulness.

KEYWORDS: *High School, Teachers, Successfulness*

INTRODUCTION

Success is an attitude- and potential-based characteristic that expresses one's feelings towards a specific circumstance or individual, whether they are positive or negative. It and satisfaction were commonly used interchangeably. But it seems that success as it is defined in educational literature has a broader scope. Despite being ill-defined, teachers' success is a key factor in determining how well school goals can be achieved. Despite the paucity of evidence to the contrary, this belief persists. Success, in the view of Guba (1958), is considered as the predisposition to invest extra effort in accomplishing group objectives. Success is related to the extra effort needed to perform institutional tasks, according to Guba (1958). According to Gorton (1983), while high staff performance may be a desired goal in and of itself, their main contribution is to help achieve other sorts of worthwhile objectives. Improved efficacy, coherence, and staff stability would be some of these goals. For these reasons, the school administrator must have a greater understanding of the factors that determine staff success and should develop environments that support and sustain the latter.

Teacher Successfulness

Numerous concepts have been used to describe success, including sensation, mental state, mental attitude, and emotional attitude. One source claims that a worker's impression of the success of their employment depends on how they see themselves within the corporation and how well they believe the organisation is meeting their needs and expectations. There are personal needs for teachers, and how well those needs are met within the organisation frequently affects how they feel and how well they perform at work. According to Webster's Dictionary, success is a person's mental state that is represented by assurance, control, and motivation to complete a task (2010). According to Bentley and Rempel (1970), a person's satisfaction at work is determined by how well their needs are met and how they perceive their office environment. In the Administrator's Handbook for Improving Faculty Successfulness (Andrews, 1985), Smith defines success as having a positive outlook and persistently working towards completing a significant and shared function.

Importance of Teacher Successfulness

According to Miller (1981), a successful teacher "may have a favourable impact on learner attitudes and learning. Raising teacher success levels improves both the learning and teaching experiences for both teachers and students. This fosters a setting that is more favourable to learning.

Achievement and success go hand in hand. Where successfulness was high, schools displayed an improvement in student achievement, according to Ellenberg (1972). On the other hand, low levels of satisfaction and success can cause teachers to become burned out, which is characterised by "a loss of concern for and detachment from the people with whom one works, decreased quality of teaching, depression, greater use of sick leave, efforts to leave the profession, and a cynical and dehumanised perception of students" (Mendel citing Holt 1980). In short, "student learning, the health of the organisation, and the health of the instructor" can all be significantly impacted by a teacher's success (Mendel).

Need and Importance of this Study

Professional growth and student achievement are directly associated, and the latter is directly tied to teacher satisfaction. Students can study in a happy environment when teachers and schools respect professional development. Teachers enjoy the benefits of their work when their pupils make outstanding academic and social growth. High achievement and overall school success can be guaranteed when the school offers its teachers relevant and efficient professional development. The researcher decided to explore this as a result.

Statement of the Problem

Teaching is a difficult profession at any level because of the demanding students, the never-ending grading, and the fear many teachers experience while speaking in front of a large group of people. However, teaching has a learning curve just like any other worthwhile professional Endeavour. Teaching will turn into a lucrative, enjoyable profession if you've mastered feeling at ease in front of students. To succeed as a teacher (at any level of pedagogy), you must plan ahead, run a productive classroom, and interact directly with pupils. Success as a teacher depends on a variety of factors, many of which are influenced by one's personality, attitudes, and proclivity—or, if you prefer, appetite—for the teaching profession. Of course, it goes without saying that the teacher must have a proven ability to aid students in understanding new material, knowledge, and concepts. In order to learn more about the success of high school teachers, the investigator decided to pursue this. The problem taken for this study can be stated as follows **"A Study on High School Teachers' Successfulness".**

OBJECTIVES OF THIS STUDY

The Present Study has the Following Objectives

- To find out whether there is any significant difference between Arts and Science teachers in their Successfulness.
- To find out whether there is any significant difference between Male and Female teachers in their Successfulness.
- To find out whether there is any significant difference between rural and urban located teachers in their Successfulness

Hypotheses of this Study

Suitable hypotheses were framed.

METHOD OF STUDY

In the present study, Normative Survey method is adopted.

Sample of this Study

Random sampling technique is used in the selection of the sample for High School Teachers.

Tool Used in this Study

- The tool used in this study is the Teachers' Successfulness Scale (Bhella, 2001).
- In order to find out the Teachers' Successfulness of High School Teachers, the mean and S.D have been calculated.

Table 1: The Mean and Standard Deviation of Teachers' Successfulness Scores of High School Teachers

N	Mean	SD
200	22.51	3.64

The Table above makes it clear. that the calculated mean score of entire sample indicates that the High School Teachers have high level of Successfulness.

Null Hypothesis

There is no significant difference between Arts and Science teachers in their Successfulness.

In order to test the above Null hypothesis't' value is calculated.

Table 2: Significance of Difference Between Arts and Science Teachers With Respect to Their Successfulness

Group	N	Mean	SD	t-value	Significance at 0.05 level
Arts	88	21.82	3.749	2.633	Significant
Science	112	23.16	3.349		

The Table above makes it clear., since the't' value is significant at 0.05 level, the above Null hypothesis is rejected and it is concluded that there is significant difference between Arts and Science Teachers with respect to their Successfulness.

Null Hypothesis

There is no significant difference between Male and Female teachers in their Successfulness.

In order to test the above Null hypothesis't' value is calculated.

Table 3: Significance of Difference between Male and Female Teachers with Respect to their Successfulness

Gender	N	Mean	SD	t-value	Significance at 0.05 level
Male	91	21.20	3.751	5.16	Significant
Female	109	23.72	3.006		

The Table above makes it clear. since the 't' value is significant at 0.05 level, the above Null hypothesis is rejected and it is concluded that there is significant difference between Male and Female Teachers with respect to their Successfulness.

Null Hypothesis

There is no significant difference between rural and urban located teachers in their Successfulness.

In order to test the above Null hypothesis't' value is calculated

Table 4: Significance of difference between Rural and Urban School Teachers with Respect to their Successfulness

Locality	N	Mean	SD	t-value	Significance at 0.05 level
Rural	107	22.37	3.788	0.837	Not significant
Urban	93	22.80	3.341		

The Table above makes it clear., since the't' value is not significant at 0.05 level, the above Null hypothesis is accepted and it is concluded that there is no significant difference between rural and urban Teachers with respect to their Successfulness.

Important Findings

- The High School teachers have high level of Successfulness.
- There is significant difference between Arts and Science Teachers, Male and Female Teachers and there is no significant difference between rural and urban Teachers with respect to their Successfulness.

CONCLUSIONS

Future teachers must keep in mind that each teacher's philosophy influences the philosophy of their students. As a result, instructors should be democratic in all of their actions in order to favourably influence the students. The elements that earned low Success fullness scores could be the subject of a teacher education programme (in-service). The aspects that can be influenced by teacher input, such as managing community pressures and getting along with administrators and other teachers, should be identified by teacher educators. The lack of direct control or influence over factors like classroom amenities, teacher pay, workload, and community support for education can make teaching frustrating. Teachers should be the subject of more thorough research on a regular basis in order to assess their changes and make appropriate adjustments.

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Perceptions Of Teacher Education Students On The Needs And Priorities Of Learning English Language

PDF

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Abstract

The Success Of A Learner's Learning Process Largely Depends On The Communication Skill Of The Teachers. The Ability To Explain The Concept Accurately To Facilitate The Learners To Visualize The Content Exactly And To Channelize That Thinking Process Constructively Are Associated To The Great Extent With The Language Proficiency Of The Teachers. Hence The Fluency And Accuracy Of Language Used Is Considered On Par With The Subject Mastery. The Objective Of Any Academic Programme Should Be The Fulfillment Of The Needs And Expectations Of The Learners. When It Comes To Acquiring Language Skills, It Is Mandatory For Every Future Teacher To Excel In The Use Of Language Which Will Be Instrumental In Transacting The Curriculum. With The Objectives Of Identifying The Present Needs Of Prospective Teachers In The Context Of English Language Learning And Usage And Prioritizing Those Needs From The Perspective Of Student Teachers, The Study Was Conducted. A Total Of 500 Student Teachers From Tamil Nadu Responded To The Survey Through The Tool Constructed By The Researchers. The Student Teachers Prioritized The Acquisition Of Employment Related Skills Like Facing Interview, Preparing Resumes And Filling Up Applications As The Most. They Are Followed By Academic Related Skills And Communication Skills. To Achieve Native Like Pronunciation And To Watch English Programmes / Movies / Shows Are The Least Considered Among The Items In The Priority List. 'Speaking Fluent English, Writing Resumes And Applications For Jobs In English Properly And Gaining A Good Command Over English To Face Job Interviews" Are The Highest Felt Needs Of Student Teachers.

Issue

Vol. 12 No. 3 (2021)

Section

Articles

International Journal on Studies in English Language and Literature (IJSELL)
Volume 2, Issue 7, July 2014, PP 70-75
ISSN 2347-3126 (Print) & ISSN 2347-3134 (Online)
www.arcjournals.org

Integrated Instructional Strategy in Enhancing the Ability of Student Teachers in English Prose Teaching

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Abstract: *The present Indian context calls for drastic steps to tone up English language teaching in schools and colleges. The prospective teachers have to be trained to be good facilitators who ensure effective English language learning among the students. In this research, an attempt has been made to devise a strategy for the teacher educators to train the prospective teachers of English for teaching a prose lesson. In this experimental study, the experiment group was trained through this integrated instructional strategy for 31 days. Both groups teaching was observed in school class rooms. The prospective teachers of experiment group performed well in the class room teaching compared with that of the control group.*

Keywords: *English education, prose teaching, instructional strategy, reading, vocabulary*.

1. INTRODUCTION

English has now evolved into a highly refined communication medium with the people in almost all the countries of the world increasingly using it for a multitude of purposes. What causes concern, however, is the rapid decline in the standard of English language teaching (ELT) in many educational institutions in the country with both the teachers and the taught not being in a position to use it effectively? Today people from all sections of the society are demanding a more professional and acceptable education course, which would suit the customer demands (students' demands) and meet the requirements of present globalization. This challenging demand of the society can be met only by preparing teachers for the task ahead of them.

A look into the history of language teaching reveals the long way of nourishment of many innovative methods and approaches of teaching a second or foreign language. Hence no one can ascertain that a particular method or approach is novel because it is up to the teacher's intelligence and the learners' requirements and capacity to follow. In Indian scenario, English has been taught more as a second language than as a foreign language. The syllabus of English taught in our educational institutions; be it school or college or university, comprises prose, poetry, grammar, supplementary readers and other language exercises. Among them, the scope of learning the language for the utilitarian purpose is more in learning prose. Hence it is high time to review the method of teaching prose, through which the optimum level of language acquisition occurs.

2. NEED FOR THE STUDY

In India, there are more than thousand institutions exclusively for teacher education. Along with them, universities have also been offering teacher education programmes both in regular and distance modes. Hundreds of thousands graduates have been trained into teachers. The sorry state of affairs is many of them do not have a clear grasp of the strategy to be followed in teaching subjects. The problem in teaching the second language ie. English is still more in acute stage, since the policy of teaching methodology across the state, the qualification of teachers who teach English, teaching-learning conditions and learners' personal background have a multitude of

variations. Though it is impossible to follow a unique method of teaching English, the teacher educators of teacher education institutes can mould their student teachers so as to tune them as able instructors in second language teaching. The general learning objective of a student on the completion of higher secondary level is to have a reasonable proficiency in the basic language skills such as listening, speaking, reading and writing in English. More than the other genres, prose will be the most suitable mode for imparting the basic language skills. "The main aim in a prose lesson" says Dave Singh, "is to enlarge the vocabulary, explain the structure of sentences, and explain the grammatical constructions and to grasp the ideas and arguments of the author" (196)

Report of the Study Group (1967:36) observed "The one important factor which influences the standards in the teaching of English is the preparation of competent teachers of English at all stages in adequate numbers. The teaching of a second language is both a complicated art and science today… that is why the preparation of teachers of English has to be provided for in the most careful manner". Hence, the researcher focused on the prospective teachers of English for her study. Through this study the researcher intended an instructional strategy for training the student-teachers (B.Ed. trainees) who opt for English education as one of their optional subjects. If at the pre-service level itself the student teachers are trained in this model, it would bring a drastic positive change in the teaching-learning process of English in Indian classrooms especially in the schools.

3. SIGNIFICANCE OF THE STUDY

The centers of learning - schools, colleges and universities - should function as visible hub centers of human resource development and up-gradation. Towards this the children would require focused attention on their learning needs as they have a right to a healthy and congenial environment that nurtures their creativity and furthers their learning. The U.S. Educationist Dr. Glenn Doman, Founder of Institute for the Development of Human Potential has worked upon the conviction that learning is a natural instinctive urge in young children often curbed or destroyed either by neglect and lack of exposure or by compulsory teaching. During more than three decades of work with both normal and brain damaged children Doman has shown that exposing the young to interesting sources of information for very brief periods each day stimulates the development of the brain cells. The most important responsibility of the teacher is to create a stress free classroom environment at the same time ensuring a promising atmosphere of better language learning.

At present, teachers of English around the world prefer some form of communicative teaching and learning, rather than the audio-lingual method and its derivatives. However, it should be kept in mind that a successful teacher is not necessarily biased in favor of one method or another. He/she should be first of all competent in and comfortable with the methods she wants to use. She tends to select different teaching strategies from different methods, and blends them to suit the needs of her materials and students. The significant aspect of the approach is the attitude of the teacher, which should be that learning in a form of play, which fosters the blossoming of the child's natural development. Learning should and can be made interesting, enjoyable and entertaining. Prospective English language teachers need to equip themselves with English – a fairly high standard of language competence. Secondly they need what has been called "grass root training". This kind of training, however, has to be modified operationally in order to meet the specific demands made by the Indian situation in general and the individual teacher in particular. Besides, this training will have to be viable on the psycho social front too – it must turn a trainee into a conscious personality and equip him with such techniques of teaching as are most appealing to both the teacher and the taught.

4. SCOPE OF THE STUDY

The prospective teachers are trained or educated about the language and the various methods and approached of teaching English. They are informed about the technology and innovations in the field of language teaching. But they are not given any chance to use them in the field. Moreover lecture method alone is followed in many of the teacher education institutions today. The integrated instructional strategy devised through this study will be more useful for the teacher

educators to equip the student teachers to teach English prose lessons effectively. The other beneficiaries are the student teachers themselves.

5. DEFINITION OF KEY TERMS

5.1. Integrated Instructional Strategy

Integrated instructional strategy denotes the strategy followed by the teacher educators to the student teachers (B.Ed. trainees). It comprises lecture method, writing a play of the given prose lesson, preparing a PowerPoint for teaching new words, dramatization and other performance oriented techniques, techniques of journal writing and drawing mind maps, reading practice through tape recorders, demonstration of framing a lesson plan, arranging a group discussion and demonstration of a teaching session based on the strategy.

5.2. Student Teachers

Student teachers are the graduates who undergo the degree of Bachelor of Education which is mandatory for becoming a trained teacher.

6. ASSUMPTIONS

- Many of the school students especially from the vernacular medium schools are lagging behind their counter parts in English language skills. They are far below the attainment of the learning objectives, even after the completion of their course of study.
- Many of the student teachers do not have a proper knowledge of aims and objectives of second language learning and the ways and means of curriculum transaction of second language teaching.
- The outdated lesson plan methods do not suit the present needs of second language learners. The English language learning atmosphere can be made interesting by an eclectic approach of teaching which is possible through this module.
- Through this integrated instructional strategy the efficiency of student teachers and the teachers in service is bound to be at appreciable level.

7. LIMITATIONS

The study was confined to the B.Ed. student teachers who opted 'English' as one of their optional papers. The strategy was devised only for teaching prose lessons. The sample size is limited as it was an experimental study and for a deeper observation of the teaching performance of the student teachers.

8. OBJECTIVES

The objectives of the study are

- To train the student teachers to prepare the lesson plans following the new methodology.
- To demonstrate the teaching of a prose lesson.
- To assess the teaching efficiency of both the experimental and control groups of student teachers and compare them.

9. HYPOTHESES

- The experimental group student teachers who are trained through integrated instructional strategy teach better than the control group student teachers.
- The school students who are taught by the experimental group student teachers attain their learning objectives effectively and easily than their counterparts who are taught by the control group of student teachers.

10. METHODOLOGY

The methodology to be followed is the combination of both the preparation of the integrated instructional strategy and its experimentation. After a wide and in-depth consultation with the language experts and the online resources, the researcher designed this strategy for the student teachers. The researcher herself trained the student teachers of experiment group for 28 days following the integrated instructional strategy.

Table 1 – showing the details of the activities during the treatment period

No. of days	Activity	Method
2	Developing the reading skill of the student teachers (how to read with proper pronunciation by giving pause in appropriate places, following stress and intonation)	Demonstration and using tape recorders and mobile phones
1	Orienting about the aim of learning English and the aims and objectives of teaching a prose lesson	Lecture
1	Practice 'Thinking aloud'	Lecture and Demonstration
2	Writing a script for the given prose lessons. Practice in characterization, creating a plot, dialogue writing, spoken language	Demonstration
9	Training on how to train the school students to enact a play, mono act, mime, and tableau	Demonstration and students' participation
5	Orienting on journal writing, drawing mind maps and using black board	Lecture and Demonstration
3	Preparing a PowerPoint presentation for teaching new words	Demonstration and students' presentations
2	Techniques of arranging a group discussion related to the prose lesson	Lecture and Demonstration
1	Using black board and other teaching aids effectively and appropriately	Lecture and audio visual
2	Demonstration of teaching a prose lesson	Demonstration
3	Orienting about the evaluative techniques	Lecture and Demonstration

This lesson plan has three phases in major; the preparatory phase, the presentation phase and the evaluation phase. In the preparatory phase, the student teachers would select the most appropriate motivational activities for the lesson and modify them to suit the learners' ability. The presentation phase has further more three divisions; the first division is exclusively skill-based (Listening, Speaking, Reading, and Writing), the second division is devoted to the vocabulary presentation, sentence structure analysis, and the inductive teaching of grammar, while the third division deals with the conglomeration of suitable approaches. Finally, the evaluation phase would dictate the formative evaluation of learner-based on the first two divisions of presentation phase (ie) skill improvement and linguistic development. In the experimentation schedule the student teachers' ability of teaching prose was assessed in terms of their fluency and ease in the classroom transaction and the school students' performance in that lesson. Their performance would be then compared with that of control group of student teachers.

11. SAMPLE

The sample taken for this experimental study was 62 in total. Of them 30 student teachers were studying in Sri Raja Rajan College of Education (Co-Educational), Karaikudi comprised the

experiment group and the other 32 student teachers were from Sri Raja Rajan College of Education for Women, Amaravathipudur who were the control group.

12. RESEARCH TOOLS

The integrated instructional strategy was developed by the researcher and was validated by the language experts. The observation schedule for observing the teaching efficiency of teachers was developed by Dr.P.Prema (1986). A few modifications were made to make it suit to the teachers of English. The achievement tests conducted by the student teachers in their respective practice teaching schools were taken for showing the learning attainment of the school students.

13. PROCEDURE

The researcher devised the strategy after consulting the experts and online resources. After selecting the sample she conducted a pre-test to evaluate the student teachers' entry behavior and language proficiency. Assuring the equivalence among the student teachers, they were divided into two groups' viz. experiment group and control group. She herself trained the experiment group for 31 days while the student teachers of control group were trained by the concerned teacher educator following his own methodology. The student teachers were observed and evaluated in the high and higher secondary schools where they were undergoing intensive teaching practice. The performances of the school students taught by the prospective teachers were also analyzed. The collected data were compared and analyzed later.

14. DATA ANALYSIS

As far as the experimental phase is considered the researcher followed the Pre test - Post test - Equivalent-Groups Design. In this design, a pretest was administered to both control and experimental groups, and the post test at the end of the treatment period. In the pre test the student teachers' attitude towards teaching profession, knowledge about the aims and objectives of teaching English as a second language and their language proficiency were assessed. The post test comprises the qualitative assessment of student teachers' prose teaching by the language teachers and the learning attainment of school students in English who were taught by the sample.

15. RESEARCH FINDINGS

- On the whole, the prospective teachers of experiment group performed well in the class room teaching compared with that of the control group.
- The students of the experiment group were more confident in their class room transaction than the control group. The former group felt ascertain about the aims and objectives of teaching English prose lesson than the latter group.
- The students of the experiment group could read well the prose lesson with proper pronunciation and other phonetic elements than the control group.
- The students of the experiment group taught the new words in the lesson with the use of PowerPoint presentation which appealed every student and apart from that the school students rapidly construct their own sentences using the new words; thereby they attained the aim of learning a new word.
- The students of the experiment group excelled in drawing mind maps and developing the prose lesson appropriately with well-established rapport with the students whereas the classroom interaction between the teacher and the students were not at the satisfactory level in the control group.
- The techniques of group discussion, dramatization and other stage shows like mono-act, mime and tableau were effectively handled by the students of the experiment group and they were missing in the class rooms of the control group teachers.
- As they were instructed the students of the experiment group wrote the journals which helped them to reflect their own teaching and helped them to modify and improve in the next class. But the student teachers of the control group never tried like that. They didn't register their class room experience in black and white.

- The students of the experiment group conducted formative evaluation regularly regarding the content of the lesson and apart from that they focused on developing and honing up the language skills of the students by conducting various language games. Hence the school students evinced enormous interest in learning the language which was noticed by their involuntary involvement in the class room transaction and frequent responses of the students. The class rooms were highly interactive and students centered. The class rooms of the prospective teachers of control group were as normal as other subjects and the students remained passive except the bright learners. The student teachers didn't pose many questions to the students and they were teacher centered.
- The average score of the achievement test scores of the school students taught by the experiment group was higher (78.8%) than their counterparts taught by the control group (68.4%).

16. DELIMITATIONS

The researcher could train the students for 31 days alone as they have to concentrate on theory papers too. The prospective teachers' performances were observed and registered by the respective mentors from the same schools where they undergo practice teaching. The researcher visited and observed all of them once or twice.

17. EDUCATIONAL IMPLICATIONS AND RECOMMENDATIONS

It is implied that the teacher education programme has to undergo a great change to suit the needs of the present society. The prospective teachers have to be trained well to teach a foreign language ie. English, knowing the aims and objectives of it. This strategy will be of great use to the teacher educators to train the student teachers. The student teachers can not consider teaching a language as equal to teaching a subject like science or mathematics. The main observation the researcher found was the necessity of prospective teachers' good command over English language. They must be ready to adapt new methodology and be familiarized with the advancements in their field. It was also recommended that the foreign language teachers need nod completely depend upon the textbook. They should conduct many activities to develop the language skills of the students. Apart from teaching about the language, the prospective teachers must be encouraged to make their pupils to use the language.

18. SCOPE FOR FURTHER RESEARCHES

Similar strategies can be devised for teaching poetry and other language elements.

Comparative studies on teaching English between any two common wealth countries may be conducted.

19. CONCLUSION

The training of English teachers assumes great importance today because, (i) the rapid increase in school and college enrolments and (ii) the deteriorating standards of teaching English. Prospective English language teachers need to equip themselves with English – a fairly high standard of language competence. Secondly they need what has been called "grass root training". This kind of training, however, has to be modified operationally in order to meet the specific demands made by the Indian situation in general and the individual teacher in particular. Besides, this training will have to be viable on the psycho social front too – it must turn a trainee into a conscious personality and equip him with such techniques of teaching as are most appealing to both the teacher and the taught.

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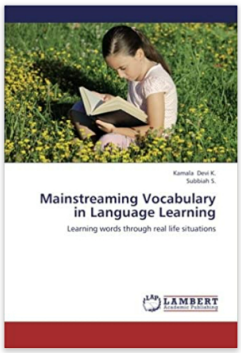

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Learning of vocabulary plays a vital role in learning a language as the words are the building blocks of language. The way, the words are learnt determines the fluency. Words learnt in real life situation or in natural ways can be retrieved easily while speaking. This ensures the fluency of talk. Hence, vocabulary of foreign language should be taught without the interference of the mother tongue to the maximum possibility. This book reports the research study on teaching the vocabulary of English language aided with technology. With the help of animation and PowerPoint presentation, the new words were introduced along with the context. This enabled the learners to learn the new words as they had learnt in their mother tongue. This book will appeal to the teachers of

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LANGUAGE IN INDIA

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Volume 11 : 11 November 2011
ISSN 1930-2940

Mainstreaming the Vocabulary through Multimedia Modules ☺ An Analysis

K. Kamala Devi, M.A., M.Ed., M.Phil.

Obstacle to Obtaining Fluency

Words, words, mere words☺ the major factor that inhibits the fluency of second language learners. Especially the beginner students find themselves sailing in two boats at the same time as they try to grapple with the structure of a new language and search for the apt vocabulary to use. It is the greatest challenge for the teachers of second language to make the children feel at ease while expressing their ideas and feelings. The flow of the words should match the speed of their thoughts, for which the vocabulary should be acquired rather than learned.

The acquisition normally takes place unconsciously and inductively while the new things are presented with the real situation, whereas the conscious efforts are put forth for learning. This acquisition can easily become possible while the teacher is able to supply the real experiences inside the classroom. Here the multimedia packages come to the rescue.

Multimedia Packages

The role played by multimedia packages for educational purposes is highly significant. It helps to overcome barriers to fluency and help students and teachers go beyond the four walls of the classroom. It fills the gaps in learning. Those who have properly implemented the multimedia instructional system have reported that outcomes exceeded both single medium channel utilization and traditional verbal instruction (Goel, D.R. et al. 2002).

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From

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IJAEMA JOURNAL, VOLUME XII, ISSUE VII, JULY- 2020

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INDEXED JOURNAL REFEREED JOURNAL PEER REVIEWED JOURNAL ISSN: 2456-0057
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INTERNATIONAL JOURNAL OF PHYSIOLOGY, NUTRITION AND PHYSICAL EDUCATION

VOLUME 4 ISSUE 2S SPECIAL ISSUE 2019

BALAJI PUBLICATIONS
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Impact Factor: Impact Factor: RJIF 5.43
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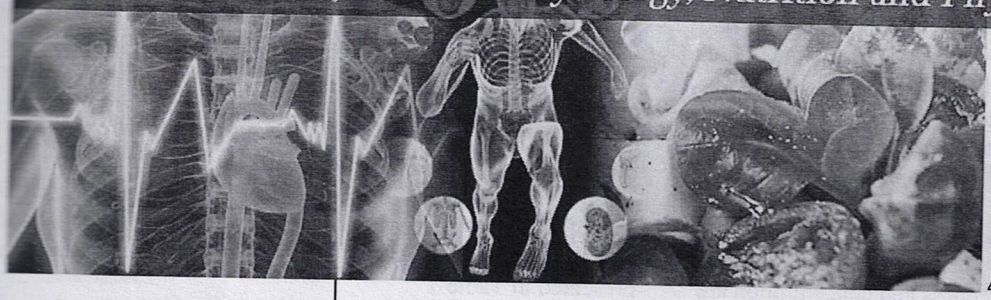

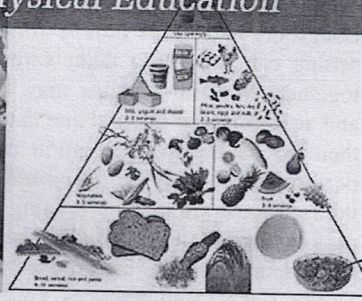

ISSN: 2456-0057
IJPNPE 2019; SP2: 13-15

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(Special Issue- 2)
"International Seminar on Application of Engineering in Sports"
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The effect of ICT training enhances mindful attention among basketball players

Dr. S Velvizhi

Abstract
The purpose of this research was to investigate the effect of four weeks ICT training on Mindful attention awareness among Basket Ball players. In this experimental study, demographic questionnaire, Mindful Attention Awareness Scale (MAAS), for this study were used. Sixty Sarada college of Physical Education Basket Ball Players (women) were chosen with randomized way allocated into an experimental and a control group. Experimental group undertook ICT training and they were watched Basketball video shooting clippings for twenty minutes and twice a day for thirty days and they were practiced in the ground that they were watched in the clippings and control group undertook not any practice and they had their routine life. The data were analysed using descriptive Mean, SD and independent t-test in statistically methods. Result exposed significant increase in Mindfulness.

Keywords: ICT training, Mindful attention awareness, Basket Ball Players

1. Introduction
Information Technology is a combination of communication, reservation, processing and multimedia capabilities. The main role that is played by communication networks is information and communication technology. Today, information and communication technology (ICT) is based upon scientific finding particularly training sciences, developmental psychology and knowledge and learning capability. ICT includes the range of hardware and software devices and programmes such as personal computers, assistive technology, scanners, digital cameras, multimedia programmes, and image editing software, database and spread sheet programmes. It also includes the communications equipment through which players seek and access information including the Internet, email and video conferencing. ICT may also be a significant motivational factor in players training and can support player's engagement with collaborative practicing. Young players are capable independent practitioners, able to use ICT confidently, creatively and productively, able to work collaboratively, and to critically evaluate, manage and use information. This involves digitally recording on cameras, the movements of players during sporting activities which can then be used for evaluation by the performer and their coach and for enhanced spectator entertainment. Practicing mindfulness also enhances immune response, aspects of cognitive function, attention abilities and emotional regulation and all important to performance in Basketball. Focus needs to be on developing fundamental basketball skills that is stance, footwork, dribbling, passing and shooting. So shooting is vital role for all skill. In addition as a coach also want to help the Basket Ball players develop through ICT training for the game. Motivate the game of basketball and the skill of shooting that all coaches need to focus on developing in their Basket Ball players.

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ISSN:2455-2631

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Published in

Volume 4 Issue 7, July-2019

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Paper Title: THE EFFECT OF YOGIC PRACTICE ENHANCES MEMORY AMONG STUDENT TEACHERS

Authors Name: Dr. S. VELVIZHI

Unique Id: IJSDR1907041

Published In: Volume 4 Issue 7, July-2019

Abstract: The purpose of this research was to investigate the effect of four weeks yoga training on Memory among student teachers. In this experimental study, demographic questionnaire, Multifactorial Memory Questionnaire (MMQ), for this study were used. Thirty Sarada college of education student teachers (women) were chosen with randomized way allocated into an experimental and a control group. The experimental group participated in daily yoga classes and Padmasana and Paschimottanasana for 30 minutes duration for one month. Both groups were assessed again after the one month study period. The data were analyzed using [illegible] independent t-test in statically methods. Result [illegible] in Memory.

Keywords: Yoga, Memory, Student teachers.

Cite Article: "THE EFFECT OF YOGIC PRACTICE ENHANCES MEMORY AMONG STUDENT TEACHERS", International Journal of Science & Engineering Development Research (www.ijsdr.org), ISSN:2455-2631, Vol.4, Issue 7, page no.245 - 247, July-2019

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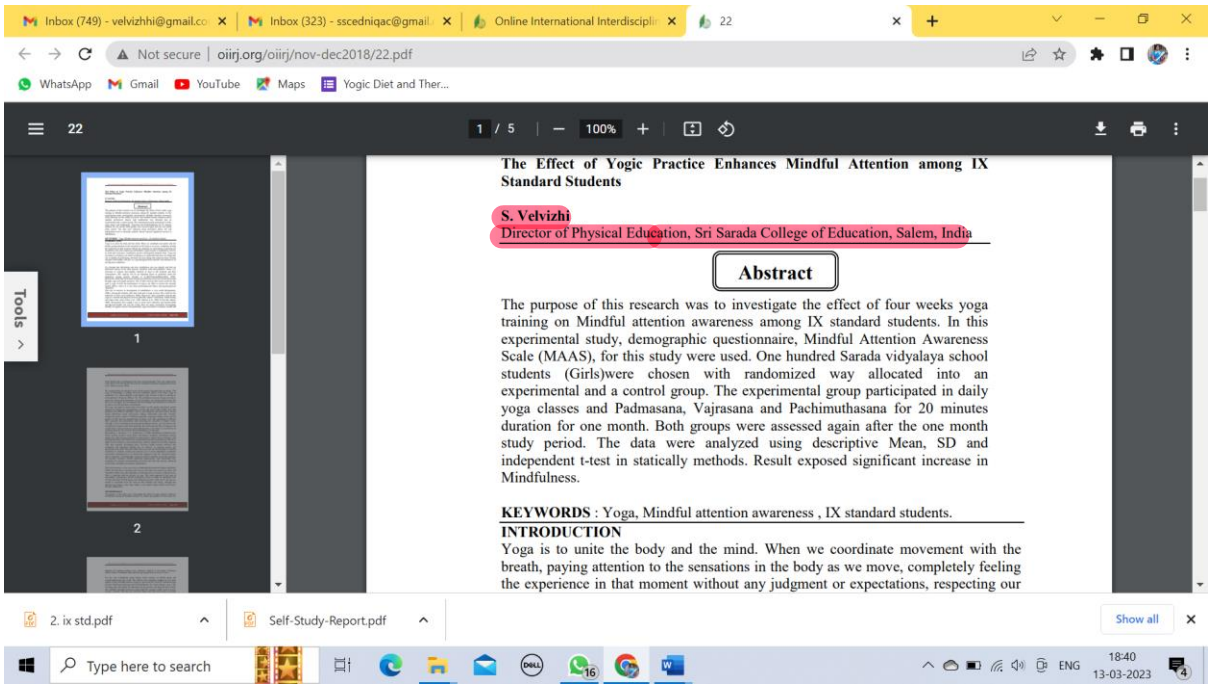

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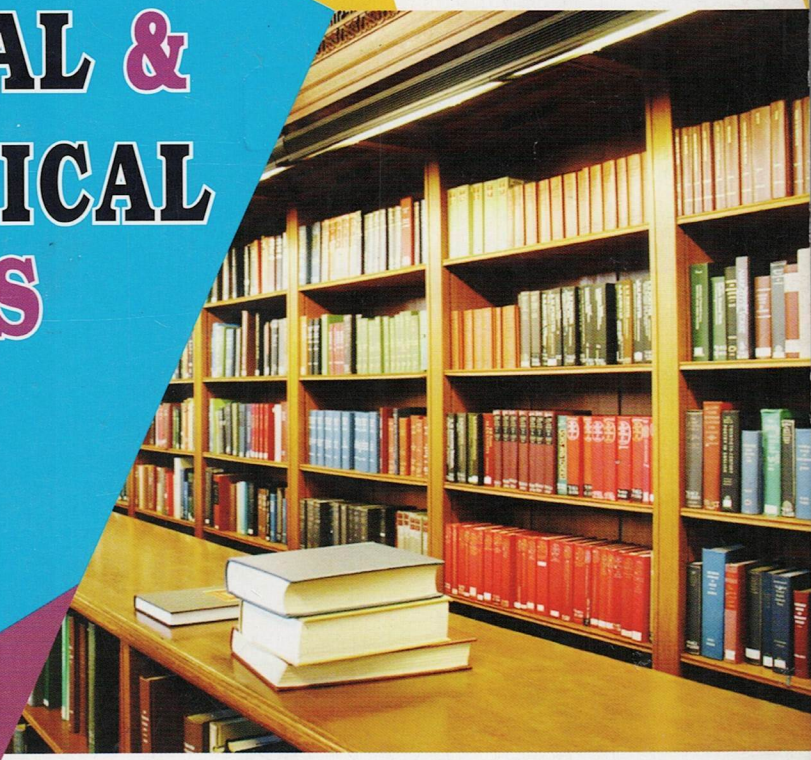

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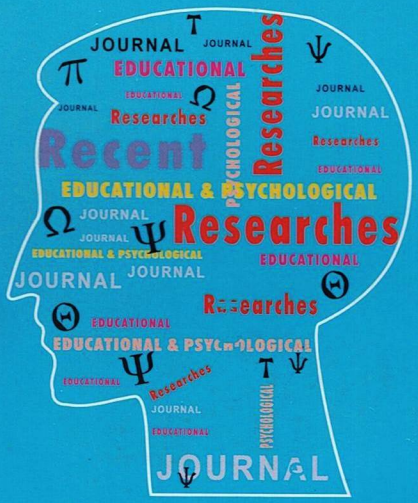

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Vol.
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ISSN

THE EFFECT OF YOGIC PRACTICE TO RESTRAIN ANXIETY AMONG BASKET BALL PLAYERS

VELVIZHI
Director of Physical Education, Sri Sarada College of Education, Salem, Tamil Nadu

Received : 20/03/2018 *1st BPR* : 22/03/2018 *2nd BPR* : 01/04/2018 *Accepted* : 11/04/2018

ABSTRACT

The purpose of the research was to investigate the effect of four weeks yoga training on Anxiety among Basketball players. In this experimental study demographic questionnaire, Sports Competition Anxiety Scale (SCA), for this study were used . One hundred Sarada College of Education , Basket ball players (Women) were chosen with randomized way allocated in to an experimental and control group. The experimental group participated in daily yoga classes padmasana and vajrasana for 30 minutes duration for one month. Both groups were assessed again after the one month study period, The data were analyzed using descriptive Mean, SD and independent t-test in statically methods, Resul exposed significant reduces in Anxiety.

Key words : Yoga, Anxiety, Basketball Players.

INTRODUCTION

Yoga is uniting the body and the mind. Yoga is mental, physical and spiritual. It provides powe benefits for our health and fitness. And it also offers harmony, balance and peace for the mind and soul.Yoga is not just about bending or twisting the body and holding the breath. It is a mechanism bring you into a state where you see and experience reality just the way it is. If we allow our energies become exuberant and ecstatic, our sensory body expands. This enables us to experience the whole universe as a part of ourselves making everything one ,this is the union that yoga creates.There are many different paths to yoga out there. Yoga is great if we wish to lose weight or get back in shape, and engage on a journey to the healthiest and happiest us .Check out our collection of beautiful, high quality performance yoga apparel. Handcrafted ethically with the best fabric, colors and designs to support your daily yoga practice.We all love to visit peaceful, serene spots, rich in natural beauty.

Little do we realize that peace can be found right within us and we can take a mini-vacation to experience this any time of the day, Yoga is also one of the best ways to calm a disturbed mind.Yoga trains with greater awareness. The mind is constantly involved in activity.swinging from the past to the future but never staying in the present. By simply being aware of this tendency of the mind, we can actually save ourselves from getting stressed or worked up and relax the mind.

Yoga and pranayama help create that –awareness and bring the mind back to the present moment where it can stay happy and focused. A few minutes of yoga during the day can be a great way to get rid of stress that accumulates daily - in both the body and mind. Yoga postures, pranayama and meditation are effective techniques to release stress. When we practice yoga, our body is filled with refreshing energy that uplifts our mood almost instantly. When we are on the mat, we focus on the practice. This means that all our attention is concentrated on the matter at hand, and our mind slowly drains out the stress and troubles that are plaguing it.

International Refereed
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Research Journal

Issue
03
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04
Oct.-Nov.-Dec.
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ISSN 2348 -

International Refereed & Blind Peer-Reviewed Multidisciplinary Research Journal

THE EFFECT OF YOGIC PRACTICE TO RESTRAIN ANXIETY AMONG STUDENT TEACHERS

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Director of Physical Education, Sri Sarada College of Education,
Salem, Tamilnadu

Received : 13/10/2017 *1st BPR* : 15/10/2017 *2nd BPR* : 25/10/2017 *Accepted* : 11/11/2017

ABSTRACT

The purpose of this research was to investigatethe effect of four weeks yoga training on a attention Anxiety among Student teachers. In this experimental study, demographic questionnaire Sports Competition anxiety Test (SCAT) for this study were used. Hundred Student teachers (women) were chosen with randomized way allocated into a control and an experimental group. The experimental group participated in daily yoga classes and Pranayama, Padmasana and vajrasana for 30 minutes duration for one month. Both groups were assessed again after the one month study period. The data were analyzed using descriptive Mean, SD and independent t-test in statically methods. Result exposedsignificant increase in Anxiety.

Keywords: Yoga, Anxiety,Student teachers.

Introduction

Yoga is to unite the body and the mind and Anxiety is characterized by apprehension uneasiness and fore boding from which the individual cannot escape. It is accompanied by feeling of helplessness because the anxious person feels blocked and unable to win for their match, through anxiety develops from fear and worry. It is distinguished from their in several aspects. By increased reducing perceived stress and anxiety, yoga appears to modulate stress response systems. This, in turn, decreases physiological arousal and reducing the heart rate, lowering blood pressure, and easing respiration. There is also evidence that yoga practices help increase heart rate variability, an indicator of the body's ability to respond to stress more flexibly. A little bit of fear is normal so that we remain disciplined, focused and dynamic.

The problem starts when this fear becomes persistent and so intimidating as to start interfering with our everyday life.Yoga annihilates the emotional block that prevents us from leading a hearty life and restores the mind and body affinity.The continuous practice of yoga asana helps in overcoming anxiety, as it reduces excessive secretion of stress hormones like cortisol and adrenalin.Regular practice of Yoga stimulates metabolism and increase energy through optimised supply of oxygen to different organs including brain and the body.Yoga invigorates the rebalancing of hormonal state of the body. Yoga asana with controlled breathing 'pranayama' exercises helps in stopping the unnecessary thinking, thereby encourages the mind to attain calmness.Yoga breathing exercises helps in controlling temper and calms the mind, while deep breathing with folding hands oxygenates the body and accelerates the By controlling their breath, practitioners can alter their state of mind. Breathing initiated pranayama stimulates parasympathetic nervous system which in turn calms and soothes the mind.Bunde (2005) examined that women with depression and anxiety are at disease and increased risk for developing

ISSN 2347-1751 Karkka Karpikka

RNI No. TNMUL/2013/56354

கற்க கற்பிக்க

Karkka Karpikka

कर्क्क कर्पिक्क

Published by P. Ratna Sabapathy

Editor: G. Periannan

Vol. No. 8 Issue No. 1 Tri-Language Journal (Quarterly) Sep. 2020 Price :₹25/-

Annual Subscription Rs.100/-

அ A ஆ

தமிழ்நாடு ஆசிரியர் கல்வியியல் பல்கலைக்கழகம்

காரப்பாக்கம், சென்னை-600 097, தமிழ்நாடு ,இந்தியா.

கலைத்திட்ட வரைவு, மதிப்பீட்டுத்துறை

தமிழகக் கல்வி ஆராய்ச்சி வளர்ச்சி நிறுவனம்

பதிவு எண்:308/2005

சென்னை-600 024, தமிழ்நாடு, இந்தியா.

கற்க கற்பிக்க

முத்திங்கள் மும்மொழி இதழ்(ISSN 2347-1751 karkka karpikka)

இணைந்து நிகழ்த்திய

பன்னாட்டு இணையவழிக் கருத்தரங்கம்

தமிழர் தொல் மரபுகள்

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07.08.2020

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தமிழ் பண்பாடுத் துறை

தமிழ்நாடு அரசு

செய்தி பக்கம் 50

பல்லூடகம் வழி கற்றல் - கற்பித்தல் செயற்பாடுகளும் திறன்மேம்பாடுகளும்

முனைவர் டை. கவிதா, உதவிப்பேராசிரியர்,
ஸ்ரீ சாரதா கல்வியியல் கல்லூரி, [தன்னாட்சி], அழகாபுரம், சேலம்.

கணினி ஆற்றல்மிகு பயன் தரும் ஓர் அருமையான ஊடகம்; துணைவன். எனினும் கணினி பயன்படுத்துவதில் தயக்கம் காட்டுவது உண்டு. இந்த அறிவியல் காலகட்டத்தில் கணினித் திறன்களை வளர்த்துக் கொள்வது மிகவும் தேவையானது. தகவல் பரிமாற்றத் திறன்களை உருவாக்கவும் வளர்க்கவும் ஆர்வத்தையும் நாட்டத்தையும் மேலும் கூட்டவும், பல்வேறு கல்விசார், அலுவல்சார் செயல்பாடுகளுக்கும் கணினியைப் பயன்படுத்துவது காலத்தின் கட்டாயம். அதே நேரம் இச்செயற்பாட்டிற்கெனப் பல்வேறு திறன்கள் தேவைப்படுகின்றன. வன்பொருள், மென்பொருள் பற்றிய அறிவு, என்னென்ன மொழிசார் மென்பொருள்கள் கிடைக்கின்றன?, அவற்றை பயன்படுத்தும் அறிவு, கணினிக்கான படங்களின் வடிவமைப்பு போன்ற பல திறன்களும் தேவைப்படுகின்றன.

கல்வி, ஆட்சி [நிர்வாகம்], தகவல் தொடர்பு போன்ற துறைகளில் கணினியின் பயன்பாடு மிகவும் கூடி வருகின்ற இந்நேரத்தில் கணினி மற்றும் மொழிக் கல்விக்கான பல்லுடகம் எந்த வகையில் பயனாகிறது என்பது பற்றிய ஓர் அலசலைப் பற்றியும் அதை மதிப்பீடு செய்வது பற்றியும் இங்குக் காணப்படுகிறது.

1980-90களில் உருவாகி புதுச் சிந்தனைகளையும் புதுப்புது அறிவியல் கண்டுபிடிப்புகளையும் உள்ளடக்கி வளரத்தொடங்கியது பல்லூடகம். இது பனுவல், ஒலி, ஒளி, வரைகலை, பட அசைவு, ஊடாட்டம் போன்றவற்றை உள்ளீடாகக் கொண்டது. இக்கூறுகள் கற்றலை விரைவுபடுத்தும், பயனர்களிடம் ஆர்வத்தையும் மேலும் ஊட்டும். பயன்படுத்தும்போது வளர்திறன் பயிற்சிகளின் வழி அவர்களின் திறன் வளர்ச்சியையும் கவனித்து, குறையிருப்பின் அவற்றிற்கான தீர்வுகளையும் எடுத்துக்கூறி அவர்களின் அடைவை மேம்படுத்த முடியும். இவற்றோடு பயனர்களுக்குக் கணினி வழி கிடைக்கும் பின்னூட்டங்கள் வழியாக தாங்களே தங்களின் திறன் வளர்ச்சியை அளவிட்டுக் கொள்ள இயலும்.

கற்பித்தல் - கற்றல் குறிக்கோள்கள் வரையறுக்கப்பட்டவுடன் தயாரிக்கப்பட இருக்கின்ற பல்லூடகம் வழியாகச் சிந்தனைத்திறன், காரணம் கற்பிக்கும் திறன், சிக்கல்களுக்கான தீர்வு காணும் திறன், படைப்பாற்றல் திறன், பாடப்பொருள் அறிவு போன்ற திறன் வளர்ச்சிகளோடு கற்றல் ஆர்வத்தைத் தூண்டுதல், நேர்ச்சிந்தனைகளை வளர்த்தல், மனபோக்குகளைச் சீர்செய்தல், விழுமியங்களை மறைமுகமாக வளர்த்தல் போன்றவற்றையும் குறிக்கோள்களுடன் இணைத்து அவற்றிற்கான வழிமுறைகளை வடிவமைப்பு செய்துகொள்ள வேண்டும். இவற்றின் துணைக்குறிக்கோள்களாக அறிவுமேலாண்மையும், கூட்டுமுயற்சியையும் மென்திறன்களையும் வளர்ப்பதற்கான செயலுத்திகளையும் காணவேண்டும்.

பல்லூடகத்தின் ஆறு கூறுகளையும் எப்படித் தரப்போகிறோம் என்பது ஒரு சவாலாகும். பயனர்களின் முன்னறிவிற்கும் வயதிற்கும் தேவைக்கும் ஏற்ப வடிவமைப்பு செய்வது எளிதன்று. எனினும், மொழிதிறன்களை அடிப்படையாகக் கொண்டு வடிவமைப்பு செய்யலாம் என்பது பொதுப்படையான கருத்து.

'உற்றுநோக்கலை' அடிப்படையாகக் கொண்ட கேட்டல், பேசுதல், வாசித்தல், எழுதுதல் என்னும் அடிப்படை திறன்களும் ஆற்றொழுக்காகப் பேசுதல், வாக்கிய இணைப்புகளைப் பயன்படுத்தி எழுதுதல், கருத்துக்கோவையைச் செம்மைப்படுத்துதல், கருத்துக்கோவையின் அடிப்படையில் கோர்வையாகப் பத்தி அமைத்தல், படைப்பாற்றல் திறன் வளர்த்தல், போன்ற உயர்திறன்களையும்

திட்டமிட்டுப் பல்லூடகத்தில் வடிவமைக்க வேண்டும். இவற்றோடு வேறுபல தேவைப்படும் திறன்களான நினைவாற்றல், கவனச்சிதைவின்மை, சீர்படுத்துவதில் விரைவு, வளைந்து கொடுத்தல், சிக்கல் களுக்குத் தீர்வு காணல், தகவல் பரிமாற்றத் திறன் போன்றவற்றையும் எதிர்பார்ப்புகளாகச் சேர்த்துக்கொள்ளவேண்டும்.

பல்லூடகத்தைப் பயன்படுத்துவோரின் மனம் மற்றும் அறிவு வளர்ச்சிக்கு உளவியல், சமூதாயவியல், மொழியியல், கணினித் தொழில்நுட்பம் போன்றவற்றின் பல்வேறு கூறுகளும் தேவையாகின்றன.

புரிந்து கொள்ளுதலையும் புதிதாகப் படைக்கும் ஆற்றலையும் வளர்க்கப் பல்வேறு 'உளவியல் கூறுகள்' செம்மையாக உதவுகின்றன.

எடுத்துக்காட்டுகளிலிருந்து விதிகளை உருவாக்குதல், விதிகளுக்கு எடுத்துக்காட்டுகள் தருதல், சொற்களுக்கும் பொருண்மைக்கும் இடையிலான தொடர்பை உணர்தல், மொழித்திறன்களின் அடிப்படையிலான உருவாக்கும் திறனையும் படைப்பாற்றல் திறனையும் வளர்ப்பதில் 'மொழியியல் கூறுகள்' பெரும்பங்கு வகிக்கின்றன.

சமுதாய மாற்றத்திற்கு ஏற்ப மொழிப் பயன்பாட்டை முன்னிறுத்தி, மாறிவரும் அல்லது வேறுபட்டு வரும் மொழிச் சிந்தனைகளையும் முன்னரே பெற்ற மொழித்திறன்களின் அடிப்படையில் மொழிச் செயலை வலுப்படுத்தும் உத்திகளையும் 'சமுதாயவியல் கூறுகள்' வளர்க்க முற்படுகின்றன.

தாய் மொழி / முதன்மொழி அல்லது இரண்டாம் மொழியாகக் கற்பித்தல்- கற்றல் செயற்பாடுகள் வேறுபடும் என்பது தெளிவு. வீட்டு மொழியும் பள்ளி மொழியும் ஒன்றாக அமைந்து தாய்மொழிக் கல்வியாக இருப்பின் கற்பித்தல் முறைகளும் உத்திகளும் பாட பொருள்களும் அவற்றிற்கு ஏற்ற பயிற்சிகளும் மாறுபடும் என்பது கண்கூடு. இதைப் போன்றே வீட்டுமொழி வேறாகவும் பள்ளி மொழி மற்றொன்றாகவும் அமைவதும் தமிழ் நாட்டில் ஒரு இயல்பான கூறே. எடுத்துக்காட்டாகத் தமிழ் பள்ளி மொழியாக அமைந்து தமிழ்நாட்டைப் பொறுத்தவரை வீட்டு மொழியாக, தெலுங்கு, கன்னடம், மலையாளம், மராத்தி, உருது, சௌராஷ்டிரம் போன்ற சிறுபான்மை மொழிகளும் பழங்குடி மக்களின் மொழிகளும் அமைந்திருப்பது தெரிந்த ஒன்றே. இவ்வாறு வேறுபடும் போது மேற்சொன்னவாறு முறைமையும் உத்திகளும் வேறுபடும். தமிழ் தெரியாதவர்களுக்கான, அதாவது இரண்டாம் மொழியாகக் கற்பவர்களுக்கான உத்திகளும் முறைகளும் வேறுபடும். ஆட்சி மொழியாகத் தமிழ் அமையும்போது வேறு மாநிலத்தைச் சேர்ந்தவர்கள் அரசு அல்லது அரசு சாரா நிறுவனங்களில் பொறுப்புகளில் வரும்போது அவர்களின் மொழி திறன்களும் மொழியறிவும் வேறுபடும். ஆக, பள்ளி / கல்லூரிக் கல்வியில் மட்டுமல்லாது நிர்வாகத்தைச் சேர்ந்தவர்களின் மொழிக் கல்வியும் வேறுபடும். எனவே, பல்லூடகங்களும் அதற்குத் தகுந்தவாறு உருவாக்கப்பட வேண்டும். இந்நேரத்தில் கணினி வழியாகத் தமிழ் கற்றுக்கொள்ளப் பல்லூடகங்கள் பலவும் உருவாக்கப்பட்டுப் பயன்பாட்டில் உள்ளதை இங்குக் குறிப்பிட்டாக வேண்டும்

தமிழைத் தாய்மொழியாக / முதன் மொழியாகக் கற்பவர்களுக்கு எனச் 'செந்தமிழ் வரிசை' பல்லூடகப் பேழைகள்,

தமிழை இரண்டாம் மொழியாகக் கற்பவர்களுக்கு எனத் 'தமிழ் உலகம்' என்னும் பல்லூடகப் பேழைகள் 'தமிழ் தென்றல்' என்னும் பல்லூடகப் பேழைகள்,

இவை போன்ற கணினிக்கான பாடங்கள் பல உருவாக்கப்பட்டுள்ளன. அவற்றின் குறிக்கோள்களும் கற்பித்தல் உத்திகளும் கற்றலுக்கான தேவை அடிப்படையில் வேறுபட்டு இருக்கின்றன

இவ்வாறாக உருவாக்கப்பட்ட பல்லூடகப் பேழைகளில்,

- கருத்தியல் உருவாக்கம்
- பேழை வடிவமைப்பு
- முன்விளைம நடவடிக்கைகள்
- தயாரிப்பு
- மதிப்பீடு
- ஆவணப்படுத்துதல்

என்னும் பல படிகளும் உள்ளடங்கியுள்ளன.

பனுவல், ஒலி, ஒளி ,வரைகலை, பட அசைவு, ஊடாட்டம் ஆகியவை சரியான விகிதத்தில் /அளவில் பின்னப்பட்ட பல்லூடகமே சிறந்தது எனக் கருதப்படுகிறது. நிர்வாகம் தொடர்பான பல்லூடகமாக அமைந்தால் கீழ்வரும் கூறுகளை உள்ளடக்கிய தாகவும் தயாரிக்கப்பட வேண்டும்.

மொழி: நிர்வாகம் அல்லது பாடம் தொடர்பான சொற்கள், வாக்கிய அமைப்புகள், பனுவல்கள், நிர்வாக மொழி அமைப்பு. இலக்கியமாக இருந்தால் அதன் யாப்பு, சொற்கள், முதமலியன.

உள்ளடக்கம் : பாடத்திட்டம் சர்ந்தவை. நிர்வாகம் தொடர்பானதாக இருந்தால் பல துறைகள் அல்லது நிலைகளில்: ஊராட்சியில் இருந்து மாநகராட்சி வரையிலும்; அமைச்சரகம் முதல் நீதிமன்றம் வரையிலுமான தகவல் தொடர்புகள்.

மொழிபெயர்ப்பு: ஆங்கிலத்தின் பயன்பாடு இன்னும் முழுவதுமாக நிறுத்தப்படாத நிலையில் நிர்வாகம் தொடர்பான எல்லா ஆவணங்களிலும் ஆங்கிலத்திற்கான ஓர் இடம் அளிக்கப்பட்டுள்ளதையும் கவனத்தில் கொள்ளா வேண்டும்.

கணினித் தொழில்நுட்பம்: அதன் பயன் பற்றிய அறிவுத் தளம், உணர்வுத்தளம், மற்றும் செயல்பாட்டுத் தள வளர்ச்சிக்கான பயிற்சிகள், சூழலுக்கு ஏற்றவாறு படங்களை அமைத்தல், உருவாக்கப்பட்ட மென்பொருள் பற்றிய அறிவும் பயன்பாடும், போன்ற கூறுகளையும் இணைத்துக்கொள்ள வேண்டும்.

இக்கூறுகளோடு மேலும் பல கூறுகளைத் தேவைக்கு ஏற்றவாறு சேர்த்துக் கொள்ளலாம். இதுவரை உருவாக்கப்பட்ட, தமிழ் கற்பிப்பதற்கான, கற்றுக்கொள்வதற்கான பல்லூடகப் பேழைகளின் வடிவமைப்பைப் போலவே ஆட்சித் தமிழுக்கான பயிற்சிப் பல்லூடகமும் அமையும்.

நிர்வாகத்தோடுத் தொடர்புடைய அலுவலர் களிடம் கீழ்வருவனவை எதிர்பார்க்கப் படுகின்றன.

1. மொழித்திறன் வளர்ச்சி
2. சூழலுக்கு ஏற்ப அறிவையும் திறனையும் ஆளுதல்
3. நிர்வாக அறிவும் மேலாண்மையும்
4. ஆளுமை வளர்ச்சி
5. சமுதாயத்தேவை

இவ்வைந்து குறிக்கோள்களையும் உள்ளத்தில் கொண்டு பல்லூடகப் பேழையை வடிவமைக்கலாம். பேழைகளில் வரும் கூறுகளாவன [நடராச பிள்ளை, & ந. கணேசன், மா, 2000]

1. பாடம்
2. பயிற்சிகள்
3. விளக்கங்கள்
4. ஊடாடுதல்
5. இலக்கணம்
6. வரிவடிவம்
7. அகராதி
8. மொழிவிளையாட்டு
9. பேச்சுத்தமிழ்- எழுத்துத்தமிழ் பயன்பாடு
10. புணர்ச்சிவிதிகள்
11. மொழிபெயர்ப்பு
12. பிறசெய்திகள்- தேவையின் அடிப்படையில்

அறிவுக்களத்தின் பரிமாணங்களை இங்கும் எடுத்துக்கொள்ள வேண்டும். பொதுவாக, மொழியறிவுக்காக அறிதல் /நினைதல் எனும் இரண்டு கூறுகள் மட்டுமே குறிக்கோள்களாகக் கொண்ட பயிற்சிகள் மட்டுமே அமைகின்றன. ஆயின் 6 இயலுமைகளில் [Ability] இவற்றின் பயன்பாட்டை வலியுறுத்தவேண்டும் [இரத்தினசபாபதி, பி. 2010]

பெஞ்சமின் புளூமின் அறிதல், புரிதல், ஆளல், பகுத்தல், தொகுத்தல், மதிப்பிடல் ஆகியவையாக இருந்தாலும், சிறிய மாற்றங்களுடன் வரும் ஆண்டர்சனின் நினைதல், புரிதல், ஆளல், பகுத்தல், தொகுத்தல், ஆக்கல் என்னும் ஆறு தளங்களாக இருந்தாலும் தமிழ் பயன்பாட்டிற்கான பயிற்சிகள் அளிக்கப்பட வேண்டும் .

ஒவ்வொரு தளத்திற்கான பயிற்சிகளையும் வடிவமைப்பு செய்ய வேண்டும். இதற்குக் கணினித் தொழில் நுட்பமும் உருவாக்கப்பட்ட மென்பொருள்களும் பெருமளவில் துணைசெய்யும்.

நினைதல்: நினைவுகூர்தல், இனங்காணுதல், பெயர் கூறுதல், இடம் குறித்தல், விவரித்தல், பட்டியலிடுதல்.

புரிதல்: கருத்துகளையும் உரிமைகளையும் விளக்குதல், சுட்டியுணர்த்தல், பொருள் முழுமையாக்கல், பொழிப்பாக்கல், வகைப்படுத்தல்.

ஆளல்: செயல்படுத்துதல், பழகுதல், எடுத்தாளுதல், எடுத்துக்காட்டுத்தருதல், தகவலாக்கல், கணக்கிடுதல், இயக்குதல், விளக்கம் கேட்டறிதல்.

பகுத்தல்: ஒப்பிடுதல், முறைப்படுத்துதல், மாற்றி உருவாக்குதல், பண்புசுட்டல், எல்லைவரையறை செய்தல், கட்டமைத்தல், ஒருங்கிணைத்தல் .

தொகுத்தல் : சரிபார்த்தல், கருத்து கோளாக்கல், விமர்சித்தல், சோதனைக்குட்படுத்துதல், தீர்மானித்தல், தேர்விடுதல், கண்டறிதல், நெறிசுட்டல்.

ஆக்கல்: வடிவமைத்தல், கட்டமைத்தல், திட்டமிடுதல், உருவாக்கல், கண்டறிதல், ஊடகமாக்குதல், புத்தாக்கல்

இவை போன்றவற்றைப் பயிற்சிகளில் சேர்த்துக் கொள்ளவேண்டும். இவற்றோடு இன்று பலராலும் உருவாக்கப்பட்ட மொழி சார்ந்த மென்பொருட்களையும் உள்ளடக்கிக் கொள்ளலாம் அல்லது கணினியில் தந்துவிடலாம். அது தமிழ்ப் பயன்பாட்டை வழக்கமாக்கவும், எளிமைப்படுத்தவும், வலுப்படுத்தவும் உதவும். இம் மென்பொருளின் பயன்பாடு பயனர்களின் மொழியையும் ஒவ்வொரு செயலையும் வலுப்படுத்தும். தமிழ் மென்பொருள்களின் வகைப் பாட்டை பொறுத்தவரையில் கீழ்வருவன பற்றிய அறிவு, செயலிகள் பயன்பாடு, முதலியன பயனர்களுக்கும் பல்லூடகம் உருவாக்குபவர்களுக்கும் மிகுந்த பயன்தரும்.

1. தமிழ் தட்டச்சு
2. தமிழ் குறியேற்ற மாற்றிகள்
3. தமிழ்ச் சொல்லாளர்/ சொற்செயலி
4. ஒலி எழுத்துணரி
5. மொழி பெயர்ப்பு
6. தரவகம்
7. உருபனியல் பகுப்பாய்வி
8. தொடரியல் பகுப்பாய்வி
9 அகராதி உருவாக்கி

போன்ற ஏராளமான மென்பொருள்கள் தமிழ்ப் பயன்பாட்டை எளிமைப்படுத்துகின்றன.

எடுத்துக்காட்டாக, சொற்பிழைத்திருத்தி, சந்திப்பிழைத் திருத்தி, இலக்கணப்பிழை திருத்தி, தமிழ்ச் சொல்சுட்டி [அயல் மொழிக்கு இணையான], அகராதிகள், அகரவரிசைப்படுத்தி, சொல்லடைவி, எண்< > எழுத்து மாற்றி, போன்ற மென்பொருள்களையும் பல்லூடகத்திற் உள்ளிட்டு அமைப்பாக்கிவிட்டால் பயிற்சிகளும் படைப்புகளும், செயற்பாடுகளும், நடவடிக்கைகளும் எளிமையாகவும் ஆர்வம் ஊட்டுவதாகவும் அமையும் என்பதில் எள்ளளவும் ஐயமில்லை [சுந்தரம், இல. 2014].

'படத்தின் வழி கற்பது ஆயிரம் சொற்களைக் கற்பதற்கு நிகர்' என்று கூறுவார்கள். ஐம்புலன்களுக்கும் உணவளித்துச் செயலூக்கம் பெற வைத்து மனிதனின் உள்ளுருவாக்கமாக அமைகின்ற நம் கணினியான மூளைக்கும் படைப்பாற்றல் பயிற்சி அளிக்க பல்லூடகத்தால்தான் இயலும்.

தூண்டல்களினால்தான் சரியான துலங்கல் நிகழும் என்பது வெளிப்படையான உண்மை. பல கூறுகளும் பட்டறிவைக் மிகுவிக்கின்றன. எடுத்துக்காட்டாக, மனிதனின்- அல்லது வேறு எந்த விலங்குகளின்- எலும்புக்கூட்டையும் எளிதாகப் பல்லூடகத்தில் கொண்டுவர முடியும். சரியான உச்சரிப்பைப் பழக்கப்படுத்த ஒலிஉறுப்புகளின் பட அசைவு கொண்ட செயலுத்திகள் அல்லது பத்திரிகைத் தமிழ் பற்றிய சொற்பொழிவுகள், பணியரங்குகள், பயிலரங்குகள் போன்றவற்றின் கருத்துகளை உட்புகுத்த முடியும். இவ்வாறு அமைகின்ற பல்லூடகப்பேழையே மதிப்பீட்டில் முழு ஆதரவைப்பெறும்.

ஆசிரியர்களை அல்லது உருவாக்கியவர் களை மையப்படுத்தாமல் பயனர்களையும் தொழில்நுட்பங்களையும் மையப்படுத்திய பல்லூடகம் சிறப்படையும். என்ன? ஏன்? எப்படி? எப்போது? என்பனவற்றையே பயனர்கள் கவனிக்கவேண்டும். பல்லூடகத்தின் பயன்பாட்டைக் கீழ்வருமாறு பட்டியலிடலாம் [நடராச பிள்ளை, 2014].

- திறன்களை வளர்த்துக் கொள்வதற்கும் கற்பித்தலுக்கும் ஓர் ஆற்றல் மிகு ஊடகம்.
- களத்தில் நின்று பணிபுரிவது போன்ற உணர்வை ஏற்படுத்தும்.

- பாடநூலின் அச்சு ஊடகம் மட்டுமே உள்ளது; இதில் ஐம்புலன்களுக்கும் ஆர்வமூட்டும் நான்கு ஊடகங்களும் உள்ளன.
- இலக்கணத்தைப் பயன்பாட்டு வகையில் எளிமையாக்கி விதிகளையும் விளையாட்டாகக் கற்க வைக்கலாம்.
- பாடல்களைப் பாடிக்காட்டலாம்; நாடகங்களை நடித்துக்காட்டலாம்.
- அனுபவ உணர்வை வகுப்பிற்குள் கொண்டுவர இயலும்.
- எடுத்துக்காட்டாக, பண்பாட்டுத் தொடர்பான பழக்க வழக்கங்களை அந்தந்தச் சூழலிலேயே காட்டமுடியும்.
- படைப்பாளிகள், உரைகாரர்கள், திறனாய்வு செய்பவர்களின் பேட்டியைத் தர முடியும்.
- ஒவ்வொரு முறையும் புதுப்புது பயிற்சிகளை அறிமுகப்படுத்துவது போன்ற வடிவமைப்பு செய்யலாம்
- தவறுகள் / குறைகளுக்கான / பிழைகளுக்கான காரணங்களையும் சரியான விடையையும் உடனுக்குடன் தந்து பயனர்களை ஊக்குவிக்க முடியும்.
- ஒளி ஊடக விளையாட்டுகளின் வழி மொழிக் கூறுகளையும் உள்ளடக்கத்தையும் கற்றுக்கொள்ள முடியும்.
- ஒன்றிலிருந்து இன்னொன்றுக்குச் செல்லும் வழிமுறைகள் எளிதானவை.
- தனியாள் அல்லது குழுவாகக் கற்றலுக்கு ஏற்றவாறு வடிவமைப்பு செய்யப்பட்டுள்ளதால் கலந்துரையாடலும் அதனடிப்படையில் சிக்கல்களுக்கும் தீர்வு காணுதலும் எளிதாகும்.
- தேடிக் கண்டறிதல், கண்டுபிடிப்புகள் போன்றவற்றை அனுபவமாக இதில் கண்டு உணரலாம்.
- வெறும் தொழில்நுட்பம் கல்வியைத் தருவதில்லை. ஆயின் அதன் துணையுடன் கற்றல் மேம்படும்.
- பொழுதுபோக்குக் கூறுகள் சேர்க்கப்படலாம். குறிப்பிட்டவேளையில் கற்கவேண்டும் என்றில்லாமல் நேரம் கிடைக்கும் போதெல்லாம் கற்கலாம்.
- குறிக்கோள்களை நிறைவேற்றும் அல்லது அவற்றை நோக்கி நகரும் பல்லூடகப் பாடங்களாக அமையும்.
- வேடிக்கையும் விளையாட்டும் கலந்த கல்வியாக அமையும்.
- 'தவறிழைப்போம்' என்ற குற்ற உணர்வு இல்லாத அச்சமற்ற சூழலை உருவாக்கித் தரும்.

எல்லா ஊடகங்களின் கலவையாக அமைவதால் இணைந்து கற்றலும் செயலாற்றலும் ஏற்படுகிறது. இதன் அடிப்படையில் கற்றல் விளைவுகள் பங்கிடப் பட்டு பயனர்கள் எல்லோருக்கும் கிடைக்கும்.

இதுபோன்ற பல நற்கூறுகளும் கற்றல்-கற்பித்தல்-மதிப்பிடுதல் என்னும் செயல்பாட்டை வலுப்படுத்தும். தரவகம்வழி கற்றல்- கற்பித்தல் இன்று சிறப்பான இடத்தை பெற்றிருக்கின்றது.

இதைப் பயன்படுத்தி இப்போது வரையிலான அனுபவங்களை வகுப்பிற்குள் கொண்டு வர இயலும் .அதற்குக் கணினி வழி கற்பிக்கும் பல்லூடகம் மிகவும் பயனாகும். இவ்வளவு பயன்பாடுகள் இருந்தும் கணினிகள் கொடுக்கப்பட்டும் தகவல் பரிமாற்ற தொழில்நுட்பம் எல்லா துறைகளிலும் சிறப்பாகப் பயன்படுத்தப் படவில்லை என்பதே உண்மை. எனவே, தமிழுகெனத் தரவகம் ஒன்றும், பயிற்சி அளிப்பதற்கான பல்லூடக அறை ஒன்றும் உருவாக்கப்பட வேண்டும் என்பது காலத்தின் கட்டாயமாகும்; நடக்கும் என எதிர்பார்ப்போம்.

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ISSN 2347-1751 Karkka Karpikka

RNI No. TNMUL/2013/56354

கற்க கற்பிக்க

Karkka Karpikka

कर्क्क कर्पिक्क

Published by P. Ratna Sabapathy

Editor: G. Periannan

Vol. No. 7 Issue No. Tri-Language Journal (Quarterly) September 2019 Price : ₹25/-

Annual Subscription ₹100/-

அ A அ

05.09.2019 ஆசிரியர் செம்மல் விருது வழங்கும் விழா

டாக்டர் இராதாகிருஷ்ணன் அவர்களின் இல்லம், சென்னை - 600 004.

கற்க கற்பிக்க வெளியீட்டாசிரியர் உரை நிகழ்த்துகிறார்.

Role of Technical Terms in Textbooks and Principles of Coining terms

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1. Introduction

In this era of science and technology, knowledge of technical terms is very important since the government of India through its New Education Policy has envisaged that the knowledge texts (KT) are to be taught in the mother tongue of the children; here Tamil is taken to illustrate.

Therefore, it is very important to translate the text into Tamil or rewrite to popularize textbooks, especially, science books. In this context, one can find many linguistic and cultural issues involved in coining or translating the texts and the terms. Furthermore, the children must be able to appreciate, promote or share culture across languages. Hence, it is important to have an in-depth understanding of the technical terms.

The list of technical terms given in the Higher Secondary School first year Tamil textbook (Tamilnadu Textbook Academy, 2019) under the heading 'கலைச்சொல் அறிவோம்' with some terms produced in the Malaysian conference (2019), etc., have been taken for study in this paper.

Unfortunately, the textbook gives only a list of technical terms in each unit and not the ways or techniques by which they are coined. The students at this stage of education have achieved enough linguistic skills, grammatical knowledge and exposure to a variety of texts and hence a note on the principles and techniques of coining would be of great help.

2. Expertise in coining technical terms

Translators of the texts from English should be language professionals with the language skills in both the languages, namely, English and Tamil. Linguistic Knowledge in both the languages is necessary for the better understanding of the rules of both the source language, that is, English and target language, that is, Tamil. He should have knowledge of both the cultures since language and culture go hand in hand. It also requires the knowledge of the subject matter being translated.

3. Education

In early textbooks, and even now, there was/is an excessive dependence on English terms, many of them are little more than transliterations. For example, Bank, cycle, scooter, script, etc. are used in transliterated forms.

4. Principles of coining technical terms

Languages normally borrow terms from the source language for expressing new concepts borrowed from that dominant language. However, languages like Tamil though borrow terms at the first stage, prefer to coin their own terms in the second stage. These terms are called 'technical terms' since they belong to knowledge texts, which are normally science texts. There are no definite ways prescribed so far for coining technical terms. Ratnasabapathy (2019) lists and explains in detail the principles and

techniques proposed by Samuel Fish green to coin terms. There are some other principles (Nadaraja Pillai, 2018) using which one can coin new technical terms. Here the second list is explained with illustrations.

1) Match terminology to the ability of the audience.

We may use a term with great accuracy and still it may not reach our audience. Example

Language pedagogy	மொழிப் பயிற்றலியல்
Educational Psychology	கல்வி உளவியல்
WhatsApp	புலனம்
Youtube	வளையொலி
Instagram	படவரி

2) Use terms with consistency.

We must be sure that the same term is used for a given item each time. There should not be more than one technical term for a concept. Example

Archive ஆவணம். The same word is used for document also. The better word will be ஆவணக் காப்பகம்.

3) Provide clear definitions or explanations of unfamiliar terms

When technical terms are coined, one must be clear of the concept they express. Otherwise the terms may not reach the users and they use the original word borrowed fro English.

hardware	வன்பொருள்
software	மென்பொருள்
Train track	இருப்புப்பாதை
Railway signal	தொடர்வண்டி வழிக்குறி
Stamp pad	மை பொதி
gene	மரபணு

Unless the concepts of the coined word are expressed clearly, the usage will be restricted and will easily disappear from usage in due course.

பொதி is used as 'parcel' not as 'pad' in common use. If this is extended it has to be explained clearly and no second meaning is attributed to it.

இருப்புப்பாதை is the word used so far for train track. But it involves 'puNarcci' rules to understand- from இரும்பு + பாதை. But தொடர்வண்டிப் பாதை would have been a better choice.

4) Use a terminology list when introducing a variety of new terms into the work

Field wise list are to be prepared. This can be used when textbooks are prepared. Example

Glossary of technical terms in Chemistry
Glossary of technical terms in Zoology
Glossary of technical terms in Literature
Glossary of technical terms in sociology, etc.

5) Finding the translation/ dynamic equivalent

Textbook producers or translators need 'just-in-time glossaries.' when they start working. They cannot coin words when they work. The work will be an easy and interesting one if technical terms are provided to them. Example

Computer science	கணினி அறிவியல்
Soft skills	மென்திறன்கள்
Eraser	அழிப்பான்

They cannot afford to do a lot of background reading and fieldwork when they are seriously working for the preparation of textbooks. However, we need technical terms hence equivalents produced beforehand will be of much help. Otherwise textbook producers will coin terms of their choice. Example

Linguistic psychologist	உளவியல் மொழியியலார்
Strategies	உத்திகள்

There is no concept like 'Linguistic psychologist' but is used in the textbook. The correct word is psycholinguist and the equivalent is '*உளமொழியியலாளர்*'. The second example is *உத்திகள்*, whcih denotes 'techniques' and for strategies an already coined term '*செயலுத்திகள்*' is in use.

Language to language the word meanings may change. The quoted single verb, here, has different connotations in Tamil and hence it is very important to know the usage before coining a term.

Example

He played tennis.
அவன் டென்னிஸ் விளையாடினான்
He played the piano.
அவன் பியானோ வாசித்தான்.
He played a dual role.
அவன் இரட்டை வேடத்தில் நடித்தான்.
He played the king.
அவன் அரசனாக நடித்தான்.

6) They must be easy to say and spell

The coined word must be easily pronounceable and easy to spell the word. Example

திறன்பேசி Smart phone
தொடுதிரை Touch screen

7) They must be memorable

The coined word must be easily memorable so that students will easily recollect and use in their writings.

Example

மின்னூக்கி	charger
அழிப்பான்	eraser

8) Extendable.

Some of the words can be used to derive more words. The word '*தொலை*' distance is used as follows. Example

Telephone	*தொலைபேசி*
telegram	*தொலைவரி,*
telescope	*தொலைநோக்கி,*

9) Positive feeling

The users must have positive feeling about the coined term so that they easily accept and use it. Example

வருடி	scanner
விரலி	thumb drive

10) They don't have different meanings

Youtube *வளையொலி*

வளையொலி has the meaning of the 'sound of bangles' also. Hence this is not an appropriate term.

11) Create/coin more from them

If a word can be used with different words or affixes, it is considered as a more productive one. The words *கூறு* 'factors / features' and *அலை* 'wave' are used as follows. Example

Psychological	*உளவியல் கூறு*
Linguistic	*மொழியியல் கூறு*
Sociological	*சமூகவியல் கூறு*
Skype	*காயலை*
bluetooth	*ஊடலை*
Hotspot	*பகிரலை*
Online	*இயங்கலை*
Offline	*முடக்கலை*

12) Transparency

If the students can understand the term and the concept it stands for simply by looking at the term without explanation is called transparent. Example

இணையம்	Internet
புனைவு	fiction

13) Consistency

The new term should be consistent with the naming in the subject field. The word '*பொருள்*' is used with the meaning of 'thing' and 'meaning'. To solve ambiguity the word is changed a little. Example

பொருள் ' money ' as in *பொருளியல்* 'Economics'

பொருண்மை 'meaning' as in
பொருண்மையியல் 'Semantics'

14) Appropriateness

They should follow the 'established patterns' of meaning within the Tamil language community. Example

உறுப்பினர் கட்டணம்	subscritption
வாழ்க்கை வரலாறு	biography
இருப்புப்பாதை	train track

15) Linguistic economy/ brevity

The term should be as short as possible, so as to avoid arbitrary abbreviations by users. Example

அழிப்பான்	erazer
புனைவு	fiction
விரலி	thumb drive

16) Derivability and compoundability

It should be easy to form other terms, e.g. compounds, with the new term. The word அலை can be used easily with other words. Example

Skype	காயலை
bluetooth	ஊடலை
Hotspot	பகிரலை
Online	இயங்கலை
Offline	முடக்கலை

17) Linguistic correctness

The new term should conform to the morphological and phonological norms / rules of the language. Example

வருடி	scanner
விரலி	thumb drive
கடத்தி	transmitter
வினையூக்கி	catayst

18) Preference for native language

As far a Tamil is concerned, preference is given for native words and coining original terms. Coining is not standardized many a time. Each scholar has his/her own ideas and skill to coin words. However, this should not be allowed in textbooks where already coined and standardized words are to be used.

Sometimes, borrowed words are also used. Example

மாயை	illusion
ஆன்மா	soul

Some of the new terms are borrowed from Sanskrit. The main question before the scholars who coin terms is 'could it be replaced by a native-language word?

A question as to why should we go for native language and native words is often discussed. A few people feel we may borrow words from other languages, where it is difficult to coin a term. However, already borrowed words, which have become nativized can be used without any problem, since they are easily comprehendible as in the above examples.

4. Techniques of Coining

There are many techniques to coining technical terms. Knowing the technical terms as given in the textbook do not contribute to the development of the language skills, vocabulary and the students' knowledge as well. The textbook should teach them some techniques for the coining of terms, which can be fruitfully utilized after their higher secondary education. Some techniques are discussed here.

1. Neologism

A neologism (neo meaning 'new', and lógos, meaning 'speech, utterance') is defined as a newly coined term, word, or phrase, that may be in the process of entering into common use.

a. New coinages

Example

Thumb drive	விரலி
Fiction	பினைவு

meme	போன்மி
transmitter	கடத்தி

Sometimes words used already with a definite meaning are used with extended meaning(s). In other words, these words get new meanings. The word *பிழை* is used also as 'error' earlier but gets a new meaning of 'bug' now.

Bug	பிழை

Neologisms are often created by combining existing words or by giving words new and unique suffixes or prefixes.

Example

skype	காயலை
blue tooth	ஊடலை
wifi	அருகலை
hotspot	பகிரலை
broadband	ஆலலை
online	இயங்கலை
offline	முடக்கலை

These are some of the words, which are newly created. However, without the English equivalent these are not comprehendible, since they have not been used extensively. These are also known as neo-terms. When 'subject terms' were coined the word / suffix '-iyal' was added to the terms as in the examples.

Psychology	உளவியல்
Pharmacology	மருந்தியல்
Zoology	விலங்கியல்
Pedagogy	பயிற்றலியல்
Sociology	சமூகவியல்
Linguistics	மொழியியல்

b. Compounding

One way of creating a 'neo-term' is through compounding, where a new compound is formed comprising of two or more elements. Two or more nouns are compounded to form a new term. Example

Two nouns used to coin a single concept

Subscription	உறுப்பினர் கட்டணம்
biogaphy	வாழ்க்கை வரலாறு
manuscript	கையெழுத்துப் பிரதி
train tack	இருப்புப்பாதை
domestic flight	உள்நாட்டு வானூர்தி
catalyst	வினையூக்கி

More than two words to form a compound.

railway signal	தொடர்வண்டி வழிக்குறி
metro train	மாநகர தொடர்வண்டி
insulin	கணைய சுரப்பு நீர்
Mass drill	கூட்டு உடற்பயிற்சி

c. Verbal compounds

Tamil has a special compound form called 'வினைத்தொகை', a verbal compound where a verb root and a noun are used to make a new term. this is a prdominant technique in coining technical terms. தொடர். மடக்கு. உறிஞ்சு. புனை. இயங்கு. முடக்கு.etc are verbs and they are used with nouns to form compounds.

train	தொடர்வண்டி
folding chair	மடக்கு நாற்காலி
straw	உறிஞ்சு குழல்
pseudonym	புனைபெயர்
online	இயங்கலை
offline	முடக்கலை

d. Adjectival compounds

Another way of compounding is using an adjective with a noun. Chair, when new types were created the terms were coined with the addition of adjectives or nouns functioning as adjectives. Example

Easy chair	ஓய்வு நாற்காலி
Leaning chair	சாய்வு நாற்காலி
Folding chair	மடக்கு நாற்காலி
Hard disk	வன்தட்டு
Hardware	வன்பொருள்
Software	மென்பொருள்
Smartphone	திறன்பேசி
Charger	மின்னூக்கி

e. with particles

Particles like *பின், முன், இடை* are used to form terms. Example

Affix	ஒட்டு
Prefix	முன்னொட்டு

Suffix	பின்னொட்டு
Infix	உள்ளொட்டு
Multiple personality	பன்முக ஆளுமை

Neologisms can become popular when used by the community irrespective of the levels of knowledge one has in the language. Words like இணையம் 'Internet', பல்லூடகம் 'multimedia', etc., were accepted as parts of the language. Whether a neologism continues as part of the language or not, depends on many factors like,

i) acceptability by the public
ii) adoptability for prestige
iii) usability as mentality issue

Example

In the field of education basic language skills are coined, accepted, adopted and being used everywhere.

Observing	உற்றுநோக்கல்
Listening	கேட்டல்
Speaking	பேசுதல்
Reading	படித்தல்
Writing	எழுதுதல்

5. Standardization of technical terms

In the process of coining new terms, sometimes they are re-coined for reasons such as native words to replace, appropriateness of the word, or elevating ordinary usage to higher status as technical term, or the feeling of the scholars who coin them, etc. However, standardization is essential for un[illegible] usage of a coined term. Example

The word Computer has undergone changes as follows and finally standardized. These standardized forms are used by everyone in the field.

கணிக்கும் எந்திரம் > கணிப்பொறி > கணினி
பிராணவாயு > உயிர்க்காற்று > உயிர்வளி
கிரியா ஊச்சி > வினையூக்கி

6. Conclusion

Coining new terms is always necessary for the development of the language. It is very much essential to coin native terms. In the era modernization with fast emerging information communication technology (ICT), every day hundreds of new terms come into use. To cope up with the vocabulary enrichment we may have to learn and teach many techniques of coining and help in the development of creativity, language skills, etc., among the students of Higher Secondary School. This paper has attempted to give the principles and techniques of coining new terms.

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ஆசிரியர் செம்மல் விருதுபெற வருகை தந்தோர் - 5.9.2019

A STUDY ON SELF PROJECTION OF HIGHER SECONDARY STUDENTS

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DOI: http://doi.org/10.47211/idcij.2023.v10i01.008

ABSTRACT

The prime objective the present study is to find out the Self-Projection of higher secondary students. For the present investigation the investigator adopted normative survey as a method. Random sampling technique was used in the selection of the sample of 200 Higher Secondary Students from Higher Secondary Schools in Cuddalore District. For this study "The Self Projection scale" constructed and standardized by Kristin D. Neff (2003) has been used. The results show that entire sample shows that the Higher Secondary Students are having moderate level Self Projection.

Key words: *Self-projection, higher secondary students.*

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INTRODUCTION

According to research, psychological health and self-projection are cl osely related [Neff, 2009]. Increases in happiness, optimism, curiosity, and connectivity are associated with higher levels of self-projection, whereas lower levels are associated with decreasing levels of anxiety, sadness, rumination, and failure dread. Including a desire for one's own health and wellbeing, self-projection is linked to a higher level of personal initiative to make necessary changes in one's life. The capacity to situate oneself in various locations in time and space is known as self-projection. The researcher chose to conduct this study with higher secondary pupils as a result.

Statement of the Problem

Freud defined projection as the propensity to see in other people our own undesirable aspirations. Although we still have desires, they are no longer our own and instead belong to others. The source of the negative self-concepts, according to Charles Rycroft, is a former experience in which we "learned" from another person that these self-concepts are "true." We do not have low self-esteem when we are born. Denial is a crucial element of projection used for judgement. We fail to see that the same thing we criticise others for also exists within us and is something we are criticising ourselves for. The nature of projection is generally accepted in studies of human consciousness, although the degree to which we project does appear to be up for debate. Some individuals think that everything outside of us is a projection, hence the adage "perception is projection." We don't project the same things onto everyone, which is something worth mentioning. This is supported by the buddy experiences that the course provides (see the notes on sorts of people): various individuals can "present" various projections for us. Understanding projection is essential for self-discovery as well as for achieving success for both oneself and others. We assess others by projecting our own opinions onto them. The above discussion has made the present investigator to choose the problem at hand and it is stated as follows: **"A Study on Self Projection of Higher Secondary Students".**

Objectives of the Study

The present study has the following objectives:-

1. To find out the Higher Secondary Students' Self Projection.
2. To find out whether there is any significant difference between Arts and Science, Male and Female , rural and urban, Tamil and English Students with respect to their Self Projection

Hypotheses of the Study

Investigator of the present study framed the hypothesis and Null hypotheses based on the objectives and previous studies.

Method of Study

For the present investigation the investigator adopted normative survey as a method.

Sampling

Random sampling technique was used in the selection of the sample of 200 Higher Secondary Students from Higher Secondary Schools in Cuddalore District.

Tool Used

For this study "The Self Projection scale" constructed and standardized by Kristin D. Neff (2003) has been used In order to find out the Higher Secondary Students' Self Projection, the mean and S.D have been calculated.

Table .1

The Mean and Standard Deviation of Self Projection scores of Higher Secondary Students

N	Mean	S.D
200	63.61	14.89

From the above Table mean value of entire sample shows that the Higher Secondary Students are having moderate level Self Projection.

Null hypothesis

There is no significant difference between Arts and Science teacher trainees with respect to their Self Projection

In order to test the above Null hypothesis 't' value is calculated.

Table .2

Showing the significance of difference between Arts and Science Higher Secondary Students with respect to their Self Projection

N	Mean	S.D	't' value	Significance at 0.05 level
108	63.01	14.56	1.65	Not significant
92	65.92	15.39		

From the above table, since the 't' value is not significant at 0.05 level, the Hypothesis, is accepted and it is concluded that there is no significant difference between Arts and Science Higher Secondary Students with respect to their Self Projection .

Null hypothesis

There is no significant difference between Male and Female teacher trainees with respect to their Self Projection

In order to test the above Null Hypothesis 't' value is calculated.

Table .3

Showing the significance of difference between male and female Higher Secondary Students with respect to their Self Projection

Sub Sample		N	Mean	S.D	't' value	Significance at 0.05 level
Gender	Male	114	66.86	15.60	2.70	Significant
	Female	86	61.77	13.68		

From the above table, since the 't' value is significant at 0.05 level, the above Null Hypothesis, is rejected and it is concluded that there is significant difference between Male and Female Higher Secondary Students with respect to their Self Projection.

Null hypothesis

There is no significant difference between rural and urban teacher trainees with respect to their Self Projection

In order to test the above Null hypothesis 't' value is calculated.

Table .4

Showing the significance of difference between rural and urban Higher Secondary Students with respect to their Self Projection

Sub Sample		N	Mean	S.D	't' value	Significance at 0.05 level
Locality	Rural	109	66.98	14.94	2.53	Significant
	Urban	91	61.43	14.56		

From the above table, since the 't' value is significant at 0.05 level, the Hypothesis, is accepted and it is concluded that there is significant difference between rural and urban Higher Secondary Students with respect to their Self Projection .

Null hypothesis

There is no significant difference between Tamil and English medium teacher trainees with respect to their Self Projection

In order to test the above Null hypothesis 't' value is calculated.

Table .5

Showing the significance of difference between Tamil and English medium Higher Secondary Students with respect to their Self Projection

Sub Sample		N	Mean	S.D	't' value	Significance at 0.05 level
Medium	Tamil	110	64.46	14.34	0.93	Not significant
	English	90	64.59	15.82		

From the above table, since the 't' value is not significant at 0.05 level, the Hypothesis, is accepted and it is concluded that there is no significant difference between Tamil and English medium Higher Secondary Students with respect to their Self Projection.

CONCLUSION

The present study made on Higher Secondary Students' Self Projection reveals that the Higher Secondary Students' are having moderate level of Self Projection. Hence activities are to be included in teacher education to inculcate the Higher Secondary Students about the Self Projection. Self-Projection should be given special consideration from everyone in this realm of mechanical life. Self-Projection should develop from everyone in order to interact with others and live in harmony. Increased psychological fortitude is necessary to face challenges head-on in today's competitive world.

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RESEARCH ARTICLE OPEN ACCESS

A Study of Soft Skills of Higher Secondary Students

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Abstract:

The present study conducted to find out the Soft skills of Higher secondary students. For the present investigation the investigator adopted normative survey as a method. Random sampling technique was used in the selection of the sample of 200 Higher Secondary Students from Higher Secondary Schools in Nagappattinam District. For this study "The communication skills Inventory" constructed and standardized by Rees (2002) has been used Entire sample shows that the Higher Secondary Students are having high level of Soft Skills.

Keywords **—Soft skills, Higher secondary students.**

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I. INTRODUCTION

Obtaining and keeping clients requires the use of soft talents. Well developed networking skills, presenting skills, and etiquette knowledge can help to win new clients and increase business from current clients. Stronger connections with coworkers, vendors, and other business contacts can result from honing our skills in dispute resolution, issue solving, and outstanding customer service. In the end, having excellent soft skills can aid in developing confidence, which is a crucial quality in the professional world.

On the other hand, a lack of soft skills may restrict a consultancy's potential or possibly spell its demise. A person can operate projects more efficiently, produce outcomes that satisfy everyone, and even favourably influence their personal lives by improving how they connect with people. This is done through increasing their leadership, teamwork, and communication skills. So, the researcher decided to conduct this study in order to learn more about the students' soft skills.

II. STATEMENT OF THE PROBLEM

When soft talents are used throughout the organisation, businesses gain from them. For instance, it's crucial for employees to work together. When workers cooperate by sharing knowledge and resources to complete tasks, efficiency and production increase. For all workers, the capacity to acquire new techniques and technology is a sought soft talent. Firms might benefit from soft skills like effective troubleshooting. For instance, businesses can run more effectively if all employees are capable of resolving software issues on their own rather than relying solely on the information technology (IT) division to do so.Hence, for the students soft skills are essential, in this context, the above discussion has made the present investigator to choose the problem at hand and it is stated as follows: **"A Study of Soft Skills of Higher Secondary Students".**

III. OBJECTIVES OF THE STUDY

The following are the objectives:-

1. To find out the Higher Secondary Students' Soft Skills.
2. To find out whether there is any significant difference between Arts and Science Students with respect to their Soft Skills
3. To find out whether there is any significant difference between Male and Female Students with respect to their Soft Skills
4. To find out whether there is any significant difference between rural and urban Students with respect to their Soft Skills
5. To find out whether there is any significant difference between Tamil and English medium Students with respect to their Soft Skills

IV. HYPOTHESES OF THE STUDY

Investigator of the present study framed the hypothesis and Null hypotheses based on the objectives and previous studies

V. METHOD OF STUDY

For the present investigation the investigator adopted normative survey as a method.

VI. SAMPLING

Random sampling technique was used in the selection of the sample of 200 Higher Secondary Students from Higher Secondary Schools in Nagappattinam District.

VII. TOOL USED

For this study "The communication skills Inventory" constructed and standardized by Rees (2002) has been used

In order to find out the Higher Secondary Students' Soft Skills, the mean and S.D have been calculated.

Table No. 1

The Mean and Standard Deviation of Soft Skills scores of Higher Secondary Students

N	Mean	S.D
200	33.53	7.52

From the above Table mean value of entire sample shows that the Higher Secondary Students are having high level of Soft Skills.

Null hypothesis

There is no significant difference between Arts and Science teacher trainees with respect to their Soft Skills

In order to test the above Null hypothesis 't' value is calculated.

Table No. 2

Showing the significance of difference between Arts and Science Higher Secondary Students with respect to their Soft Skills

Sub Sample		N	Mean	S.D	't' value	Significance at 0.05 level
Group	Arts	107	31.73	7.29	1.63	Not significant
	Science	93	33.51	7.74		

From the above table, since the 't' value is not significant at 0.05 level, the Hypothesis, is accepted and it is concluded that there is no significant difference between Arts and Science Higher Secondary Students with respect to their Soft Skills.

Null hypothesis

There is no significant difference between Male and Female teacher trainees with respect to their Soft Skills

In order to test the above Null Hypothesis 't' value is calculated.

Table No. 3

Showing the significance of difference between male and female Higher Secondary Students with respect to their Soft Skills

Sub Sample		N	Mean	S.D	't' value	Significance at 0.05 level
Gender	Male	110	33.61	7.87	2.51	Significant
	Female	90	31.32	6.97		

From the above table, since the 't' value is significant at 0.05 level, the above Null Hypothesis, is rejected and it is concluded that there is significant difference between Male and Female

Higher Secondary Students with respect to their Soft Skills.

Null hypothesis

There is no significant difference between rural and urban teacher trainees with respect to their Soft Skills

In order to test the above Null hypothesis 't' value is calculated.

Table No. 4
Showing the significance of difference between rural and urban Higher Secondary Students with respect to their Soft Skills

Sub Sample		N	M	S. D	't' value	Significance at 0.05 level
Locality	Rural	109	33.70	7.50	2.65	Significant
	Urban	91	30.68	7.22		

From the above table, since the 't' value is significant at 0.05 level, the Hypothesis, is accepted and it is concluded that there is significant difference between rural and urban Higher Secondary Students with respect to their Soft Skills .

Null hypothesis

There is no significant difference between Tamil and English medium teacher trainees with respect to their Soft Skills

In order to test the above Null hypothesis 't' value is calculated.

Table No. 5
Showing the significance of difference between Tamil and English mediumHigher Secondary Students with respect to their Soft Skills

Sub Sample		N	M	S.D	't' value	Significance at 0.05 level
Medium	Tamil	105	32.56	7.24	0.12	Not significant
	English	95	32.62	7.94		

From the above table, since the 't' value is not significant at 0.05 level, the Hypothesis, is accepted and it is concluded that there is no significant difference between Tamil and English medium Higher Secondary Students with respect to their Soft Skills.

VIII. CONCLUSION

The present study made on Higher Secondary Students' Soft Skills reveals that the Higher Secondary Students' Soft Skills are in high level. Hence activities are to be included in teacher education to train the Higher Secondary Students to practice Soft skills. Only when Higher Secondary Students get a proper training they will get confidence, and make use of it. The future generations of students are going to depend on the highly developed world, hence due care should be given for the development.

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Vol. VIII
Number 5

ISSN 2319-7129
(Special Issue) December, 2017

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CONTENTS

Digital Technologies Tools in Teaching – Learning Process

Mrs. R. Saraswathy*

Abstract

Education has played a vital role in building society. Quality education helps to contribute thoughts which empower nation in all aspects by providing new innovative ideas using various technologies. Now a day, ample number of efficient teaching and learning methodologies are in exercise all over the world. Technology is the most valuable medium through which the student's knowledge can be increased. Digital Technologies are also used in the process of learning, and in effective maintenance of organization and administration of educational institutions. There is no doubt that digital technology has enormous potential for improving self-directed learning. With increasing the use of technology in our lives, teachers are also expected to integrate technology in their teaching.

Keywords: Digital Technologies, Tools, Teaching, Learning

INTRODUCTION

Digital technologies are electronic tools, systems, devices and resources that generate, store or process data. Well known examples include social media, online games, multimedia and mobile phones. Digital learning is any type of learning that uses technology. It can happen across all curriculum learning areas. The usage and presence of technology can be felt everywhere as, it is entwined in almost every part of our lives. It has affected the way we live, work, think and most importantly, it has changed the entire process of learning.

Therefore, deployment of digital technology in classrooms cannot be ignored. Technology when well integrated in the classroom help the students in connecting effectively with the whole process of learning. Today's generation is a native of digital era and technology is completely woven in their lives and they feel comfortable in using technology and when technology is integrated in classrooms then it can help in keeping students engaged. Integration of technology has the power to transform different aspects of teaching. The interaction between teacher and student has increased through remote communication. The use of digital technology is not limited to one area of education rather; it has multi-fold potential for both teachers and students. Technology, if handled carefully, can facilitate the process of teaching and learning. There are various ways through which a teacher can integrate digital technology in the classroom, some of them are listed below:

- **Bring Your Own Device (BYOD)**
- **E –Portfolio**
- **Interactive White Boards (IWB)**

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BRING YOUR OWN DEVICE (BYOD)

BYOD is a new concept which is popularly used in industries and organizations. It is called as "Bring your own Technology". Based on the utilization of the user's own tablet, smart phone, and laptop for their learning activity.

The present generation is growing up with technology and want the same devices both at school and at home. Nowadays everyone is having their own smart phone and laptop and this practice is gaining popularity in the field of teaching and learning. The students are required to bring their own devices in the classroom. In fact, this style of doing things can be effectively used in innovative teaching and thus engages them the students with their own device. This will reduce the cost of the institution as well as greater range of technologies can be available for the learners.

BENEFITS OF BRING YOUR OWN DEVICE (BYOD)

- The availability of students' devices facilitates innovative pedagogy and increases opportunities for learning through exploration and enquiry within and outside school.
- BYOD devices also increase the extent to which teachers can provide more differentiated learning activities for individual learners to meet their specific needs, learning styles and preferences, helping to:
- BYOD devices enable individual students to access digital textbooks and other learning resources in many different locations.
- Students using their own devices, rather than school computers, have a more comfortable and personalised experience. They can focus more on the content of learning activities rather than the technology used to support these.
- Students having their personal digital device/s with them at all times, supporting their learning inside school and out, assists them in the development of 21st century skills like communication, collaboration and creativity as well as information, media literacy and technology skills.

E-PORTFOLIO

E-portfolio is an electronic catalogue of someone's work and achievements which is available online. It is place where students can keep a record of all their work, goals and achievements. E-portfolio enables the usage of wide range of technology/media like video, images, text etc. Which allows the learner to understand the process of learning and its outcomes. It can be carried by the learner to enhance their learning throughout life. It is like creating a personal website which is used to record, reflect and evaluate the process of learning at any time.

An e-portfolio is an electronic format for students to:

- record their work, goals, and achievements
- reflect on their learning
- share their learning and receive feedback and feed forward.

It enables students to represent information in different formats and depending on the software, take the information with them between schools.

USES OF E-PORTFOLIOS

- An e-portfolio can reflect the students' learning process and progress.
- Technology enables the use of a range of media – video, audio, and images – as well as text to show both the learning process and final products.

- A student's teacher, peers, parents, and wherever can participate and provide feedback on their learning.
- Students can take increasing responsibility for their own learning by recording and reflecting on their learning in an e-portfolio.
- Creation and management of an e-portfolio provides students with opportunities to use technologies to create, select, organise, edit, and evaluate their work
- Students can carry their e-portfolio throughout their learning journey and use it to record, assess, evaluate, and reflect at any time.

REASONS TO USE DIGITAL PORTFOLIOS IN TEACHING AND LEARNING

- **Digital portfolios** expand on the repertoire of techniques available to students and educators to demonstrate learning. Pictures, audio -video recordings are added to the typical paper and pencil tasks students complete.
- **Struggling students** are given alternative modes of expression and means to demonstrate learning. This can lead to increases in self-confidence and achievement.
- **Development of 21st century skills.** One of the seven existence skills of the 21st century focuses on effective oral and written communication.

INTERACTIVE WHITEBOARDS (IWB)

Interactive whiteboards are also known as smart boards. It consists of a large display in the form of whiteboard which is interactive in nature. The first interactive board was developed by PARC (Palo Alto Research Centre, California) and was used in the office around 1990. Later on, interactive whiteboards were introduced in the classrooms and recently, they have replaced the traditional whiteboards in many countries. These allow the user to interact with the content by using a finger or stylus on the board. A digital projector is used to display the images on the large whiteboard.

Interactive whiteboards provide a platform for sharing and taking notes, annotating content and saving it for later use. It also allows writing on the board surface which can be saved and shared as a digital content later on. In this way, interactive whiteboards have revolutionized education sector and helped in the enhancement of teaching and learning education.

USING INTERACTIVE WHITEBOARDS IN THE CLASSROOM

Interactive whiteboards allow educators to take standard lessons and turn them into interactive activities. Kids have fun while they learn. Interactive whiteboards like the Sharp Aquos Board are replacing overhead projectors in classrooms across the nation. Here are 7 reasons why:

- Enhanced Lessons
- Interactive Learning
- Easy to Use
- Flexibility in the Classroom
- Connected to the Internet
- Integrated Technology
- Proven Effectiveness

CONCLUSION

Digital technology in classrooms has been a debatable issue in many parts of the world and many teachers struggle to use technology even in developed countries. Despite robust online culture

across the world, these technologies have been gradually introduced in the classrooms in formal teaching. There is no doubt that digital technology has enormous potential for improving self-directed learning. With increasing the use of technology in our lives, teachers are also expected to integrate technology in their teaching.

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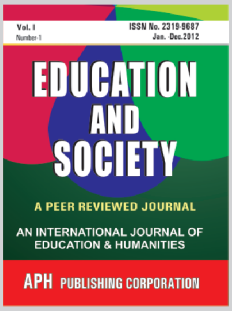

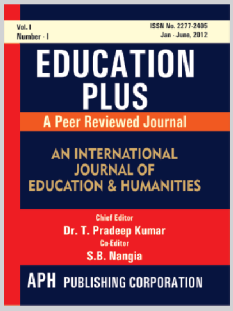

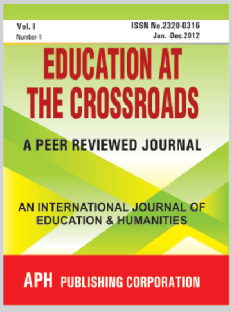

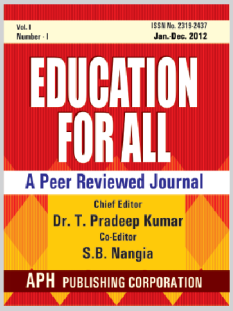

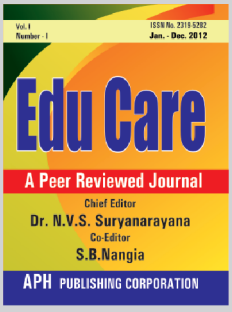

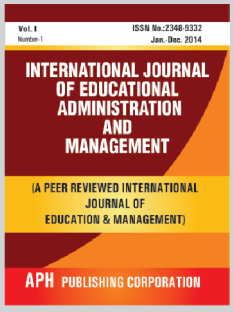

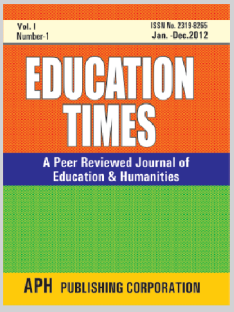

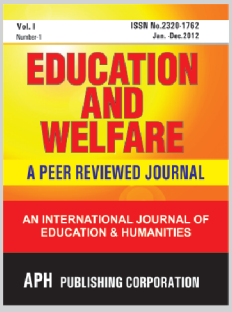

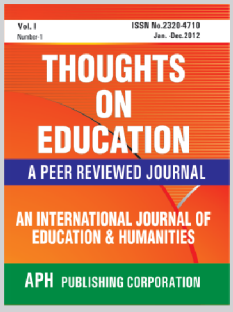

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ISSN: 2321-3434

INTERNATIONAL JOURNAL FOR RESEARCH AND DEVELOPMENT

Vol. 5 No. 2

July - August 2017

I J R D

A Peer Reviewed Journal Published Every Two Months
A Journal Approved by UGC - Sl. No. 1; Journal No. 48299; Category: Social Sciences

INTERNATIONAL JOURNAL FOR RESEARCH AND DEVELOPMENT

Vol. 5 No. 2 July-August 2017

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International Journal for Research and Development, Vol. 5, No. 2, July-August 2017, ISSN: 2321-3434

LEARNING STYLES OF COLLEGE STUDENTS

R. Saraswathy*

ABSTRACT

Learning is a partial development and occurs in different ways for different people. Learning process occurs through different situations as student's observation; awareness and processing of information are varied. For instance, some individuals recognize incredible in real manner whereas some individuals perceive something in concrete and abstract manner. Life from its start to end is learning. Learning continues from womb to tomb. Learning style is cognitive, sentimental and physiologic educations of the individual that have relatively consistent indicators of how person perceive learning environment, how they interact with another and show reaction. This research paper aims*to* investi*gate* the *learning styles among college students in salem district based on the four styles namely Activist, Reflector, Theorist and Pragmatist. The study included the categorical variablesgender, locality and type of colleges.96 students from various Government, Government Aided and Private Colleges in and around Salem district were involved. Normative survey method was adopted and stratified sampling technique was employed for the study. Learning styles scale standardized by Peter Honey and Alan Mumford (2006) was used. It consisted of 80 items.The data collected were subjected to the statistical technique like Percentage analysis, t – test and F- test.The finding of this study indicates that female college students are following all the four learning styles better than male students.*

INTRODUCTION

Learning occupies a very essential place in individual life. It is an ultimate process, which is considered equivalent to modify, change, develop, improve and adjust. It is not limited to school learning, but it is a broad term which leaves impression on the individuals. It plays a very important role in influential behaviour of an individual. It is the basis of success in life. The miracles of present day civilization are the results of learning. In order to develop presentation and communication techniques that facilitate successful learning, a teacher must have some planning regarding how pupils learn. In addition to course lectures, school experiences also reveal the very great differences in the way of learning individuals. Human behaviour, motivation, achievement, personality and self-esteem have impact on the activity of learning.

REVIEW OF LITERATURE

Capia Carol (2015) studied learning styles in Higher Education Case Study of history training. The results indicated that the dominant elements are Reflector and Theorist, and the least represented is the Activist component. By contrast, the group of MA students (training for the teaching profession) had a very different balance between the four categories (the Theorist group was very pronounced). On the whole, there is a dominant Reflective-Theorist character, while the Pragmatic-Activist aspects have the lowest scores.

MihaMaric, Sandra Penger, Ivan Todorovic, Nina Djurica and RokPintar (2015) compared the learning styles of Slovenian Universities. University of Ljubljana results showed that pragmatists and reflectors prevail, as on University of Maribor had best results for reflectors and pragmatists. For University of Primorska results showed that pragmatists and activists are dominant. On the whole, all Slovenian Universities experiments revealed that the most pragmatists and

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reflectors were followed by theorists and activists. Anuar Sopian, Salmah Ahmad, Kaseh Abu Bakar, Ezad Azraai Jamsari and Hashim Mat Zin (2013) took a study on learning styles among Arabic Language Students at University Teknologi Mara, Malacca Campus. Results showed that there was no significant difference in the learning styles between genders.

OPERATIONAL DEFINITIONS

Learning styles: Learning styles are various approaches or ways of learning. It involves individual methods for processing information in learning new concepts. In this context learning styles include the four styles Activist, Reflector, Theorist, and Pragmatist.

College students: In this study, college students refer to those who are studying final year undergraduate and postgraduate programme of mathematics.

OBJECTIVES OF THE STUDY

- To study the level of learning styles of college students
- To find the significant differences in the learning styles of college students based on the select sub samples

HYPOTHESES OF THE STUDY

- The level of learning styles of college students is moderate
- There is no significant differences in the learning styles of college students based on the select sub samples

METHOD OF STUDY

The survey method was followed in this study. In the study 1723 college mathematics students from 13 select colleges during the year 2015 -2016 formed the sample. They were from government, government aided and private colleges. For the present study stratified random sampling method was used. To determine students learning styles, the researcher used the Peter Honey and Alan Mumford (2006) questionnaire to find the learning style. Descriptive, differential and correlation statistical techniques were used for data analysis.

DESCRIPTIVES ANALYSIS

Table 1: No of Students by Learning Style

Learning Styles	No. of Students	%
Activist	12	12.50
Reflector	20	20.83
Theorist	14	14.58
Pragmatist	15	15.63
No learning style	59	61.46

From the above table it is found that 12 (12.50%) students follow activist style, 20 (20.83%) students adopt reflector style, 14 (14.58%) students are of theorist style, 15 (15.63%) students were pragmatist whereas 59 (61.46%) students prefer no particular learning style.

DIFFERENTIAL ANALYSIS

Hypothesis: *There is no significant difference in the learning styles by college students based on the select sub samples gender, locality and types of institutions*

Table 2: Mean Differences in Learning Styles of College Students based on Gender

	Variables	Male (47)		Female 49)		t Value	S / ns
		M	SD	M	SD		
1	Activist	73.15	15.538	74.39	17.441	0.37 *	NS
	Reflector	74.91	12.877	76.24	14.900	0.47 *	NS
	Theorist	72.04	15.538	76.57	16.047	1.41 *	NS
	Pragmatist	75.28	14.447	75.82	15.687	0.18 *	NS
	Total	295.38	52.281	303.02	58.416	0.68 *	NS
2		Rural (45)		Urban (51)			
	Activist	77.44	20.743	73.40	16.055	0.57 *	NS
	Reflector	77.11	20.127	75.44	13.235	0.24 *	NS
	Theorist	78.33	20.597	73.94	15.404	0.62 *	NS
	Pragmatist	79.44	21.472	75.15	14.298	0.59 *	NS
	Total	312.33	81.939	297.93	52.332	0.52 *	NS

1-Gener; 2-Locality; **Sig. @ 1% level S- Sig.

As significant differences are not noted, it is concluded that the hypothesis is not accepted. Hence, it would be concluded that

- Male and female college students do differ in all the four dimensions and in the total scores of learning styles.
- Rural and Urban college students do differ in all the four dimensions and in the total scores of learning styles.

urban college students in all the four dimensions of learning styles.

- College students of differentypes of institutions differin all the four dimensions and in the total scores of learning styles. Private college students have higher mean scores than the government and government aided college students in all the four dimensions of learning styles.

Table 3: Mean Differences In Learning Styles of College Students based on Type of Institutions

Variable	Sources	SS	df	MSS	F	S / NS
Activist	Between	4926.549	2	2463.274	11.00**	S
	Within	20817.858	93	223.848		
	Total	25744.406	95			
Reflector	Between	4775.845	2	2387.922	16.39**	S
	Within	13551.311	93	145.713		
	Total	18327.156	95			
Theorist	Between	4060.892	2	2030.446	9.50**	S
	Within	19897.066	93	213.947		
	Total	23957.958	95			
Pragmatist	Between	4237.270	2	2118.635	11.47**	S
	Within	17182.470	93	184.758		
	Total	21419.740	95			
Total	Between	67828.245	2	33914.122	14.13**	S
	Within	223101.162	93	2398.937		
	Total	290929.406	95			

**Sig. @ 1% level; S - Significant

From the table significant differences are noted. Hence the hypothesis is not accepted. Hence, it would be concluded that college students of different types of institutions differ in all the four dimensions and in the total scores of learning styles.

MAJOR FINDINGS OF THE STUDY

- 12 (12.50%) students follow activist style, 20 (20.83%) students adopt reflector style, 14 (14.58%) students are of theorist style, 15 (15.63%) students were pragmatist whereas 59 (61.46%) students prefer no particular learning style.
- Male and female college students do differ in all the four dimensions and in the total scores of learning styles. Female college students have higher mean scores than the male students in all the four dimensions of learning styles.
- Rural and urban college students do differ inall the four dimensions and in the total scores of learning styles. Rural college students have higher mean scores than the

DISCUSSION ON THE FINDINGS

- Miha Maric, Sandra Penger, Ivan Todorovic, Nina Djurica and RokPintar, (2015) and Capia Carol (2015) stated thatmost preferred learning style was reflector. This result conforms to the current study as this study also found that the most preferred learning style is reflector.
- Anuar Sopian, Salmah Ahmad, Kaseh Abu Bakar, Ezad Azraai Jamsari and Hashim Mat Zin (2013) showed that there was no significant differences in the learning styles between genders. These findings are similar to the current study.

CONCLUSION

The finding of this study indicates that Female college students are following all the four learning styles better than male students and rural college students are following all the four learning styles better than urban students.

Intercontinental Journal of Marketing Research Review

Volume 5, Issue 4 - Special Edition

February 2017

Impact Factor: 4.311

ISSN:2347-1670

A Journal of

Intercontinental Management Research Consortium

www.icmrr.org

INDEX

INTERCONTINENTAL JOURNAL OF MARKETING RESEARCH REVIEW
ISSN:2321-0346 - ONLINE ISSN:2347-1670 - PRINT -IMPACT FACTOR :4.311
VOLUME 5, ISSUE 4, SPECIAL EDITION - FEBRUARY-2017

ENSUING ETHICS TO OVER COME BARRIERS IN TEACHING CRITICAL THINKING

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ABSTRACT

Critical thinking has long been a goal of modern education, and its importance has been reiterated in a wide range of documents. Increasing the ability of learners to transfer critical thinking across domains has important implications for all forms of education. Despite the consensus of scholars and educators on the significance of nurturing students to become critical thinkers, teaching for critical thinking has not been a simple task because there are competing definitions and practices and many barriers to its implementation. In this article, some definitions and components of critical thinking are reviewed. Then, barriers to the implementation of critical thinking are discussed. The difficulties involved in critical thinking education are multifold including vague conceptualization of critical thinking, lack of organized sequence in teaching critical thinking, threatening nature of critical thinking practice, lack of proper assessment, and lack of teacher training. Finally, several approaches are suggested to overcome these barriers such as specific teacher training courses, infusion approach, continued practice, using critical challenges, considering different levels of critical thinking, and encouraging a positive attitude toward critical thinking. When teachers and students are aligned in pursuit of critical thinking, cognitive magic is possible and this would have a facilitative role in the learning environment.

INTRODUCTION

Most educators probably agree that critical thinking is an important cognitive skill that schools aim to develop in students, there appears to be a lack of agreement regarding a clear and operational definition of critical thinking. At a broader level, critical thinking has been considered alongside creative thinking as related subordinate constructs within the broader level category of productive thinking, which is interpreted as comparable to the upper levels of Bloom's taxonomy, namely analysis, synthesis and evaluation.

EIGHT CONSTITUTIVE SKILLS OF THE CRITICAL THINKING PROCESS

- Reflection
- Analysis

- Acquisition of information
- Creativity
- Structuring arguments
- Decision making
- Commitment
- Debate

KEY ELEMENTS OF CRITICAL THINKING

One form of critical thinking is called critical judging. Many educators have this type of thinking in mind when they use the term critical thinking. In using this form of critical thinking, one learns to:

- examine some claim or assertion;
- listen to or collect evidence in support this claim;
- determine the strength of the arguments derived from the evidence;
- assess the underlying assumptions and possible biases supporting the claim; and
- arrive at a judgment and course of action where appropriate.

The legal profession is well versed in this type of thinking, particularly judges who must oversee courtrooms as arenas for weighing evidence and making critical judgments.

BARRIERS TO TEACHING CRITICAL THINKING

LACK OF PROPER ASSESSMENT

The difficulties involved in critical thinking education are multifold. One of the obstacles is lacking proper assessment that effectively and objectively measures students' strength and weaknesses in critical thinking.

VAGUE CONCEPTUALIZATION OF CRITICAL THINKING

As mentioned earlier, there are competing definitions of critical thinking. However, there is no

consensus among scholars about what critical thinking means, is it measurable, if yes, how and to what extent. These areas are still vague and teachers are still in need of clear and tangible definition of critical thinking.

LACK OF ORGANIZED SEQUENCE IN TEACHING CRITICAL THINKING

One of the barriers that teachers confront in teaching critical thinking is that there does not exist an organized approach for teaching critical thinking. There is no magical formula for developing critical thinking. The variety of techniques presented in the special issue of Teaching of Psychology on teaching critical thinking testifies to this point.

THREATENING NATURE OF CRITICAL THINKING PRACTICE

It has been argued that critical thinking threatens the calm of assumed amiability that governs much of our interactions with one another. Very rare is the individual who is eager to have his or her reasoning placed under the bright light of critical questions.

LACK OF TEACHER TRAINING

Unless teachers are familiar with different components of critical thinking and approaches to teach it, they will not be able to equip students with this precious ability. There is a lack of training on the part of the teachers as well.

OVERCOMING BARRIERS TO TEACHING CRITICAL THINKING

ASSESSING CRITICAL THINKING

Both the multiple-choice and open-ended tests of critical thinking have their respective limitations. The current trend is to combine the two response formats into one test. Critical thinking tests utilizing a single multiple-choice response format measures only recognition or level of knowledge, and do not adequately capture the dispositional characteristics of test-takers. Multiple choice response format does not reveal test-takers' underlying reasoning for choosing a particular answer, nor does it reflect test-takers' ability to think critically under unprompted situations. Whereas measurement that allows for responses in both multiple-choice and open-ended format makes it possible to assess individuals' spontaneous application of thinking skills on top of their ability to recognize a correct response. Assessment consists of multi-response format should be pursued for effective evaluation of students' critical thinking performance.

SPECIFIC TEACHER TRAINING COURSES

It is suggested that specific courses be designed for teachers to equip them with different techniques, books and materials on teaching critical thinking.Langer (1997) is one of the researchers who is concerned with teachers presenting content 'mindfully'. Langer's view,

like some of the others outlined, is that teachers should learn to teach from multiple perspectives and focus on linkages and similarities of content.

INFUSION APPROACH

One way to focus on critical thinking is to teach it as a separate course. The disadvantage of using an existing critical thinking program or creating a separate critical thinking course is that what is learned in the course might not transfer to the rest of the curriculum.

Another favored approach is infusion, in which critical thinking is incorporated into the existing subject matter in different ways. One disadvantage of the infusion method is that the teaching of critical thinking may lack any sensible sequence or coherence-a little fallacy recognition is taught here, a little concept analysis there. The separate course approach requires teachers who are well versed in critical thinking; it does not necessarily require all teachers in a school be experts. The infusion approach requires all teachers to be well versed in and disposed toward critical thinking.

CONTINUED PRACTICE

Practice makes perfect. Consistency is of significant importance in the development of critical thinking. It is recommended that teacher persist on asking students to think critically and to use different levels of critical thinking. Student when they get expertise in thinking critically will continue practicing it, too.

USING CRITICAL CHALLENGES

A recent approach to the teaching of critical thinking involves using critical challenges. Theconcept rejects the skills, the problem solving, and the mental process views of critical thinking.Instead the focus is on helping students acquire the tools needed to resolve problematic situations about what to believe or what to do.

ENCOURAGING A POSITIVE ATTITUDE TOWARD CRITICAL THINKING

Critical thinking practice can have magical effects on the students as well as teachers. When teachersand students are aligned in pursuit of improved critical thinking, cognitive magic is possible.Reasoning improves without the encumbrance of the automatic animosity that can ruin theatmosphere for prospective critical thinking. Each attribute of a critical thinking classroom discussedherein plays a facilitative role in the fragile potential for a broad community of critical thinkers.However, their function is linked to the willingness of both teacher and student to engage in the hardwork necessary to realize that exciting

aspiration.Considering different levels of critical thinking six levels of critical thinking has been proposed:

- level1: unilateral descriptions;
- level 2: simplisticalternatives/ argument;
- level 3: basic analysis;
- level 4: theoretical inference;
- level 5: empiricalinference;
- level 6: merging values with analysis.

Teachers need to be aware that students cannotbegin to think critically from the higher levels. However, they are in need to be guided through levels ofcritical thinking.

CONCLUSION

Teaching critical thinking is not an easy task. There are various problems in achieving this goal.Among the barriers are ambiguous definitions of critical thinking, lack of organized sequence in teaching critical thinking,threatening nature of critical thinking practice, lack of proper assessment, and lack of teacher training. However,there are solutions to these problems. Some of them are providing teachers with specific trainingcourses, infusion approach, continued practice, using critical challenges, considering different levels ofcritical thinking, and encouraging a positive attitude toward critical thinking. Critical thinking, if implemented in every occasion,would influence the life of people greatly.

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Review of Research
UGC APPROVED
International Online Multidisciplinary Journal

Volume - 7 | Issue - 8 | May - 2018

5.2331(UIF) 2249-894X

ATTITUDE TOWARDS TECHNOLOGY IN MATHEMATICSIN RELATION TO THEIR LEARNING STYLES AT UNDERGRADUATE STUDENTS

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Abstract: Technology is the making, modification, usage, and knowledge of tools, machines, techniques, crafts, systems, methods of organization, in order

Editor - In - Chief - Ashok Yakkaldevi

REVIEW OF RESEARCH
IMPACT FACTOR : 5.2331(UIF) UGC APPROVED JOURNAL NO. 48514 ISSN: 2249-894X
VOLUME - 7 | ISSUE - 8 | MAY - 2018

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ABSTRACT

Technology is the making, modification, usage, and knowledge of tools, machines, techniques, crafts, systems, methods of organization, in order to solve a problem, improve a preexisting solution to a problem, achieve a goal or perform a specific function. Learning style is important for students as well as for teachers. For students, if they learn what type of learner they are, they can have a clearer picture of the learning process, and more consciousness of learning. The present study aims at investigating the attitude towards technology in mathematics in relation to their learning styles. The sample consisted of 95 undergraduate students from various colleges in Salem district. The attitude towards technology in mathematics scale was standardized by Galbraith.P& Haines, C.(2000) and learning styles scale standardized by Peter Honey and Alan Mumford (2006) was used.Descriptive analysis, Differential analysis, Pearson Product moment correlational analysis and Chi square analysis were the statistical techniques used. The finding of this study reveals that there is no significant positive correlation between attitude towards technology in mathematics and learning styles at undergraduate students with respect to their gender.

KEY WORDS: *Attitude towards technology, learning styles, mathematics, undergraduate students.*

INTRODUCTION

Technology is an important key factor to success. User-friendly interaction between the student and technology in the society is a great milestone of the fresh generation development. The field of mathematics has benefited from technology throughout its description. The demands of the 21st-Century require that all people should be mathematically, scientifically, and technologically literate. It is generally perceived among educators as a vital tool for effective instruction in secondary mathematics classrooms (Franz & Hopper, 2007), and the integration of technology in the learning and teaching of mathematics became a very critical issue (Adamides&Nicolaou, 2004, p. 139).

The learning theories provide the base for learning styles. Learning styles arerelatively stable preference used by each individual to organize and process informationfor solving a problem in a learning task. According to Feldman (2004, p.35) "learningstyle reflects our preferred manner of acquiring, using and thinking about knowledge".When a situation has been faced by a person it is his learning style which leads him toacquire, retain and use knowledge to handle that situation. Every one has different way tohandle the situation. Felder (2005, p.58) said that "students are characterized by different learning styles preferentially focusing on different types of information and tending tooperate on perceived information in different ways".There are many learning stylesbased on the individual differences or these individual differences reflect differentlearning styles in human personality.

REVIEW OF LITERATURE

Ramya.,(2015) studied attitude towards technology in learning mathematics and math anxiety undergraduate mathematics students. The study showed that there was a low positive signific relationship between attitude towards technology in learning mathematics and math anxiety undergraduate mathematics students.

Chen Kang Lee and Manjit Singh Sidhu., (2013) took a study onengineering students learning sty preferences using Honey and Mumford Learning Styles Questionnaire: A Case study in Malaysia. The res indicated that the engineering students have a quite balance learning styles in Activist (very str preference), Reflector (strong preference) and Theorist (strong preference) while less on Pragma (average preference).

STATEMENT OF THE PROBLEM

The problem is taken for this study stated as **"ATTITUDE TOWARDS TECHNOLOGY MATHEMATICS IN RELATION TO THEIR LEARNING STYLES AT UNDERGRADUATE STUDENTS".**

OPERATIONAL DEFINITIONS OF THE STUDY

ATTITUDE TOWARDS TECHNOLOGY IN MATHEMATICS

Technology is essential in the teaching and learning of mathematics; it influences mathematicsthat is taught and enhances students' learning. The present study includes five dimensions using technology in learning mathematics namely, Mathematics confidence, Confidence with technolo attitude to learning mathematics with technology, Affective engagement and Behavioral engagement.

LEARNING STYLES

Learning style is an individual characteristic way of responding to certain variables in instructional environment. It involves individual methods for processing information in learning n concepts. In this context learning styles include the four styles Activist, Reflector, Theorist, and Pragmatist

UNDERGRADUATE STUDENTS

Under graduate students indicates those who are studying mathematics.

OBJECTIVES OF THE STUDY

- To assess the level of attitude towards technology in mathematics by undergraduate students
- To find the level of learning styles at undergraduate students
- To study the significant difference between attitude towards technology in mathematics and learn stylesat undergraduate students with respect to their gender and locality
- To find the relationship between attitude towards technology in mathematics and learning styles undergraduate students with respect to their gender and locality
- To investigate the association between attitude towards technology in mathematics and learning sty at undergraduate students based on birth order

HYPOTHESES OF THE STUDY

- The level of attitude towards technology in mathematics by undergraduate students is moderate
- The level of learning styles at undergraduate students is moderate
- There is no significant difference between attitude towards technology in mathematics and learni styles at undergraduate students with respect to their gender and locality
- There is no significant relationship between attitude towards technology in mathematics and learni styles at undergraduate students with respect to their gender and locality

ere is no association between attitude towards technology in mathematics and learning styles at dergraduate students based on birth order

ODOLOGY

od: The survey method was adopted for the study.

le: By using the random sampling technique, 95 undergraduate students from various colleges in Salem ct have been selected for the study.

: The attitude towards technology in mathematics was standardized by Galbraith.P& Haines, C.(2000). tains in the tool are 20 items with 5 dimensions. Learning styles scale standardized by Peter Honey and Mumford (2006) was used. It consisted of 80 items on four styles viz. Activist, Reflector, Theorist, and matist.

TISTICAL TECHNIQUES USED

Descriptive analysis, Differential analysis, Pearson Product moment correlational analysis and Chi re analysis were adopted for analyzing and interpreting the data.

TA ANALYSIS

ERCENTAGE ANALYSIS

TABLE - I

VEL OF ATTITUDE TOWARDS TECHNOLOGY IN MATHEMATICS WITH RESPECT TO THEIR BACKGROUND VARIABLES

ATTITUDE TOWARDS TECHNOLOGY IN MATHEMATICS		LOW		AVERAGE		HIGH	
		N	%	N	%	N	%
Gender	Male (80)	16	20.00	36	45.00	28	35.00
	Female (15)	3	20.00	7	46.67	5	33.33
Locality	Rural (53)	10	18.87	26	49.06	17	32.08
	Urban (42)	7	16.67	19	45.24	16	39.10
Birth order	First (28)	6	21.43	13	46.43	9	32.14
	Middle (46)	12	26.09	21	45.65	13	28.26
	Last (14)	3	21.43	6	42.86	5	35.71
	Single (7)	1	14.29	4	57.14	2	28.57

From the table it is noticedthat undergraduate students had average level of attitude towards echnology in mathematics with reference to demographic variables such as gender, locality and birth order.

TABLE - II

NUMBER OF STUDENTS IN EACH LEARNING STYLE

VARIABLES	FOUR LEARNING STYLES			
	ACTIVIST (19)	REFLECTOR (21)	THEORIST (44)	PRAGMATIST (11)
Male	15	17	32	16
Female	3	4	3	5
Rural	10	12	20	11
Urban	12	13	12	5
First	6	7	10	5
Middle	8	6	22	10
Last	3	4	5	2
Single	-	2	4	1

- Most of the male undergraduate students were found to theorist style. More female students followed pragmatist style.
- Majority of the rural undergraduate students were found to theorist style. More number of urban students followed reflector style.
- More number of different birth orders under graduate students were found to theorist style.

B) DIFFERENTIAL ANALYSIS

HYPOTHESIS – 1

A) ATTITUDE TOWARDS TECHNOLOGY IN MATHEMATICS

There is no significant difference between attitude towards technology in mathematics at undergraduate students with respect to their gender and locality

TABLE - III

TEST OF SIGNIFICANCE BETWEEN ATTITUDE TOWARDS TECHNOLOGY IN MATHEMATICS WITH RESPECT TO THEIR BACKGROUND VARIABLES

ATTITUDE TOWARDS TECHNOLOGY IN MATHEMATICS		N	M	SD	t VALUE	S / NS
Gender	Male	80	64.91	10.80	0.060	NS
	Female	15	64.73	9.29		
Locality	Rural	53	64.40	11.069	0.512	NS
	Urban	42	65.50	9.890		

From the above table it is noticed that, the difference between the mean scores of attitude towards technology in mathematics of male and female groups, rural and urban groups is not significant at 0.05 level and 0.01 level as the critical ratios obtained for these groups are below the table values (1.96 and 2.28)

CONCLUSION

There is no significant difference between attitude towards technology in mathematics at undergraduate students with respect to their gender and locality.

B) LEARNING STYLES

There is no significant difference between learning styles at undergraduate students with respect to their gender and locality.

TABLE - IV

TEST OF SIGNIFICANCE BETWEEN LEARNING STYLES WITH RESPECT TO THEIR BACKGROUND VARIABLES

LEARNING STYLES		N	M	SD	t VALUE	S / NS
Gender	Male	80	302.60	57.30	0.350	NS
	Female	15	308.33	54.68		
Locality	Rural	53	305.60	53.55	0.398	NS
	Urban	42	300.86	60.89		

From the above table it is noticed that, the difference between the mean scores of learning styles of male and female groups, rural and urban groups is not significant at 0.05 level and 0.01 level as the critical ratios obtained for these groups are below the table values (1.96 and 2.28).

ONCLUSION
There is no significant difference between learning styles at undergraduate students with respect to eir gender and locality

CORRELATIONAL ANALYSIS
YPOTHESIS – 2
)GENDER
There is no significant relationship between attitude towards technology in mathematics and arning styles at undergraduate students with respect to their gender

TABLE - V

RELATIONSHIP BETWEEN ATTITUDE TOWARDS TECHNOLOGY IN MATHEMATICS AND LEARNING STYLES WITH RESPECT TO THEIR GENDER

VARIABLES	CATEGORY	R VALUE	TABLE VALUE
Attitude towards technology in mathematics and learning styles	Male	0.033	0.205
	Female		

It is inferred from the table, male under graduate students has no positive correlation with female ndergraduate students of Attitude towards technology in mathematics and learning styles.

ONCLUSION
There is no significant positive correlation between attitude towards technology in mathematics and earning styles at undergraduate students with respect to their gender.

B) LOCALITY
There is no significant relationship between attitude towards technology in mathematics and earning styles at undergraduate students with respect to their locality

TABLE - VI

RELATIONSHIP BETWEEN ATTITUDE TOWARDS TECHNOLOGY IN MATHEMATICS AND LEARNING STYLES WITH RESPECT TO THEIR LOCALITY

VARIABLES	CATEGORY	R VALUE	TABLE VALUE
Attitude towards technology in mathematics and learning styles	Rural	0.278	0.205
	Urban		

It is inferred from the table, rural under graduate students has positive correlation with urban undergraduate students of Attitude towards technology in mathematics and learning styles.

CONCLUSION
There is significant positive correlation between attitude towards technology in mathematics and learning styles at undergraduate students with respect to their locality.

D) CHI- SQUARE ANALYSIS
HYPOTHESIS – 3
A)ATTITUDE TOWARDS TECHNOLOGY IN MATHEMATICS
There is no association between attitude towards technology in mathematics at undergraduate students based on birth order

TABLE - VII

ASSOCIATION BETWEEN ATTITUDE TOWARDS TECHNOLOGY IN MATHEMATICS AND THEIR BIRTH OR

VARIABLES	CATEGORIES	ATTITUDE TOWARDS TECHNOLOGY IN MATHEMATICS			χ^2 VALUE	S / N
		LOW	MODERATE	HIGH		
Birth order	First	6	13	9	0.91	NS
	Middle	12	21	13		
	Last	3	6	5		
	Single	1	4	2		

From the table it is found that calculated value is 0.91.Table value of χ^2 for df6 at 0.01 level 16.8 So calculated value is less than the table value. Hence the hypothesis is accepted.

CONCLUSION

There is no association between attitude towards technology in mathematics at undergradu students based on birth order.

B) LEARNING STYLES

There is no association between learning styles at undergraduate students based on birth order

TABLE - VIII

ASSOCIATION BETWEEN LEARNING STYLES AND THEIR BIRTH ORDER

VARIABLES	CATEGORIES	LEARNING STYLES			χ^2 VALUE	S / NS
		LOW	MODERATE	HIGH		
Birth order	First	7	14	7	0.434	NS
	Middle	11	23	12		
	Last	3	7	4		
	Single	1	4	2		

From the table it is found that calculated value is 0.434.Table value of χ^2 for df 6 at 0.01 level 16.812 So calculated value is less than the table value. Hence the hypothesis is accepted.

CONCLUSION

There is no association between learning styles at undergraduate students based on birth order.

MAJOR FINDINGS OF THE STUDY

- Undergraduate students had average level of attitude towards technology in mathematics with reference to demographic variables such as gender, locality and birth order.
- Most of the male undergraduate students were found to theorist style. More female students followed pragmatist style.
- Majority of the rural undergraduate students were found to theorist style. More number of urban students followed reflector style.
- More number of different birth orders under graduate students were found to theorist style.
- There is no significant difference between attitude towards technology in mathematics at undergraduate students with respect to their gender and locality
- There is no significant difference between learning styles at undergraduate students with respect to their gender and locality

- There is no significant positive correlation between attitude towards technology in mathematics and learning styles at undergraduate students with respect to their gender.
- There is significant positive correlation between attitude towards technology in mathematics and learning styles at undergraduate students with respect to their locality.
- There is no association between attitude towards technology in mathematics at undergraduate students based on birth order
- There is no association between learning styles at undergraduate students based on birth order

DISCUSSION ON THE FINDINGS

Chen Kang Lee and Manjit Singh Sidhu.,(2013) indicated that the engineering students had a quite balance learning styles in Activist (very strong preference), Reflector (strong preference) and Theorist (strong preference) while less on Pragmatist (average preference). These findings is not confirm to the present study. It has stated as theorist (very strong preference), Reflector (strong preference) and activist (strong preference) while less on Pragmatist (average preference).

CONCLUSION

The purpose of the present study was attitude towards technology in mathematics in relation to their learning styles, and in light of this finding, to discover the level of attitude towards technology in mathematics. It was revealed that undergraduate students had average level of attitude towards technology in mathematics with reference to demographic variables such as gender, locality and birth order. Furthermore the most preferred learning style were identified. It also revealed that most preferred learning style was theorist.

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RNI No. TNENG / 2012 / 46685

ISSN No. 2277-3398

SRI SARADA JOURNAL OF FRONTIERS OF KNOWLEDGE

Volume - VII ▪ Issue - III ▪ Quarterly ▪ September - 2018

Price : Individual ₹. 50 ▪ Institution ₹. 70

SRI SARADA COLLEGE OF EDUCATION

(AUTONOMOUS), SALEM - 636 016. RE-ACCREDITED BY NAAC WITH "A" GRADE (III CYCLE)

(AFFILIATED TO TAMILNADU TEACHERS EDUCATION UNIVERSITY, CHENNAI)

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INDEX

LEARNING STYLES AND STRATEGIES OF COLLEGE STUDENTS

Mrs.R.Saraswathy *

ABSTRACT

A learning style refers to the relationship between individual persons and their behaviour of learning whereas learning strategies refer to attitudes and behaviour that is oriented towards goals. The problem of the present study is titled as "LEARNING STYLES AND STRATEGIES OF COLLEGE STUDENTS". The researcher adopted normative survey method. 1723 mathematics students from 13 colleges and a university in Salem District were selected as sample by stratified random sampling technique. Two research tools were used to collect the required data. Quantitative and qualitative data analysis were done.It was noted that gender, locality, medium of instruction were playing a vital role in hindering the choice of learning styles and strategies Significant positive correlation was found between learning styles and learning strategies as well between learning strategies .

INTRODUCTION

Learning styles are not a new issue in education and more researches have been conducted over past two decades. Educators have for many years, noticed that some students prefer certain methods of learning more than others. It is known that learning processes vary from person to person due to the presence of biological and psychological differences. Research shows thatpeople have different preferences and strengths in takingin and processing information. These preferences are sometimes referred to as learning styles and are used to describe and helpus understand the different way in which different people learn.

"Information on learning styles of students and how the styles change or develop over time has implications for educators in relation to the development and on-going review of instructional design." Lemire 2000

Educators provide a diverse range of learning activities / strategies for students, in an effort to accommodate differences in learning styles (Harris et al 1995, Brown 1998, Felder & Silverman 1998).

Fritz suggests that through improving students' awareness of their own learning style, they are better able to take responsibility for their own learning, which leads to improved learning outcomes (Fritz 2002).

Learning strategies have more relation to the academic achievement than learning style. Besides, they can set practical learning goals suitable for themselves. For visual learners, they may become good readers. For auditory learners, they may become good at speaking and communicating. Learning style is more or less fixed and it is not easy to change one's learning style as one cannot easily change one's personality, habit, or cognitive style. In this sense, it is more important for teacher to understand the theories of learning style and to enable him to know the students learning style. As teachers, we have to remember that our students learning style cannot be the same. It is the varied learning styles in a classroom that make the teaching difficult. On the basis of this, we have to adapt different teaching methods and we have to find out a balanced teaching approach.

In contrast to learning styles, learning strategies are "any set of operations, plans or routines used by learners to facilitate the obtaining, retrieval, storage and use of information" (Macaro, 2006, p. 324).

In this way, the individual can acquire the constantly changing and increasing amount of information without need for the assistance of others. Learning strategies and learning styles are two related factors, which go hand in hand in any instructional framework. Hence, striking a balance between learners' preferred style and strategy and also between the teaching methodology and materials is of paramount importance which possibly results in learners' better performance.

NEED FOR THE STUDY

Styles are across the tasks and situations. The researcher has taken care to discuss the dominant styles of learning such as activist, reflector, theorist and pragmatist. Her findings have led her to believe that pragmatist learning style is conducive to effective mathematics learning.

Strategy is defined as the process of or skill in, planning and conducting a campaign. It is also defined as a long- term plan for future success or development. Planning is a net to capture the future. The possible and plausible strategies to activate and motivate mathematics learning and teaching such as cognitive strategies, meta cognitive strategies, non-informational management strategies and informational management strategies have been examined to find out their effectiveness.

The study under discussion throws light on the relationship that may exist between mathematics learning and their learning styles and learning strategies.

STATEMENT OF THE PROBLEM

The problem of the present study is selected and entitled as "**LEARNING STYLES AND STRATEGIES OF COLLEGE STUDENTS**"

OPERATIONAL DEFINITIONS OF THE TERMS

LEARNING STYLES

Learning styles are various approaches or ways of learning. It involves individual methods for processing information in learning new concepts. In this context learning styles include refer four styles; Activist, Reflector, Theorist, and Pragmatist.

LEARNING STRATEGIES IN MATHEMATICS

Learning strategies give students a way to think through and plan the solution to a problem. Students use learning strategies to become more effective and independent learners. In this study learning strategies in mathematics refer to four factors viz. cognitive, meta cognitive, non - informational resources management and informational resources management.

COLLEGE STUDENTS

College students indicate the students who are studying final year undergraduate and postgraduate programme in mathematics in the year 2015- 2016 in select colleges in Salem district.

OBJECTIVES OF THE STUDY

To find the significant differences in the learning styles of college students based on the select sub samples

To investigate the significant differences in the learning strategies of college students in mathematics based on the select sub samples

To study the correlation between learning styles and learning strategies in mathematics of college students

HYPOTHESES OF THE STUDY

There is significant differences in the learning styles of college students based on the select sub samples

There exists significant differences in the learning strategies of college students in mathematics based on the select sub samples

There is correlation between learning styles and learning strategies in mathematics of college students

SAMPLE

1723 mathematics students of colleges formed the sample. Among them 412 (23.91%) students were from government colleges, 402 (23.33%) students were from aided colleges, 851(49.39%) students were from private college whereas 58 (3.36%) students were from university campus.

TOOLS USED

Learning Styles Scale(LSS)

To determine students learning styles, the researcher used Peter Honey and Alan Mumford (2006) questionnaire to find the learning style.The researcher made the original questionnaire as a five point scale (LSS) to suit Indian scenario.The reliability coefficient (Cronbach Alpha) was found as 0.793

Learning Strategies in Mathematics Scale (LSMS). Learning strategies in mathematics scalewas standardized by Pintrich et.al (1991). It was used to assess students learning strategies. Cronbach α analysis was calculated for each components of this scale.

STATISTICS USED

The present study is normative survey type. Qualitative, Differential and correlational analyses were used to analyse the data.

DATA ANALYSIS

From table 1, it is found that 305 (17.70%) students follow activist style, 324 (18.80%)students adopt reflector style, 342 (19.85%) students are of theorist style,364(21.13%)students were pragmatist whereas 1030 (59.78%) students prefer no particular learning style.

Table 2 reveals that 360(20.89%) students follow cognitive, 378(21.93%) students adopt meta cognitive strategies. 322(18.69%) students are of non - informational resources management, 357(20.72%)students areinformational managers while 993 (57.63%) students practice no particular learning strategy.

From table 3, it is noted that among the 95 students who followed all the four learning strategies, 29 students adopted all the four learning styles, 27 students are of three learning styles, 21 students were two learning styles, 14students used one learning style while 4 students practiced no learning style.

It is also inferred that among the 80 students who followed all the four learning styles, 29 students followed all the four learning strategies, 29 students adopted three learning strategies,18 students practiced two learning strategies, 3students used one learning strategy while only one student practiced no learning strategy

Learning Styles

In table 4, as significant differences are not noted in the gender based analysis,it is concluded that the hypothesis is notaccepted.

From the locality based analysis, as significant differences are not noted in one case. Hence it is concluded that the hypothesis is accepted in this case. As there are significant differencesin

four cases, the hypothesis is not accepted in these cases.

As significant differences are not found in two cases in the medium based analysis, the hypothesis is accepted in these cases. As there are significant differences in three cases, the hypothesis is not accepted in these cases.

In the family type analysis, as significant differences are not noted, it is concluded that the hypothesis is accepted.

Learning Strategies

In table-5, as significant differences are noted in the gender based analysis, it is concluded that the hypothesis is not accepted. In the locality based analysis,as significant differences are noted, it is concluded that the hypothesis is not accepted.

From the medium of instruction based analysis, it is found that significant differences are not noted in four factors. Hence it is concluded that the hypothesis is accepted in these factors. As there are significant differences in seven factors, the hypothesis is not accepted in these factors.The calculated 't' values are less than the table value of two strategies. Hence the hypothesis is accepted. But the calculated 't' valuesare greater than the table value in three strategies. Hence the hypothesis is not accepted.

In table 5,as significant differences are not noted in the family based analysis in the factors of learning strategies,, it is concluded that the hypothesis is accepted.Where asthe calculated't' values are less than the table value of two strategies. Hence the hypothesis is accepted. But the calculated't' values are greater than the table value in three strategies. Hence the hypothesis is not accepted in these cases.

Correlational Analysis

The variables learning styles and learning strategies in mathematics exhibited a significant positive correlation of 0.656 in table-6. It is concluded that the hypothesis is not accepted.

CONCLUSIONS

Irrespective of the learning styles; all learners used informational resource management strategy mostly.

More number of active learners seemed to follow metacognitive strategy and informational resource management strategy.Most of the reflectors preferred cognitive strategy and informational resource management strategy.Theorist practiced cognitive and metacognitive strategies.Pragmatists opted metacognitive strategy and informational resource management strategy.'No learning style learners' were adaptingeither no learning strategy or non - informational resource management strategy.

Inspective of the learning strategies used college students were found to be pragmatists followed by theorists.

College students practicing cognitive learning strategy were found to be theorists and reflectors.College students who preferred metacognitive learning strategy were pragmatists, theorists and activists.College students who used non - informational resource management strategy were pragmatists and theorists.College students following non - informational resource management strategy were theorists and pragmatists.College students who adapted no learning strategy were following either no learning style or were pragmatists.

Male and female college students differ in their learning styles. Rural and urban college students differ in their learning styles.Rural and urban college students do not differ in the dimension theorist.Rural and urban college students differ in the dimensions activist, reflector, pragmatist and in the total scores of learning styles.Tamil medium and English medium college students do not differ in the dimensions reflector and pragmatist.Tamil medium and English medium college students differ in the dimensions activist, theorist, and in the total scores of learning styles.College students from different types of family do not differ in all the dimensions and in the total scores of learning styles.

Male and female college students differ in their learning strategies. Rural and urban college students differ in their learning strategies.Tamil medium and English medium college students do not differ inthe factors organization,critical thinking,self-regulation and time and study environment.Tamil medium and English medium college students differ inhe factors rehearsal, elaboration, effort management, peer - learning, help – seeking, exploratory behavior on internet and communication behavior on internetof learning in mathematics.Tamil medium and English medium college students do not differ in the strategiescognitive and meta cognitive.Tamil medium and English medium college students differ in the strategiesnon-informational management, informational managementand in the total scoresof learning in mathematics

College students from different types of family do not differ in all the eleven factors of learning in mathematics. College students from different types of family do not differ in the strategies metacognitive and in the total scores oflearning in mathematics.College students from different types of family do differ in thestrategies cognitive, non - informational resources management and informational resources managementof learning in mathematics.

There is significant positive correlation between the learning styles and learning strategies of college students.

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TABLE –1 Number of students following each learning style

LEARNING STYLES	NUMBER OF STUDENTS	%
Activist	305	17.70
Reflector	324	18.80
Theorist	342	19.85
Pragmatist	364	21.13
No learning style	1030	59.78

TABLE – 2 Number of students in each strategy of learning mathematics

LEARNING STRATEGIES	NUMBER OF STUDENTS	%
Cognitive	360	20.89
Meta Cognitive	378	21.93
Non – Informational resource management	322	18.69
Informational resources management	357	20.72
No learning strategy	993	57.63

TABLE –3 Details of learning styles followed and learning strategies adopted

Learning Styles / Learning Strategies	Four Learning Styles	Three Learning Styles	Two Learning Styles	One Learning Style	No Learning Style
Four Learning Strategies (95)	29	27	21	14	4
Learning Styles / Learning Strategies	**Four Learning Strategies**	**Three Learning Strategies**	**Two Learning Strategies**	**One Learning Strategies Style**	**No Learning Strategies Style**
Four Learning Styles(80)	29	29	18	3	1

TABLE –4 Mean differences in learning styles of college students

VARIABLES	MALE (788)		FEMALE (935)		t VALUE	S / NS
	M	SD	M	SD		
Activist	74.96	17.3	70.27	16.18	5.78**	S
Reflector	73.34	17.04	70.55	15.56	3.53**	S
Theorist	73.54	15.69	70.30	15.05	4.35**	S
Pragmatist	73.98	16.63	70.95	15.66	3.87**	S
Total	295.83	48.64	282.07	48.57	5.85**	S
VARIABLES	**RURAL (969)**		**URBAN (754)**		**t VALUE**	**S / NS**
	M	**SD**	**M**	**SD**		
Activist	71.44	16.84	73.67	16.81	2.72**	S
Reflector	71.08	16.16	72.78	16.46	2.15*	S

Theorist	71.22	15.11	72.50	15.80	1.70	NS
Pragmatist	71.43	16.08	73.51	16.24	2.65**	S
Total	285.18	49.08	292.46	48.80	3.07**	S
VARIABLES	**TAMIL (186)**		**ENGLISH (1537)**		**t VALUE**	**S / NS**
	M	**SD**	**M**	**SD**		
Activist	69.9	17.2	72.76	16.8	2.37*	S
Reflector	69.87	16.23	72.06	16.31	1.74	NS
Theorist	69.45	16.02	72.06	15.33	2.11*	S
Pragmatist	71.12	16.33	72.49	16.16	1.08	NS
Total	280.08	54.22	289.37	48.34	2.24*	S
VARIABLES	**JOINT (755)**		**NUCLEAR (968)**		**t VALUE**	**S / NS**
	M	**SD**	**M**	**SD**		
Activist	72.71	16.74	72.19	16.96	0.63	NS
Reflector	71.82	16.48	71.83	16.17	0.02	NS
Theorist	72.12	15.23	71.51	15.58	0.82	NS
Pragmatist	72.63	15.22	72.12	16.44	0.66	NS
Total	289.27	49.17	287.65	49.01	0.68	NS

*Significant at 5% level **Significant at 1% level NS- Not significant

TABLE –5 Mean differences in learning strategies of college students

VARIABLES	**MALE (788)**		**FEMALE (935)**		**t VALUE**	**S / NS**
	M	**SD**	**M**	**SD**		
Cognitive	67.51	12.34	63.56	12.15	6.78**	S
Meta Cognitive	43.87	9.09	41.32	8.91	5.86**	S
Non- Informational resources management	91.86	17.12	86.66	16.46	6.39**	S
Informational resources management	49.09	9.53	46.23	9.45	6.22**	S
Total	252.33	39.18	237.76	39.32	7.68**	S
VARIABLES	**RURAL (969)**		**URBAN (754)**		**t VALUE**	**S / NS**
	M	**SD**	**M**	**SD**		
Cognitive	64.01	12.68	67.10	11.80	5.22**	S
Meta Cognitive	41.71	9.21	43.48	8.82	4.06**	S
Non – Informational resources management	87.54	17.08	90.97	16.67	4.19**	S
Informational resources management	46.81	9.72	48.47	9.35	3.59**	S
Total	240.07	40.79	250.02	38.06	5.22**	S
VARIABLES	**TAMIL (186)**		**ENGLISH (1537)**		**t VALUE**	**S / NS**
	M	**SD**	**M**	**SD**		
Cognitive	63.22	12.68	65.63	12.34	2.46*	NS
Meta Cognitive	42.18	8.86	42.52	9.11	0.49	NS
Non – Informational resources management	85.39	19.29	89.48	16.63	2.77*	S

Informational resource management	43.90	10.68	47.98	9.36	4.98**	S
Total	234.69	43.62	245.60	39.30	3.26**	S
VARIABLES	**JOINT(755)**		**NUCLEAR(968)**		**t VALUE**	**S / NS**
	M	**SD**	**M**	**SD**		
Cognitive	65.12	12.45	65.56	12.35	2.46*	S
Meta Cognitive	42.60	9.07	42.39	9.09	0.48	NS
Non – Informational resources management	89.22	17.42	88.89	16.64	2.77**	S
Informational resources management	47.37	9.93	47.67	9.31	4.98**	S
Total	244.31	40.90	244.52	39.15	0.11	NS

TABLE – 6

Correlation matrix for learning styles and learning strategies in mathematics of college students

VARIABLES	LEARNING STRATEGIES
LEARNING STYLES	0.656** (Significant at 0.01 level)

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UGC Approved Sr. No. 49366

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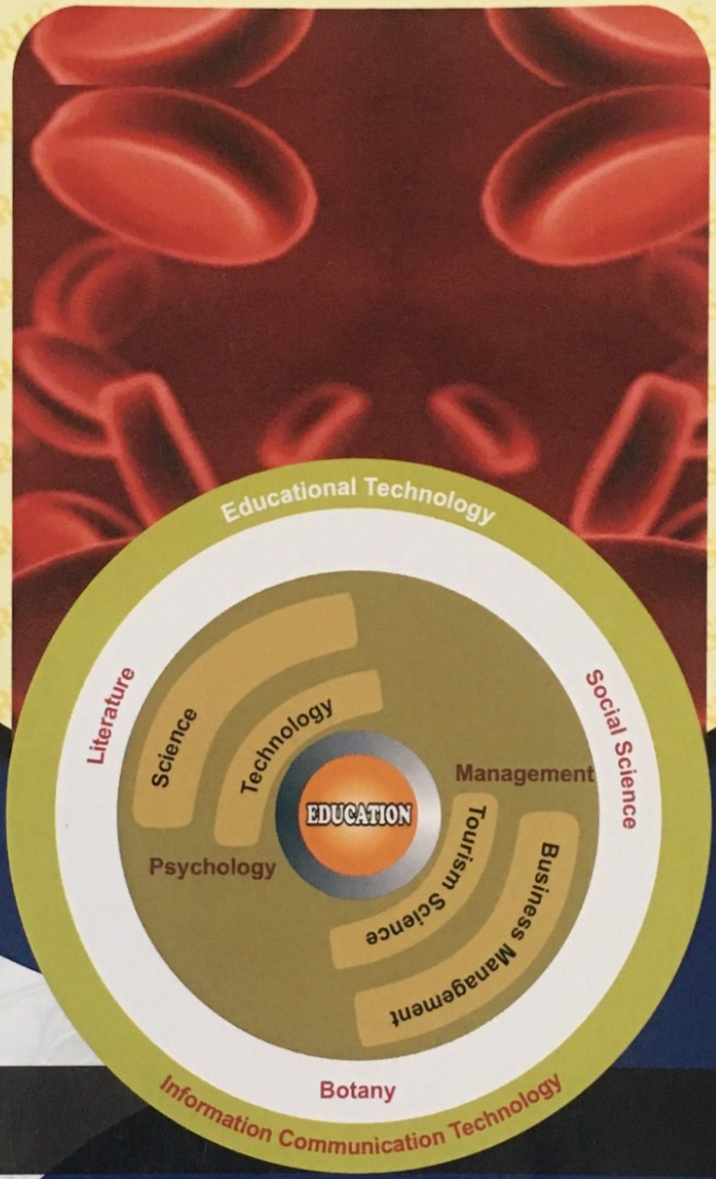
SRJIS

ISSN -2278-8808



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SCHOLARLY RESEARCH JOURNAL FOR INTERDISCIPLINARY STUDIES

APRIL-JUNE , 2018. VOL. 7, ISSUE -35

EDITOR IN CHIEF : YASHPAL D. NETRAGAONKAR, Ph.D.

SJIF 2016 = 6.177
ISSN 2278-8808

UGC APPROVED SR. NO. 49366

An International, Peer Reviewed, & Referred Quarterly

Scholarly Research Journal for Interdisciplinary Studies

APRIL-JUNE, 2018, VOL-7, ISSUE-35

LEARNING STYLES OF HIGHER SECONDARY STUDENTS IN RELATION TO THEIR ACADEMIC ACHIEVEMENT

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Abstract

Every individual has its own natural or habitual pattern of acquiring and processing information in learning situations. The common ways or patterns by which people learn areknown as their learning styles. Learning styles are essential elements for students' as learning styles have its strong influence on the achievement of a subject. The objective of the study is to investigate the relationship between learning styles and student's achievement. Suitability of students learning styles in the mathematics subjects will be more effective and provide a positive impact on students' academic if the teaching process and learning tailored to students' learning styles. The study included the categorical variablesgender and medium of instruction.187 students from various Government, Government Aided and Private schools in and around Salem district was involved. Normative survey method was adopted and stratified sampling technique was employed for the study. Learning styles scale standardized by Peter Honey and Alan Mumford (2006) was used. It consisted of 80 items. The data collected were subjected to the statistical technique like Percentage analysis, t – test and correlation. The t -test showed no difference between learning styles based on gender. Pearson correlation analysis showed significant relationship between learning styles and academic achievement of student.

Keywords: *Learning styles, Academic achievement, Higher secondary school students*

Introduction: Learning styles are simply different approaches or ways of learning. Learning style refers to students' preferences for some kinds of learning Activities over others. Characteristic approaches to learning and studying. Students who understand their own style are likely to be better learners, achieve higher grades, have more positive attitudes about their studies, feel greater self-confidence and exhibit more skill in applying their knowledge in courses. A learning style is very important for every student as it has a strong influence in contradiction of achievement. A learning style is a method in which individuals absorb and retain new information or skills, regardless of how it is described, but the process is different for each individual. A learning style is a balanced measurement of a person resulting a person to react to the environment, how to interact and viewing something in the learning process.

Review of Literature

Jayalakshmi., (2016) studied attitude towards learning styles and academic achievement among high school students. The findings of the study revealed that there was no significant difference in learning styles among high school students in terms of gender.

Norasyikin Omar et .al.,(2015)investigated the dimensions of learning styles and students' academic achievement. The result showed that there was no significant relationship between the dimensions(active-reflective, visual-verbal, and sequential-global)of learning styles and academic achievement for Electrical Technology subject and only the second dimension(sensing-intuitive)there is significant relationship with academic achievement of the Polibriged subject.

Anuar Sopian, Salmah Ahmad, Kaseh Abu Bakar, EzadAzraaiJamsariandHashim Mat Zin(2013) took a study on learning styles among Arabic Language Students at University Teknologi Mara, Malacca Campus. Results showed that there was no significant difference in the learning styles between genders.

Need and Significance of the Study: Learning style refers to the ability of learners to perceive and process information in learning situations. Effective instruction reaches out to all students, not just those with one particular learning style. Now emerging needs of learning styles that influences students how to learn and facilitate learning for an individual in a given situation and makes clear, that a preferred way of learning and understanding subjects can also be distinguished in the way of proceeding. This means a task can be solved in a dissecting or in a scholastic way in combination to several modes of representation for example analytically or visually. Based on these points an attempt has been made by the investigator to develop learning styles and use them as support system to demonstrate the subject concepts and to study their effectiveness and achievements.

Title of the Problem

The statement of the problem as stated as" **LEARNING STYLES OF HIGHER SECONDARY SCHOOL STUDENTS IN RELATION TO THEIR ACAEMIC ACHIEVEMENT".**

OPERATIONAL DEFINITIONS OF THE STUDY

Learning Styles: Learning styles are various approaches or ways of learning. It involves individual methods for processing information in learning new concepts. In this context learning styles include the four styles Activist, Reflector, Theorist, and Pragmatist.

Academic Achievement: For academic achievement, Marks obtained in half- yearly examination (out of 1200 and converted in to 100) is considered.

Higher Secondary School Students: Higher secondary school students indicate the students those who are studying XI and XII Standard.

Objectives of the Study

- To identify the level of learning styles by higher secondary school students
- To study the level of academic achievement of higher secondary school students
- To identify the significant difference in the learning styles of higher secondary school students based on the select sub samples
- To investigate the significant difference in the academic achievement of higher secondary school students based on the select sub samples
- To find the relationship between the learning styles and academic achievement of higher secondary school students based on the select sub samples

Hypotheses of the Study

- The level of learning styles by higher secondary school students is moderate
- The level of academic achievement of higher secondary school students is moderate
- There is no significant difference in the learning styles of higher secondary school students based on the select sub samples

- There is no significant difference in the academic achievement of higher secondary school students based on the select sub samples
- There is no relationship between the learning styles and academic achievement of higher secondary school students based on the select sub samples

Method Chosen For The Study

Normative survey method was adopted for this present study.

Population And Sample Of The Study

Population for the study is all the higher secondary students studying in government, aided, unaided schools in Salem district. The participants for this study considered XI and XII students studying higher secondary schools in Salem district. The sample consists of 187 students.

Tools Used In the Study

Learning styles scale standardized by Peter Honey and Alan Mumford (2006) was used. It consisted of 80 items on four styles viz. Activist, Reflector, Theorist, and Pragmatist.

Statistical Techniques Used In the Study

The collected data were analyzed by using statistical techniques like percentage analysis, t - test and correlation.

Data Analysis of the Study

Percentage Analysis

Table – 1 Number of Student Following Eaching Learning Styles

Learning Styles	Number Of Stuents	Percentage
ACTIVIST	33	17.65
REFLECTOR	47	25.13
THEORIST	44	23.53
PRAGMATIST	63	33.69
TOTAL	187	100.0

From the above table it is inferred that 33 students follow Activist style, 47 students adopt Reflector style, 44 students are of Theorist style while 63 students where it Pragmatist.

Table – Ii Frequency Distribution Representing Level of Academic Achievement

LEVEL	FREQUENCY	PERCENTAGE
LOW	39	20.86
AVERAGE	98	52.40
HIGH	50	26.74
TOTAL	187	100.0

From the above table it is inferred that 52.40 % of students had average level of academic achievement whereas the percentages of low and high achievers were found to be almost the same.

Differential Analysis

A)Learning Styles

Hypotheses - 1

There is no significant difference between the learning styles of higher secondary students based on the select sub samples gender and medium of instruction

Table – Iii Mean Differences Between the Learning Styles of Higher Secondary School Students Based On Gender and Medium of Instruction

GENDER						
DIMENSIONS	BOYS (91)		GIRLS (96)		t VALUE	S/NS
	M	SD	M	SD		
Activist	78.70	14.91	78.75	17.55	0.02	NS
Reflector	79.55	13.26	78.10	17.31	0.64	NS
Theorist	79.38	15.36	79.09	16.85	0.12	NS
Pragmatist	79.16	14.76	79.31	16.21	0.07	NS
Total	316.80	52.22	315.26	59.74	0.19	NS
MEDIUM OF INSTRUCTION						
DIMENSIONS	TAMIL (50)		ENGLISH (137)		t VALUE	S/NS
	M	SD	M	SD		
Activist	72.08	20.44	81.15	13.76	2.91	S
Reflector	74.22	16.47	80.48	14.77	2.36	S
Theorist	74.98	17.61	80.79	15.29	2.07	S
Pragmatist	75.76	17.08	80.51	14.71	2.17	S
Total	297.04	64.60	322.93	51.14	2.56	S

NS – Not Significant S – Significant

From the above table it is noticed that significant differences not noted in five cases. It is concluded that the hypothesis is accepted. As there is significant difference in remaining cases, it is concluded that the hypothesis is not accepted in these cases.

Conclusion

- Boys and girls higher secondary school students do not differ in activist, reflector, theorist, pragmatist and in the total scores of learning styles.
- Tamil medium and English medium higher secondary school students differ activist, reflector, theorist, pragmatist and in the total scores of learning styles.

B) Academic Achievement

Hypotheses - 2

There is no significant difference between the academic achievement of higher secondary students based on the select sub samples gender and medium of instruction

Table – Iv Mean Differences Between The Academic Achievement Of Higher Secondary School Students Based On Gender And Medium Of Instruction

VARIABLES			M	SD	t	S / NS
ACADEMIC ACHIEVEMENT	GENDER	BOYS	75.13	14.359	1.88	NS
		GIRLS	71.40	12.736		
	MEDIUM OF INSTRUCTION	TAMIL	72.28	12.339	0.60	NS
		ENGLISH	73.55	14.116		

NS – Not Significant

From the table it is understood that it is not noted that there are significant differences in all the cases. Hence the hypothesis is not accepted.

Conclusion

- Boys and girls higher secondary school students do not differ in their academic achievement.
- Tamil medium and English medium higher secondary school students do not differ in their academic achievement.

Hypotheses – 3

There is no relationship between the learning styles and academic achievement of higher secondary school students based on the select sub samples

Table – V Correlation Matrix for Learning Styles and Academic Achievement of Higher Secondary School Students

VARIABLES	'r' VALUE
LEARNING STYLES	
ACADEMIC ACHIEVEMENT	0.22**(S)

S – Significant * * Table value of r for df187 at 0.01 level is 0.058.

From the above table it is noticed that the variables learning styles and academic achievement exhibited a significant positive correlation of 0.22.

Conclusion

- There is significant positive correlation between the learning styles and academic achievement of higher secondary school students.

Major Findings Of The study

- 33 students follow Activist style, 47 students adopt Reflector style, 44 students are of Theorist style while 63 students where it Pragmatist.
- 52.40 % of students had average level of academic achievement whereas the percentages of low and high achievers were found to be almost the same.
- Boys and girls higher secondary school students do not differ in activist, reflector, theorist, pragmatist and in the total scores of learning styles and academic achievement.
- Tamil medium and English medium higher secondary school students differ activist, reflector, theorist, pragmatist and in the total scores of learning styles.
- Tamil medium and English medium higher secondary school students do not differ in their academic achievement.
- There is significant positive correlation between the learning styles and academic achievement of higher secondary school students.

DISCUSSION ON THE FINDINGS

AnuarSopian, Salmah Ahmad, Kaseh Abu Bakar, EzadAzraaiJamsari and Hashim Mat Zin,2013showed that there was no significant differences in the learning styles between genders. This result is similar to the present study has found boys and girls higher secondary school students do not differ in activist, reflector, theorist, pragmatist and in the total scores of learning styles.

Conclusion: The findings of the present study reveal that the most preferred learning style among higher secondary school students is pragmatic style of learning (33.69 %) followed by

reflector (25.13 %), theorist (23.53 %) and activist (17.65 %) learning styles and students followed average level of achievement. It also revealed that the significant positive correlation between the learning styles and academic achievement of higher secondary school students.

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Volume - 6 | Issue - 2 | August- 2018

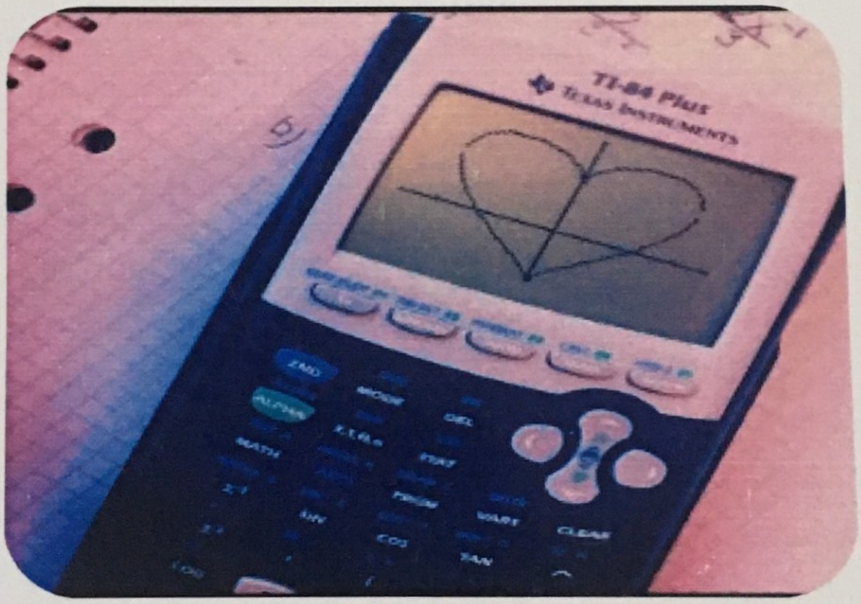
RESEARCH DIRECTION

UGC APPROVED

International Recognition Interdisciplinary Research Journal

Impact Factor	ISSN
5.1723(UIF)	2321-5488

MEASURES TO ENHANCE LEARNING ENVIRONMENT USING TECHNOLOGY IN MATHEMATICS TEACHING



Mrs. R. Saraswathy

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Assistant Professor of Mathematics , Sri Sarada College of Education (Autonomous), Salem.

ABSTRACT:-Today, more than ever, the role of technology in mathematics teaching and learning is of great importance because of the use of information

Editor - In - Chief - S.P. Rajguru

RESEARCH DIRECTIONS
IMPACT FACTOR : 5.1723(UIF) UGC APPROVED JOURNAL NO. 45489 ISSN: 2321-5488
VOLUME - 6 | ISSUE - 2 | AUGUST- 2018

MEASURES TO ENHANCE LEARNING ENVIRONMENT USING TECHNOLOGY IN MATHEMATICS TEACHING

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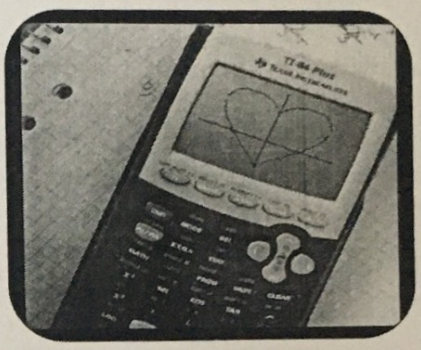
ABSTRACT



Today, more than ever, the role of technology in mathematics teaching and learning is of great importance because of the use of information and communication technologies. With the help of various applications for mathematics education, the Internet, teachers, and students themselves, they see the advantage of technology. It is essential in teaching and learning mathematics; it motivates students to learn and teachers to teach more effectively and efficiently. It gives us more mobility, motivation as well as convenience. It can change the nature of school mathematics by engaging students in more active mathematical practices such as experimenting, analyzing, reasoning, problem-solving that motivate them to rethink by giving instant feedback and rewards. As an experienced teacher, content developer of mathematics and the future generation of mathematics learners should consider technology as a common platform to nourish and deepen their learning.

KEY WORDS : *Mathematics teaching, mathematics learning, Learning environment, Technology.*

INTRODUCTION

Technological tools motivate students. When students allow becoming active in learning, they can develop their own strategies and understandings. With the help of technology, students can discover mathematical relationships and connections. In Technology Principle it is stated "Technology enriches the range and quality of investigations by providing a means of viewing mathematical ideas from multiple perspectives" (NCTM, 2000, p.25).

The general guidelines of the role of technology in teaching and learning mathematics stated in the Principles and Standards in School Mathematics (NCTM, 2000) under the Technology Principle as:

- Technology enhances mathematics learning.
- Technology supports effective mathematics teaching
- Technology influences what mathematics is taught.

According to Michael and Waverly, (2006:23) the importance of technology does not only affect students, but also teachers who adapt more teaching techniques which help them to teach more effectively. By integrating educational tools into their everyday teaching practice, they can provide creative opportunities for supporting students' learning and fostering the acquisition of mathematical knowledge and skills. On the one hand, gifted students can be supported more effectively than ever by promoting their individual interests and mathematical skills. On the other hand, weaker students can be provided with activities that meet their special needs and help them to overcome their individual difficulties. Additionally, students can develop and demonstrate deeper understanding of mathematical concepts and are able to deal with more advanced mathematical contents than in 'traditional' teaching environments. Monaghan, (2001)

Softwares have a very good impact on many of the subjects that are done at schools and mostly mathematics which is failed by many students. Of cause technology is essential in teaching and learning mathematics; it motivates students to learn and teachers to teach more effectively and efficiently. There are different learning techniques that provided by the technology which are being so much useful for learning. In addition to that, the idea of mathematical concepts and exploring mathematics in multimedia environments can assist students understanding in a new ways. Judith (2008:15)

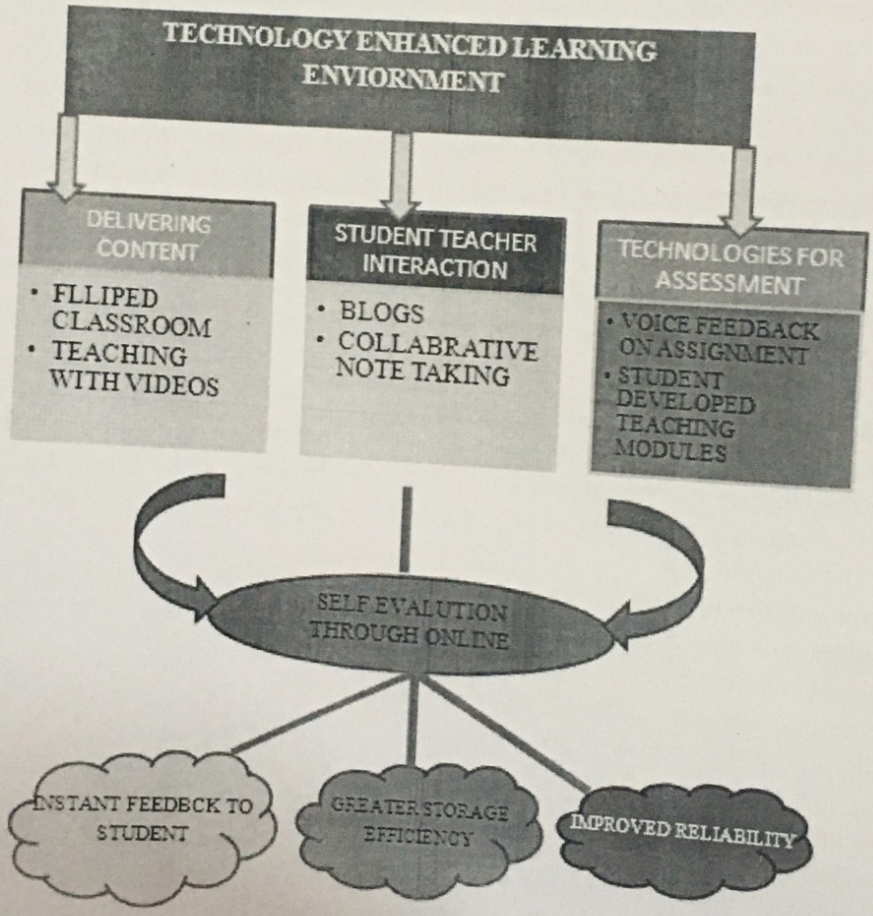
REVIEW OF RELATED LITERATURE

Kulik, J.A. (2003) deliberated that the Teachers can improve technology usage by choosing right techniques to be used by students to learning environment; these techniques should help students to understand the mathematical concepts. The use of graphics, visualization or computing can be one of these techniques.

OBJECTIVES

- To study the mathematics learning environment using technology
- To identify the various technological tools for mathematics teaching
- To examine the use of technology in mathematics teaching and learning
- To measure the mathematics learning environment using technology

CONCEPTUAL FRAME WORK



EXPLANATION

DELIVERING CONTENT

The flipped classroom

A flipped classroom is an instructional strategy and a type of blended learning that reverses the traditional mathematical learning environment by delivering instructional content, often online, outside of the classroom. It moves activities, including those that may have traditionally been considered homework, into the classroom. In a flipped classroom, students watch online lectures, collaborate in online discussions, or carry out research at home while engaging in concepts in the classroom with the guidance of a mentor.

Teaching with videos

Teaching is a great way to create video content that's shareable and engaging. From product documentation to online courses, as an expert in teaching field, we probably have many things to teach. However, conveying information clearly is a skill set all its own, one that we might not have had as much practice with.

STUDENT TEACHER INTERACTION

Chat

Online chat may refer to any kind of communication over the Internet that offers a real-time transmission of text messages from sender to receiver. Chat messages are generally short in order to enable other participants to respond quickly

Blogs

A blog about mathematics, mathematics education and Underground Mathematics, including teacher perspectives on using our resources. To learn more about each blog post's author, look for their individual profile at the end of each post. We welcome guest authors to share their own candid thoughts and beliefs about mathematics, math education, and using rich resources across classrooms.

Wikis

A wiki is run using wiki software, otherwise known as a wiki engine. A wiki engine is a type of content management system, but it differs from most other such systems, including blog software, in that the content is created without any defined owner or leader, and wikis have little implicit structure, allowing structure to emerge according to the needs of the users.

TECHNOLOGIES FOR ASSESSMENT

Voice feedback on assignments

Voice feedback is an excellent method to connect with students and provide feedback that is both constructive and meaningful, and can promote intellectual development and critical thinking.

TECHNOLOGY PROVIDES EVALUATION TOOLS

Technology provides different assessment tools for teaching and learning such as Checklists, rating scales to assess the 21st century skills such as creativity, problem solving, decision making and leadership skills which are criteria for project based learning. The teachers can access number of printable worksheets for Mathematics. Checklists, rating scales and rubrics are readily available in some educational websites. The students can do self-evaluation through different online tools and get immediate feedback for correction. The advantages include:

- Instant feedback to students
- Greater flexibility with respect to location and timing
- Improved reliability

- Improved impartiality
- Greater storage efficiency

CONCLUSION

Technology has the potential to generate a good deal of interest and attention among students as it helps them engage better with their lessons, peers and teachers and stimulate learning. When used effectively it has the potential to create a healthy learning environment for students, positively influence student motivation and promote greater interaction in the classroom resulting in enhanced learning. The idea, however, is not to let the technology take over but to use this as a tool to enhance teaching and learning thereby providing a more enjoyable learning experience for students.

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IJSDR

ISSN:2455-2631

INTERNATIONAL JOURNAL OF SCIENCE & ENGINEERING DEVELOPMENT RESEARCH

(An International Open Access Journal)

email: editor@ijsdr.org

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LEARNING STRATEGIES IN MATHEMATICS AMONG SECONDARY SCHOOL BOYS AND GIRLS IN RELATION TO THEIR ACADEMIC ACHIEVEMENT

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***Abstract*: The main purpose of the study is to investigate the relationship between learning strategies in mathematics with academic achievement in mathematics among ninth and tenth class secondary level students. Sample of the study consisted of 100 students out of which 50 were boys and 50 were girls. This sample was chosen from two girls' school and two boys school in Salem District. Learning strategies in mathematics scale was standardized by Pintrich et.al (1991). It consisted of 68 statements. Academic achievement was measured by the marks obtained by the sample in their recently held examination in mathematics in their school. Normative survey method was adopted and stratified sampling technique was employed for the study. The data collected were subjected to the statistical technique like t – test and correlation. The findings of the present study reveal that the boys differed in their mathematical achievement from girls. Girls achieved better results as compared to boys. Learning strategies in mathematics and academic achievement in mathematics did not go together.**

***Keywords*: Learning strategies, Mathematics, Academic Achievement, Secondary Education**

INTRODUCTION

Learning occupies a very essential place in individual life. It is an ultimate process, which is considered equivalent to modify, change, develop, improve and adjust. It is not limited to school learning, but it is a broad term which leaves impression on the individuals. It plays a very important role in influential behaviour of an individual. It is the basis of success in life. The miracles of present day civilization are the results of learning. In order to develop presentation and communication techniques that facilitate successful learning, a teacher must have some planning regarding how pupils learn. In addition to course lectures, school experiences also reveal the very great differences in the way of learning individuals. Human behaviour, motivation, achievement, personality and self-esteem have impact on the activity of learning.

"Learning strategies include emotional, motivational, meta-cognitive, cognitive, and behavioural activities and processes that facilitate significant understanding, learning and processing as the integration of the new knowledge in mind." - Weinstein et al. (2010)

Academic achievement can be defined as excellence in all academic disciplines, in class as well as extra- curricular activities. It includes excellence in sporting, behaviour, confidence, communication skills, punctuality, assertiveness, arts, culture and the like.

REVIEW OF RELATED LITERATURE

Amber D. Dumford1, Cindy A. Cogswelland Angie L. Miller.,(2016) inquired about who, what, and where of learning strategies. The results indicated college student characteristics were significant predictors of their use of learning strategies. Students, who were online-learners [first-generation, female, transfers, older, Black or African American] in the bio-logical sciences, social sciences, or health professions, were more likely to use learning strategies.

Gitonga Harun Mwangi and Robert Kasisi .,(2014) studied the effects of computer interaction in learning strategy on students' achievements in secondary school mathematics in Murang'a County, Kahuro Sub- County, Kenya. The result showed that learners taught using computer and interactive learning strategy, performed better than those taught using normal or conventional learning methods. The results also showed that there was no significant gender difference in achievement when learners are taught using computer interactive learning strategy.

Javier Gasco, Jose Domingo Villarroel and Alfredo Goni.,(2013) compared the use of learning strategies in mathematics in 8th and 9th grade. The findings showed statistically significant differences in favour of 9th grade students in the employment of organization, metacognition and help seeking strategies.

TITLE OF THE PROBLEM

The title of the problem as stated as **"LEARNING STRATEGIES IN MATHEMATICS AMONG SECONDARY SCHOOL BOYS AND GIRLS IN RELATION TO THEIR ACADEMIC ACHIEVEMENT"**

OPERATIONAL DEFINITIONS

LEARNING STRATEGIES IN MATHEMATICS

Learning strategies have long been main issue in the field of education. It is commonly accepted that instructional practices should determine and contain learning strategies of individual students for the subject mathematics.

ACADEMIC ACHIEVEMENT

For academic achievement, mathematics marks obtained in half- yearly examination is considered.

SECONDARY LEVEL STUDENTS

Secondary school students indicate the students those who are studying IX and X Standard.

OBJECTIVE OF THE STUDY

- To investigate the significant difference between mean scores of learning strategies in mathematics of secondary level boys and girls
- To study the significant difference between mean scores of academic achievement of secondary level boys and girls in the subject of mathematics
- To analyse the significant relationship between mean scores of learning strategies in mathematics and academic achievement of secondary level girls
- To study the significant relationship between mean scores of learning strategies in mathematics and academic achievement of secondary level boys

HYPOTHESES OF THE STUDY

- There is no significant difference between mean scores of learning strategies in mathematics of secondary level boys and girls
- There is no significant difference between mean scores of academic achievement of secondary level boys and girls in the subject of mathematics
- There is no significant relationship between mean scores of learning strategies in mathematics and academic achievement of secondary level girls
- There is no significant relationship between mean scores of learning strategies in mathematics and academic achievement of secondary level boys

RESEARCH METHOD

Sample

A sample of 100 students was selected through two stage cluster sampling. The procedure of selecting sample was that at the first stage four schools two boy's and girl's schools were randomly selected. Then 50 girls and 50 boys were randomly chosen from these schools.

Research Instrument of the study

The research design of this study was questionnaire survey. In order measure the variable learning strategies in mathematics scale was standardized by Pintrich et.al (1991). It consisted of 68 statements. Each item was to be responded on a five point scale bearing the categories of strongly disagree, disagree, Undecided, agree and strongly agree. Academic achievement was measured by the marks obtained by the sample in their recently held examination in mathematics in their school.

Scoring of Data

The student responses on each item were scored by using the score of 1 for strongly disagree, 2 for disagree, 3 for undecided, 4 for agree and 5 for strongly agree.

DATA ANALYSIS OF THE STUDY

TABLE -1

SIGNIFICANT DIFFERENCES BETWEEN MEAN SCORES OF LEARNING STRATEGIES IN MATHEMATICS OF SECONDARY LEVEL BOYS AND GIRLS

GROUPS	N	MEAN	SD	t VALUE	S/NS
Girls	50	182.84	88.902	0.956	NS
Boys	50	192.80	98.581		

Table 1 shows the obtained t value is 0.956 whereas the table value at 0.05 level of significance showing the real difference between mean score of learning strategies in mathematics of boys and girls is, therefore not significant, so there is no significant difference between mean scores of learning strategies in mathematics of secondary level boys and girls.

TABLE -2

SIGNIFICANT DIFFERENCES BETWEEN MEAN SCORES OF ACADEMIC ACHIEVEMENT IN MATHEMATICS OF SECONDARY LEVEL BOYS AND GIRLS

GROUPS	N	MEAN	SD	T	S/NS
Girls	50	76.82	14.653	0.756	NS
Boys	50	71.62	16.132		

Table 2 indicates the obtained t value is 0.756 whereas the table value at 0.05 level of significance showing the real difference between mean score of academic achievement in mathematics of boys and girls is, therefore not significant, so there is no significant difference between mean scores of academic achievement in mathematics of secondary level boys and girls.

TABLE – 3

SIGNIFICANCE OF CORRELATION BETWEEN MEAN SCORES OF LEARNING STRATEGIES IN MATHEMATICS AND ACADEMIC ACHIEVEMENT OF SECONDARY LEVEL GIRLS

VARIABLES	N	r
LEARNING STRATEGIES IN MATHEMATICS	50	0.102
ACADEMIC ACHIEVEMENT		

Table 3 illustrates, the correlation co – efficient between learning strategies in mathematics and academic achievement scores of the total sample students of girls belonging to government schools of girls was 0.102 whereas the table value of correlation coefficient was 0.150 at 0.05 level of significance. The correlation co-efficient between the variable of learning strategies in mathematics and academic achievement was, therefore not significant.

TABLE – 4

SIGNIFICANCE OF CORRELATION BETWEEN MEAN SCORES OF LEARNING STRATEGIES IN MATHEMATICS AND ACADEMIC ACHIEVEMENT OF SECONDARY LEVEL BOYS

VARIABLES	N	R
LEARNING STRATEGIES IN MATHEMATICS	50	0.09
ACADEMIC ACHIEVEMENT		

Table 4 demonstrates, the correlation co – efficient between learning strategies in mathematics and academic achievement scores of the total sample students of boys belonging to government schools of boys was 0.102 whereas the table value of correlation coefficient was 0.150 at 0.05 level of significance. The correlation co-efficient between the variable of learning strategies in mathematics and academic achievement was, therefore not significant.

MAJOR FINDINGS OF THE STUDY

- There is no significant difference between mean scores of learning strategies in mathematics of secondary level boys and girls.
- There is no significant difference between mean scores of academic achievement in mathematics of secondary level boys and girls
- There is no significant relationship between mean scores of learning strategies in mathematics and academic achievement of secondary level girls
- There is no significant relationship between mean scores of learning strategies in mathematics and academic achievement of secondary level boys

DISCUSSION OF THE STUDY

Amber D. Dumford1, Cindy A. Cogswell and Angie L. Miller.,(2016) reported female students were more likely to use learning strategies. The findings of the above studies did not confirm to the present study. Since the present study has found that boys were more likely to use learning strategies.

CONCLUSION

The findings of the present study reveal that the boys differed in their mathematical achievement from girls. Girls achieved better results as compared to boys. Learning strategies in mathematics and academic achievement in mathematics did not go together.

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accommodator learning styles have more positive opinions regarding computer use in the mathematics education compared to the students with assimilator and converger learning style.

Anastasios N. Barkatsas.,(2010) investigated secondary students' attitudes to learning mathematics with technology: Exploring the interrelationship between gender, engagement, confidence and achievement. It was found that low level of mathematics achievement was associated with low levels of mathematics confidence, strongly negative levels of affective engagement and behavioural engagement, low confidence in using technology, and a negative attitude to learning mathematics with technology. It was also found that there was no significant differences between boys and girls secondary students' attitudes to learning mathematics with technology.

STATEMENT OF THE PROBLEM

The statement of the problem is "SECONDARY SCHOOL STUDENTS USING COMPUTER TECHNOLOGY FOR LEARNING MATHEMATICS".

OPERATIONAL DEFINATIONS OF THE TERMS

Computer Technology using in learning mathematics

Computer Technology can reduce the effort devoted to tedious computations and increase students' focus on more important mathematics. Equally importantly, technology can represent Mathematics in ways that help students understand concepts.

OBJECTIVE OF THE STUDY

- To find the computer technology using for learning mathematics of secondary school students
- To study the computer technology using for learning mathematics of secondary school students

HYPOTHESIS OF THE STUDY

- The computer technology using for learning mathematics of secondary school students is moderate
- There is no significant difference between the computer technology using for learning mathematics of secondary school students based on the select sub samples gender, medium of instruction, and types of schools

METHOD OF STUDY

The survey method was followed in this study. In the study 101 secondary school students from 3 select schools during the year 2018 -2019 formed the sample. They were from government, government aided and private schools. For the present study stratified random sampling method was used. Computer technology using for learning mathematics was developed by the investigator. This scale consists of 40 items.

TABLE -1

SECONDARY SCHOOL STUDENTS USING COMPUTER TECHNOLOGY FOR LEARNING MATHEMATICS WITH REFERENCE TO TOTAL SAMPLE

VARIABLES	LOW		MODERATE		HIGH	
	N	%	N	%	N	%
COMPUTER TECHNOLOGY USING FOR LEARNING MATHEMATICS	28	27.72	46	45.54	27	26.73

The above table shows that secondary school students are in moderate level using computer technology for learning mathematics

HYPOTHESIS

There is no significant difference between the computer technology using in learning mathematics of secondary school students based on the select sub samples gender, medium of instruction, and types of schools

TABLE - 2

MEAN DIFFERENCES IN COMPUTER TECHNOLOGY USING IN LEARNING MATHEMATICS OF SECONDARY SCHOOL STUDENTS BASED ON GENDER

VARIABLES	GENDER	MEAN	SD	t	S / NS
COMPUTER TECHNOLOGY USING IN LEARNING MATHEMATICS	Boys (69)	102.83	27.617	0.622	NS
	Girls (32)	98.88	30.601		

NS – Not Significant

From the above table, it is found that significant differences are not noted in one case. Hence it is concluded that the hypothesis is accepted.

CONCLUSIONS

Boys and girls secondary school students do not differ in their computer technology using in learning mathematics.

TABLE -3

MEAN DIFFERENCES IN COMPUTER TECHNOLOGY USING IN LEARNING MATHEMATICS OF SECONDARY SCHOOL STUDENTS BASED ON MEDIUM OF INSTRUCTION

VARIABLES	MEDIUM OF INSTRUCTION	MEAN	SD	t	S / NS
COMPUTER TECHNOLOGY USING IN LEARNING MATHEMATICS	Tamil (39)	98.95	27.110	1.137	NS
	English (62)	105.74	30.477		

NS – Not Significant

From the above table, it is found that significant differences are not noted in one case. Hence it is concluded that the hypothesis is accepted.

CONCLUSION

Tamil and English medium secondary school students do not differ in their computer technology using in learning mathematics.

TABLE -4

MEAN DIFFERENCES IN COMPUTER TECHNOLOGY USING IN LEARNING MATHEMATICS OF SECONDARY SCHOOL STUDENTS BASED ON TYPES OF SCHOOLS

VARIABLES	SOURCES	SUM OF SQUARES	df	MEAN SQUARE	F	S/NS
Computer Technology using in Learning Mathematics	Between Groups	2171.841	2	1085.921	1.346	NS
	Within Groups	79060.852	98	806.743		
	Total	81232.693	100			

NS – Not Significant

From the above table, it is found that significant differences are not noted in one case. Hence it is concluded that the hypothesis is accepted.

CONCLUSION

Different types of secondary school students do not differ in their computer technology using in learning mathematics.

MAJOR FINDINGS OF THE STUDY

- Secondary school students are in moderate level using computer technology for learning mathematics
- Secondary school boys mean score have higher than the girls in using computer technology for learning mathematics

- Boys and girls secondary school students do not differ in their computer technology using in learning mathematics.
- Secondary school English medium students mean score have higher than the Tamil medium students in using computer technology for learning mathematics
- Tamil and English secondary school students do not differ in their computer technology using in learning mathematics.
- Government and government aided secondary school students mean scores have higher than the Private students in using computer technology for learning mathematics
- Different types of secondary school students do not differ in their computer technology using in learning mathematics.

DISCUSSION OF THE STUDY

Anastasios N. Barkatsas.,(2010) reported that there was no significant differences between boys and girls secondary students' attitudes to learning mathematics with technology. This findings is similar to the current study as boys and girls secondary school students do not differ in their computer technology using in learning mathematics.

CONCLUSION

The finding of this study reveals that English medium students are using computer technology in for learning mathematics better than Tamil medium secondary school students.

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ISSN-0973-9217
E-ISSN-2230-7133
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Volume 15 No 1

June - August 19

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CONTENTS

RESEARCH PAPERS

RELATIONSHIP BETWEEN LEARNING STRATEGIES IN MATHEMATICS AND LEARNING STYLES AMONG IX STANDARD STUDENTS

By

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Date Received: 20/07/2019 Date Revised: 12/08/2019 Date Accepted: 05/09/2019

ABSTRACT

This research aims to investigate the relationship between learning strategies in mathematics and learning styles among IX standard students. The study included the categorical variables gender and medium of instruction. In this study, 88 students studying in IX standard from government, government aided, and private schools in Salem district, Tamil Nadu, India were selected through random sampling technique. Normative survey method was adopted for the study. Learning strategies in mathematics scale was standardized and it consisted of 68 statements with four strategies, viz. cognitive strategies, meta-cognitive strategies, non-informational resources management, and informational resources management. The second tool was Honey and Mumford's Learning Style Questionnaire, which consisted of 80 items on four styles, viz. Activist, Reflector, Theorist, and Pragmatist. The data collected from the samples are statistically analyzed by using percentage analysis and correlation technique. Result shows that information resources management strategy was the most followed learning strategy and reflector style was the most preferred learning style. Result also shows that there is significant positive correlation between learning strategies in mathematics and learning styles.

Keywords: Learning Strategies, Learning Styles, Mathematics, IX Standard Students.

INTRODUCTION

Shuell (1986) stated that Learning is an active, constructive, cumulative, goal-oriented process. Crow and Crow (1973) quoted that, "Learning is the acquisition of habits, knowledge and attitudes. It involves new ways of doing things, and it operates in an individual's attempt to overcome obstacles or to adjust to new situations. It represents progressive changes in behaviour..... It enables him to satisfy interests to attain goals".

Learning occupies a very essential place in every individual's life. It is an ultimate process, which is considered equivalent to modification, change, development, improvement, and adjustment. It is not limited to school learning; it is a broad term which leaves impression on the individuals. It plays a very important role in influencing the behaviour of an individual. It forms the basis for success in life. The miracles of present day civilization are the results of learning. In order to develop presentation and communication techniques that facilitate successful learning, a teacher must have a plan regarding how pupils learn. In addition to course lectures, school experiences also reveal the great differences in the way individuals learn. Sometimes learners go through different activities and learn different things; this may not be the intention of learner. So people learn things that are both beneficial and not so beneficial to them. Learning is an abstract concept, some - time learner becomes aware of what has been learnt some time before. Learning is not always deliberate and learner may not be conscious of what he has learnt. Sometimes learning takes place without being realized.

1. Learning Strategies in Mathematics

Strategy is a skill that can be applied to various information domains and it serves as a guide to solve a problem. Some common strategies are assessment of mistake, finding a pattern, constructing a table, using analogies, using support elements, and backward working. A specific strategy is a technique that can be used to solve a problem in a specific domain. Learning strategies are the thoughts

that students use to complete learning tasks. It is well known that good teachers use various teaching strategies to help students learn. We use visuals to establish new ideas, we direct students' attention to important elements, and we stimulate students' background knowledge before introducing a new concept. It has been a main issue in the field of education since long time.

As per Scarcella and Oxford (1992), Learning strategies are defined as, "specific actions, behaviours, steps, or techniques such as seeking out conversation partners, or giving oneself encouragement to tackle a difficult task used by students to enhance their own learning".

Learning strategies can be categorised according to their specific goal: Cognitive strategies, such as elaboration or rehearsal, are related to individual learning tasks, operating directly on incoming information, manipulating it in ways to make cognitive progress (Chamot & O'Malley, 1987). Metacognitive strategies such as planning and evaluation, are invoked to control and monitor the learning process. Affective strategies, such as self-talk are employed to enhance one's concentration. Resource management strategies (Pokay & Blumenfeld, 1990), such as help seeking or modifying the task, are employed to operate on the learning environment so as to indirectly enhance learning performance.

1.1 Strategies for Engaging Students in Learning Mathematics

1.1.1 Allowing Students to Work Independently before Sharing in Small or Large Groups

Students need time to accumulate their opinion and classify what they know or do not know before they are exposed to the manipulations of other students. Then they can compare and contrast their approaches and solutions with those shared by others through the mathematics discussion.

1.1.2 Using Questions Strategically to Engage Students in Mathematical Discourse

Teachers can engage with students' learning in mathematical discourse by posing questions that encourage discussion and debate. Strategic questions need students to attend to particular aspects of the learning process to explain and justify their thinking and expand their understanding in the process.

1.1.3 Acknowledging the Importance of Mistakes in Learning and Understanding

Encourage students to take risks in learning mathematics by recognizing that students will create errors because they are discovering and making conjectures and always reminding students that errors are expected and common, and that can be an excellent thing because they lead to improved learning.

1.1.4 Using Collaborative Learning Strategies

When students make efforts with peers or in small groups, they are able to take risks and build self-confidence on a small level before they present solutions to the whole class.

2. Learning Styles

A learning style refers to the relationship between individual persons and their behaviour of learning, whereas learning strategies refer to attitudes and behaviour that is oriented towards goals.

Sigel and Coop (1974) reported that learning style is an integral concept that bridges the personality cognitive dimension of the individuals.

Wang and Jin (2008) stated as learning style refers to an individual characteristics and preferred way of gathering, interpreting, organizing, and thinking about information.

Brown (2000) defined learning styles as the manner in which individuals perceive and process information in learning situations. He argued that, "learning style preference is one aspect of learning style, and referred to the choice of one learning situation or condition over another".

2.1 Honey and Mumford Learning Style

Honey and Mumford (1992) quoted that Learning style is, "a description of the attitudes and behaviour which determine an individual's preferred way of learning". The four learning styles are described as those of activists, reflectors, theorists, and pragmatists.

Honey and Mumford (2000) also quoted that, "No single style has an overwhelming advantage over any other. Each has strengths and weaknesses, but the strengths may be especially important in one situation, but not in another".

3. Review of Related Literature

Polat, Peker, Özpeynirci, and Duman (2015) studied the effect of learning styles of accounting education students and the findings of the study revealed that the success level in the pragmatist learning style was most adopted by the students, 80.6% was high rate. Rezaeinejad, Azizifar, and Gowhary (2015) showed in experiential field, there was a positive significant relationship between students learning styles who use Visual-Verbal learning style and their score means, and among students in mathematics field, there was a positive significant relationship between students learning styles who use Active-Reflective and Visual-Verbal learning style and their score mean. In humanities field, there was no significant relationship between the students' learning styles that use Sequential-Global, Visual-Verbal, and Sensing-Intuitive learning styles and their score means. Mohanapriya (2013) reported that there is no significant relationship between motivation to learn science and learning styles of high school students.

Peculea and Bocos (2015) revealed that high frequency responses were given by students, whereas in the case of teachers much lower frequencies on most items were observed. Mwangi and Kasisi (2014) showed that learners taught using computer and interactive learning strategy, performed better than those taught using normal or conventional learning methods. The results also showed that there was no significant gender difference in achievement when learners are taught using computer interactive learning strategy. Ali and Yunus (2013) revealed that the high fast learners used cognitive strategies more frequently than the memory strategies. Gasco, Villarroel, and Gõni (2014) showed statistically significant differences in favour of 9th grade students in the employment of organization, meta-cognition, and help seeking strategies. Lowe (2010) indicated that the learning was undermined by challenges with inefficient cognitive strategy use.

4. Statement of the Problem

Learning style is one of the key processes that affect our lives. It also directs and changes our behavior and the way we deal with daily issues. During the learning process, individuals are more inclined to prefer different methods of dealing with, processing, and interacting with information. As an important component of the classroom experience in higher education, learning strategies are specific patterns or combinations of academic activities that learners use to gain knowledge. Hence, the problem of the present study is selected and entitled as, "Relationship between Learning Strategies in Mathematics and Learning Styles among IX Standard Students".

5. Operational Definitions

5.1 Learning Strategies in Mathematics

Pask (1976) stated that learning strategies are the particular habits or patterns espoused when engaged in the learning process. The proficiency of different learners in learning, reasoning, and problem solving varies widely, and so do the strategies they evolve to carry out these activities. Successful learning strategies enable learners to manage their own learning process and integrate new learning into their own existing cognitive structures. Unsuccessful or inappropriate learning strategies may inhibit learning.

Learning strategies give students a way to think through and plan the solution to a problem. Students use learning strategies to become more effective and independent learners. In this study, mathematics learning strategies refer four factors, viz. Cognitive, Meta-cognitive, Non-informational resources management, and Informational resources management.

5.2 Learning Styles

Cornett (1983) indicated that learning styles are the general approaches the students use in acquiring a new language or in learning any subject. These styles are the overall patterns that give general direction to learning behaviour. Learning styles are various approaches or ways of learning. It involves individual methods for processing information in learning new concepts. In this context, learning styles include the four styles Activist, Reflector, Theorist, and Pragmatist.

5.3 IX Standard Students

This study is carried out in the state of Tamil Nadu in India, where most of the students have their medium of instructions in their mother-tongue, Tamil. The students in high school, who passed 8th standard and got promoted to

next class are called IX standard students.

6. Objectives of the Study

- To study the level of learning strategies in mathematics of IX standard students based on select subsamples gender and medium of instruction are moderate.
- To find out the level of learning styles of IX standard students based on select subsamples gender and medium of instruction are moderate.
- To investigate the significant correlation between the learning strategies in mathematics and learning styles of IX standard students and its dimensions.

7. Hypotheses of the Study

- The level of learning strategies in mathematics of IX standard students is moderate.
- The level of learning styles of IX standard students is moderate.
- There is no significant correlation between the learning strategies in mathematics and learning styles of IX standard students and its dimensions.

8. Research Method

Normative survey method was adopted in the study. The present study is focused to find out the correlation between the learning strategies in mathematics and learning styles of IX standard students. After selecting the title of the study, the samples, tools, variables, and statistical technique were finalized for this study.

8.1 Population and Sample of the Study

The population of the present study includes IX standard students studying in government, government aided, and private schools. Stratified random sampling technique was used for the selection of 88 students studying in IX standard from government, government aided, and private schools in Salem district, Tamil Nadu, India.

8.2 Research Design

Normative survey method was adopted. Steps involved in the research design are given in Figure 1.

8.3 Tools Used for the Present Study

8.3.1 Learning Strategies in Mathematics

To find the student's learning strategies, the researcher used

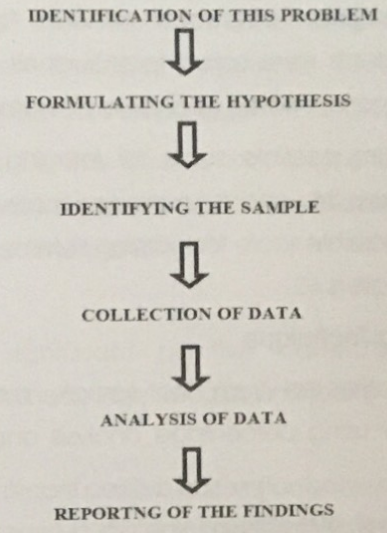

Figure 1. Research Design

learning strategies in mathematics scale standardized by Pintrich et al. (1991). It consisted of 68 statements with four strategies, viz. cognitive strategies, meta-cognitive strategies, non-informational resources management, and informational resources management (Few sample items are given in Appendix - A). Reliability and validity value of learning strategies in mathematics scale are given in Table 1.

8.3.2 Learning Styles

To determine students learning styles, the researcher used the Peter Honey and Alan Mumford (2006) questionnaire. It consisted of 80 items on four styles, viz. Activist, Reflector, Theorist, and Pragmatist (Few sample items are given in Appendix – B). Reliability and validity value of learning styles scale are given in Table 2.

8.4 Scoring Procedure

The options given for the 68 items for learning strategies in mathematics and 80 items for learning styles, were

Learning Strategies	Reliability	Validity
Cognitive	0.890	0.943
Meta-cognitive	0.876	0.936
Non-informational Resources Management	0.798	0.893
Informational Resources Management	0.919	0.959

Table 1. Reliability and Validity Value of Learning Strategies in Mathematics Scale (LSMS)

Dimensions	Reliability	Validity
Activist	0.897	0.947
Reflector	0.789	0.882
Theorist	0.921	0.960
Pragmatist	0.860	0.927

Table 2. Reliability and Validity Value of Learning Styles Scale (LSS)

"Strongly disagree, Disagree, Undecided, Agree, Strongly agree". Students were asked to show their responses by putting tick mark (√) in the appropriate column.

The maximum possible score for learning strategies in mathematics is 340 and the minimum score is 68 and the maximum possible score for learning styles is 400, and the minimum score is 40.

8.5 Statistical Technique

The data collected from the sample are statistically analysed by using percentage analysis and correlation technique.

9. Data Analysis of the Study

From Table 3, it can be found that 22 students follow activist style, 26 students adopt reflector style, 21 students are of theorist style, whereas 23 students were pragmatist.

From Table 4, it is found that 15 students follow cognitive, 13 students adopt meta-cognitive strategies. 15 students are of non-informational resources management mean while 17 students are informational management of learning strategies in mathematics.

From Table 5, it is inferred that among 88 students, 50 students were male and 38 students were female whereas 26 students were pursuing their courses in English medium and 62 students were learning using medium of mother-tongue (Tamil).

From Table 6, it is seen that IX standard male students were found to be pragmatist, theorist, reflector, and activist learning style were also followed by them. Whereas female students were pragmatists and IX standard students who were learning using medium of mother-tongue (tamil) were found to be pragmatist, theorist, and activist. More number of English medium students followed pragmatist leaning style.

From Table 7, it is seen that IX standard male students were found to be meta-cognitive; non-informational resource management and Informational resources management learning strategies were also followed by them. Whereas female students were informational resources management and IX standard students who were learning using medium of mother-tongue (tamil) were equally found to be cognitive and informational resources management learning strategies. More number of English medium students followed non-informational resources management learning strategies.

From Table 8, it is inferred that among the 22 students who followed cognitive strategy, 11 students adopted activist style, 5 students are of reflector style, 8 students practiced theorist style while 8 students used pragmatist style. It was found that among 26 students who followed meta-cognitive strategy, 13 students practiced activist style, 8 students adopted reflector style, 9 students stuck to theorist style whereas12 students were using pragmatist style.

Of the 21 students who followed non-informational resources management strategy, 5 students adopted

Learning Styles	Number of Students
Activist	22
Reflector	26
Theorist	21
Pragmatist	23

Table 3. Number of Students Following Each Learning Style

Learning Strategies	Number of Students
Cognitive	15
Meta-Cognitive	13
Non-Informational Resource Management	15
Informational Resources Management	17

Table 4. Number of Students in Each Strategy of Learning Mathematics

Variables	No. Students
Male	50
Female	38
English	26
Mother Tongue	62

Table 5. Number of Students by Gender and Medium of Instruction

Variables	Activist (15)	Reflector (13)	Theorist (15)	Pragmatist (17)
Male	8	8	8	9
Female	7	5	7	8
Mother Tongue	13	11	13	14
English	2	2	2	3

Table 6. Number of Students in Each Learning Style

Variables	C (22)	M (26)	NI (21)	IN (23)
Male	11	15	11	11
Female	11	11	10	12
Mother Tongue	18	17	15	18
English	4	9	11	5

C - Cognitive, M - Meta-Cognitive, NI - Non-Informational Resources Management, IN - Informational Resources Management

Table 7. Number of Students in Each Learning Strategies

Learning Strategies / Learning Styles	A (15)	R (13)	T(15)	P (17)
C(22)	11	5	8	8
M (26)	13	8	9	12
NI (21)	5	8	8	7
IN (23)	10	6	12	11

C - Cognitive, M - Meta-Cognitive, NI - Non Informational Resources Management, IN - Informational Resources Management
A- Activist, R- Reflector, T- Theorist, P- Pragmatist

Table 8. Details of Learning Strategies Followed and Learning Styles Adopted

activist style, 8 students practiced reflector style, 8 students stuck to theorist style whereas 7 students were of pragmatist style. Among the 23 students who followed informational resources management strategy, 10 students were using activist style, 6 students were of reflector style, 12 students inherited theorist style mean while 11 students were of pragmatist style.

From Table 9, it is inferred that among the 15 students who followed activist style, 11 students followed cognitive strategies, 13 students adopted meta-cognitive strategies, 5 students practiced non-informational resources management strategies while 10 students used informational resources management strategies. Of the 13 students who followed reflector style, 5 students practiced cognitive strategies, 8 students adopted meta-cognitive strategies, 8 students were of non-informational resources management strategies whereas 6 students were using informational resources management strategies.

Among the 15 students who followed theorist style, 8 students followed cognitive strategies, 9 students practiced meta-cognitive strategies, 8 students stuck to non-informational resources management strategies as well as 12 students were of informational resources management strategies. It was found that among the 17 students who followed pragmatist style, 8 students were of cognitive strategies, 12 students adopted meta-cognitive strategies, 7 students inherited non-informational resources management strategies meanwhile 11 students were informational resources management strategies.

Learning Styles / Learning Strategies	C(22)	M (26)	NI (21)	IN (23)
A (15)	11	13	5	10
R (13)	5	8	8	6
T(15)	8	9	8	12
P (17)	8	12	7	11

A- Activist, R- Reflector, T- Theorist, P- Pragmatist, C - Cognitive, M - Meta-cognitive, NI - Non Informational Resources Management, IN - Informational Resources Management

Table 9. Details of Learning Style Followed and Learning Strategies Adopted

From Table 10, it is inferred that mathematics learning strategies have significant positive correlation with learning styles and its dimensions.

10. Result

There is significant positive correlation between mathematics learning strategies and learning styles and its dimensions.

There is significant positive correlation between the learning styles and learning strategies of IX Standard students (Table 11).

11. Major Findings of the Study

The present study revealed that 15 students follow cognitive, 13 students adopt meta-cognitive strategies, 15 students are of non-informational resources management, and 17 students are of informational management of learning strategies in mathematics. The result also revealed 50 students were male and 38 students were female whereas 26 students were pursuing their courses in English medium and 62 students were learning using medium of mother-tongue.

The study indicates that there is significant positive correlation between mathematics learning strategies and learning styles and its dimensions.

Learning Strategies / Learning Styles	Activist	Reflector	Theorist	Pragmatist
Cognitive	0.70**	0.77**	0.64**	0.77**
Meta-Cognitive	0.66**	0.76**	0.67**	0.78**
Non Informational Resources Management	0.63**	0.68**	0.59**	0.61**
Informational Resources Management	0.70**	0.75**	0.51**	0.60**

** Significant at 1% level, S - Significant
** Table value of r for df88 at 0.01 level is 0.210

Table 10. Correlation Coefficient Between Learning Strategies and Learning Styles and its Dimensions

Variables	R Value
Learning Strategies in Mathematics	0.634**
Learning Styles	(Significant at 0.01 level)

** Table value of r for df88 at 0.01 level is 0.210

Table 11. Correlation Between Learning Strategies and Learning Styles

12. Discussion of the Study

The present study discusses that they set wider opportunities and are exposed to various experiences, which may be the reason for adopting the learning style and strategy that may be appropriate and more suitable to them as per the need and time available to them. Understanding of individual learning styles and strategy differences among the students' implies acceptance and use of a wider range of methods, procedures. Furthermore, this helps teachers to understand better the relation that exists between pupils and the act of learning, with all natural particularities of the observed learning styles and strategies. They may have the access to multitude of resources both at home as well as in the institutions. Hence, they may adapt different learning styles and learning strategies that suit.

13. Educational Implications of the Study

The findings of this investigation indicate several relationships between learning strategies, learning styles, and demographic variables. Learning styles are not a new issue in education and more researches have been conducted over past two decades. Educators have for many years, noticed that some students prefer certain methods of learning more than others. It is known that learning processes vary from person to person due to the presence of biological and psychological differences. Research shows that people have different preferences and strengths in taking in and processing information. These preferences are sometimes referred to as learning styles and are used to describe and help us understand the different way in which different people learn. Learning strategy is the process of skill planning and conducting a campaign. It is also a long-term plan for future success or development.

Conclusion

The problem of the present study is titled as, "Relationship between Learning Strategies in Mathematics and Learning Styles among IX Standard Students". The finding of this study indicates that the information resources management strategy was the most followed learning strategy and reflector style was the most preferred learning style. It was noted that IX standard male students and medium of mother-tongue were also playing a vital role in hindering the choice of learning strategies and styles. It was also noted that there is significant positive correlation between learning strategies in mathematics and learning styles and its dimensions. Understanding of individual learning styles and differences among the students implies acceptance and use of a wider range of methods, procedures. Learners should be provided with different learning environments that suit to their individual needs and abilities; so that these provisions help them develop different learning styles and learning strategies as per the context and content learnt.

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Appendices

Appendix - A

Personal Details

Name of the student -

Name of the School -

Gender - Male / Female

Medium of instruction - Mother-Tongue / English

S.No	Content	1	2	3	4	5
	Cognitive Strategies					
1	I will analyze again and again while studying math class materials					
2	While studying math, I will study the class notes and textbook again and again.					
3	I memorize the important math formulas repeatedly to remind easily to workout math problems in my math class					
4	Every evening in my home I work out all the problems which taught by tutor in the math class.					
5	In studying math, I will repeatedly practice similar question types.					
6	Usually I gothrough theorems to prompt my efficiency to solve the math problem.					

Table 1A. Some Example Items for Learning Strategies in Mathematics

ISSN 2349-8684
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A Peer Reviewed, Refereed &
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INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCHES

VOL. 6 NO. 1 August 2019 ISSN: 2349-8684

JOURNAL WITH
IMPACT FACTOR 4.075

Editor
Dr.J. SURESH

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Vol. 6 No. 1 August 2019 ISSN: 2349-8684

RELATIONSHIP BETWEEN EMOTIONAL INTELLIGENCE AND LEARNING STYLES OF IX STANDARD STUDENTS

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Abstract

A study was conducted to investigate the relationship between emotional intelligence and learning styles of IX standard students. The study included the categorical variables gender, locality and medium of instruction. Emotional intelligence scale was standardized by Daniel Golemen (1995). It contains 35 items. Learning styles scale standardized by Peter Honey and Alan Mumford (2006) was used. It consisted of 80 items. Suitable objectives were framed and set the hypotheses to test the objectives. Normative survey method was adopted and total 88 students studying in IX were standard selected randomly from the higher secondary schools in Salem District. The collected data was statically analysed by using simple correlation technique. Result shows that the boys and girls, rural and urban, Tamil and English medium IX standard students found significant and positive correlation in respect of their emotional intelligence and learning styles.

Keywords: *Emotional intelligence, Learning styles, Higher secondary school students*

Introduction

Today education is the hope and dream of every person. Education has to prepare man to face the unknown, unpredictable and uncertain tomorrow. In modern age, a society cannot achieve a goal without education. So education is essential for the growth and development of individuals as well as society. Human performance is influenced by many factors out of which intelligence and emotions are prominent. Emotions can be useful in terms of directing attention.

Emotions are personal experiences that arise from complex interplay among psychological, cognitive and situational variables. Emotions if properly used are an essential tool for successful and fulfilling life. But if emotions are out of control, it can result in disaster. In day-to-day life, they affect our relations with other people, our self-identity and our ability to complete a task. Emotional process is not an isolated phenomenon but component of general experience, constantly influencing and influenced by other processes going on at the same time. To be effect, the cognitive

processes must be in control of the emotions, so that they work for rather than against.

Every individual has its own natural or habitual pattern of acquiring and processing information in learning situations. The common ways or patterns by which people learn are known as their learning styles. Learning styles are essential elements for students' as learning styles have its strong influence on the achievement of a subject.

Learning is a very complicated variable which is being affected by multiple factors such as intelligence, incentive, adequate environment, family and social parameters, quality of school and education, educator and etc. some type of intelligence e.g. emotional intelligence is one of the variables which is related to the learning style of individuals. Emotional intelligence has been described as skill, knowledge, and understanding which can guide our incentives to make us success in our life. On the other hand, learning style involves individual methods for processing information in learning new concepts.

Review of Related Literature

Chamundeswari.,(2017) studied emotional intelligence and academic achievement among students at the higher secondary level. Results showed that there was a positive significant correlation between emotional intelligence and academic achievement among the students. Further students belonging to the central board schools had higher level of emotional intelligence compared to students in state board but did not differ with students in matriculation board schools at the higher secondary level. Similarly, students belonging to central board schools were found to perform better in academics compared to students in state and matriculation board schools at the higher secondary level.

Jayalakshmi.,(2016) studied attitude towards learning styles and academic achievement among high school students. The findings of the study revealed that there was no significant difference in learning styles among high school students in terms of gender.

Title of the Problem

The title of the problem as stated as **"Relationship between Emotional Intelligence and Learning Styles of Ix Standard Students"**

Operational Definitions of the Study

Emotional Intelligence

Emotional intelligence refers to the ability for recognizing our own feelings and those of others, for motivating ourselves and managing emotions in ourselves and in our relationship.

Learning Styles

A learning style is very important for every student as it has a strong influence in contradiction of achievement. Learning style refers to

students' preferences for some kinds of learning Activities over others.

IX Standard Students

The students who are passed in VII standard were referred to as IX standard students.

Objectives of the Study

- To investigate the relationship between emotional intelligence and learning styles of IX standard boys
- To study the relationship between emotional intelligence and learning styles of IX standard girls
- To find the relationship between emotional intelligence and learning styles of rural IX standard students
- To investigate the relationship between emotional intelligence and learning styles of urban IX standard students
- To study the relationship between emotional intelligence and learning styles of IX standard students with Tamil medium
- To investigate the relationship between emotional intelligence and learning styles of IX standard students with English medium

Hypotheses of the Study

- There is no relationship between emotional intelligence and learning styles of IX standard boys
- There is no relationship between emotional intelligence and learning styles of IX standard girls
- There is no relationship between emotional intelligence and learning styles of rural IX standard students
- There is no relationship between emotional intelligence and learning styles of urban IX standard students
- There is no relationship between emotional intelligence and learning styles ofIX standard students with Tamil medium
- There is no relationship between emotional intelligence and learning styles of IX standard students with English medium

Method for the Study

The present student is based on survey method. Descriptive research involves collection of data in order to test the hypothesis or to answer questions concerning the current status of the subject of the study. It determines and reports on the way things are. It has no control over what is, and it can only measure what already exist. Descriptive research has been criticized for its inability to control the variables, for being a post – hoc study and for more frequently yielding only descriptive rather than predictive, findings. Descriptive research makes some type of comparison contrasts and correlation and sometimes, in carefully planned

and orchestrated descriptive researches, cause and effect relationships may be established to some extent.

To achieve the objectives of the present study a total number of 88 students studying in IX standard. in Salem district were selected as respondents from higher secondary schools by using random sampling technique. Emotional intelligence scale was standardized by Daniel Golemen (1995). It contains 35 items. Learning styles scale standardized by Peter Honey and Alan Mumford (2006) was used. It consisted of 80 items. The investigator has taken printed copies of the scale consists of 115 items to the IX standard students from Salem district. The data collected from the sample are statistically analysed by using correlation technique. The results are presented in the tables.

Data Analysis of the Study

Table 1

Correlation of Mean, SD and 'T' Value between Emotional Intelligence and Learning Styles of Boys Studying in IX Standard					
Variables	**Mean**	**SD**	**Correlation co - efficient**	**t- value**	**S / NS**
Emotional intelligence	114.81	19.86	0.097**	6.36**	S
Learning style	199.86	88.48			
Correlation of Mean, SD and 'T' Value between Emotional Intelligence and Learning Styles of Girls Studying in IX Standard					
Emotional intelligence	116.97	19.40	0.259**	5.68**	**S**
Learning style	196.25	88.24			

**** Significant at 0.01 level ** Table value of r for df 88 at 0.01 level is 0.114**

From the above table it is inferred that the obtained t value is greater than the table value at 0.01 level of significance (r = 0.097, t=6.36). This shows that there is a positive and significant relationship between emotional intelligence and learning styles of boys studying in IX Standard. The obtained t value is greater than the table value at 0.05 level of significance (r = 0.259, t=5.68). This shows that there is a positive and significant relationship between emotional intelligence and learning styles of girls studying in IX Standard. Girls studying in IX standard have higher mean scores than the boys of emotional intelligence whereas boys studying in IX standard have higher mean scores than the girls of learning style.

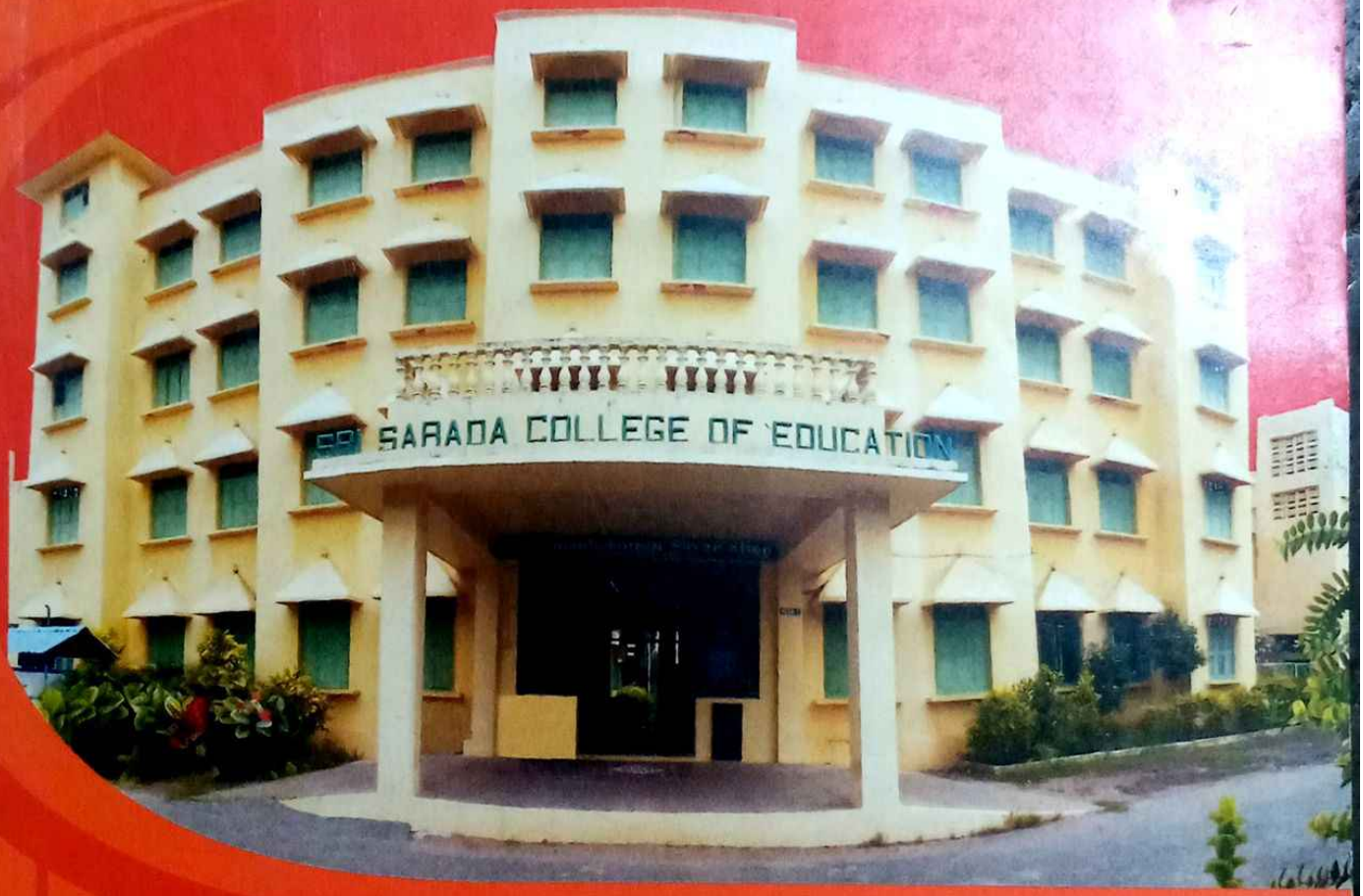
RNI No. TNENG / 2012 / 46685

ISSN No. 2277-3398

SRI SARADA JOURNAL OF FRONTIERS OF KNOWLEDGE

Volume - VIII Issue - 4 Quarterly December - 2019

Price : Individual Rs. 100.00 Institution Rs. 150.00



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INDEX

ATTITUDE OF COLLEGE STUDENTS TOWARDS INTEGRATING TECHNOLOG MATHEMATICS IN RELATION TO LEARNING STRATEGIES

Dr.R.Saraswathy*

Abstract

The present study aims at investigating the attitude of college students towards integrating technology in mathematics and learning strategies. The researcher adopted normative survey method. For the present study stratified random sampling method was used. 1723 college mathematics students from 13 select colleges formed the sample. They were from government, government aided, private colleges and university campus. Two research tools were used to collect the required data. Quantitative data analysis was done. It was noted that gender, medium of instruction and place of residence were playing a vital role in hindering the choice of attitude towards integrating technology in mathematics and learning strategies. Significant positive correlation was found between attitude towards integrating technology in mathematics and learning strategies.

Keywords: Attitude towards integrating technology in Mathematics, Learning strategies.

INTRODUCTON

Technology can be useful to the extent it focuses student thinking in ways that are germane not extraneous. Technology can reduce the effort devoted to tedious computations and increase students' focus on more important mathematics. Equally importantly, technology can represent mathematics in ways that help students understand concepts. Technology has contributed in shifting the focus on learning and teaching. It helps students by ensuring the right direction towards successful learning. Mathematics class rooms have always been a challenge for the teacher to consider the needs of every student in the class.

Technology integration in mathematics classrooms for learning and teaching is an important thing to the field of education, because today's society is becoming more and more advanced and reliant upon technology, but also because schools are beginning to accept and absorb technology as an essential part of their curricula (Ozel, Yetkiner & Capraro, 2008, p. 80). Center for Technology in Learning (CTL, 2007) stated that: "Both the opportunity to teach mathematics better and to teach better mathematics should be considered in school technology plans and teacher professional development".

If technology is used well in the classroom environment, it will offer many advantages and has an effect on students

achievement, such as individualizing instruction, providing intermediate feedback, and offering games that motivate substantial mathematical thinking (Seefldt, Galper & Stevenson - Garcia, 2012, p. 25).

Strategy is defined as the process of or skill in, planning and conducting a campaign. It is also defined as a long- term plan for future success or development. Planning is a net to capture the future. The possible and plausible strategies to activate and motivate mathematics learning and teaching such as cognitive strategies, meta cognitive strategies, non-informational management strategies and informational management strategies have been examined to find out their effectiveness.

"Learning strategies are the total effort that the students need to process, understand and adopt the information introduced in learning-teaching processes or in their individual preparation." - Tay, (2013)

"Learning strategies can be described as the whole of the performed activities of learner to give meaning to information in cognitive and affective processes." - Kafadar, (2013a)

REVIEW OF RELATED LITERATURE

Ramya. (2015) studied the attitude towards technology in learning mathematics and mathematics anxiety of college students. The findings of the study indicated that male students had higher mean scores than the female students of attitude towards technology in learning mathematics.

Senar Temel, Sinem DincolOzgur, Senol Sen, &AyhanYilmaz. (2012) examined the meta cognitive skill levels and usage of learning strategies of pre service chemistry teachers. The result of the study showed that the significant difference was not found between the usage of both cognitive and metacognitive learning strategies of the pre service chemistry teachers, who were divided into groups depending on different metacognitive skill levels.

NEED AND SIGNICANCE OF THE STUDY

Mathematics is the queen of sciences, without advanced mathematics learning, no scientific progress is made possible on the earth. Hence it is incumbent upon every educationist to take appropriate measures to improve mathematics learning. Just as scientists speak of aided observation in any scientific inquiry, educationists speak of integration of communication technology in studying any subject, in particular mathematics, the queen of sciences. The use of technology has enabled students to visualize mathematics, engage in active learning strategies, verify conjectures, have positive attitudes, and build confidence in their ability to do mathematics.

Students can use a large variety of strategies in the learning process. Most probably, there may be many strategies as the many number of students. Since each student selects and employs a particular strategy depending upon the instructional variables such as individual differences, types of domains, teaching methods, total time, learning technologies, kinds of response, essential level of mastery, ways of measurement etc.

"Learning strategies include emotional, motivational, meta-cognitive, cognitive, and behavioural activities and processes that facilitate significant understanding, learning and processing as the integration of the new knowledge in mind."

- Weinstein et al. (2010)

It is learnt from the above discussions that the attitude towards technology integration may have its effect on mathematics learning strategies of college students. This has led to the present study.

TITLE OF THE STUDY

The problem is stated as **"ATTITUDE TOWARDS OF COLLEGE STUDENTS INTEGRATING TECHNOLOGY IN MATHEMATICS IN RELATION TO LEARNING STRATEGIES".**

OPERATIONAL DEFINITIONS OF THE STUDY

ATTITUDE TOWARDS INTEGRATING TECHNOLOGY IN MATHEMATICS

In this study attitude towards integrating technology in mathematics indicates motivation, collaborative preferences, interaction and engagement with technology, confidence when learning mathematics, confidence when using computers, confidence when using technology in learning mathematics.

LEARNING STRATEGES IN MATHEMATICS

In this study learning strategies in mathematics refer four factors Viz. Cognitive, Meta cognitive, Non–informational resources management and Informational resources management.

COLLEGE STUDENTS

College students indicate the students who are studying final year undergraduate and postgraduate programme of mathematics.

OBJECTIVES OF THE STUDY

- To identify the level of attitude towards integrating technology in mathematics by college students
- To find the level of learning strategies in mathematics of college students
- To study the significant differences in the attitude of college students towards integrating technology in mathematics based on the select sub samples
- To investigate the significant differences in the learning strategies of college

students in mathematics based on the select sub samples

- To study the correlation between the attitude towards integrating technology in mathematics and learning strategies in mathematics of college students

HYPOTHESES OF THE STUDY

- The level of attitude towards integrating technology in mathematics by college students is moderate.
- The level of learning strategies in mathematics of college students is moderate.
- There is no significant differences in the attitude towards integrating technology in mathematics by college students based on the select sub samples
- There is no significant differences in the learning strategies of college students in mathematics based on the select sub samples
- There is no significant correlation between the attitude towards integrating technology in mathematics and learning strategies in mathematics of college students

SAMPLE OF THE STUDY

For the present study stratified random sampling method was used.1723 college mathematics students from 13 select colleges formed the sample. They were from government, government aided, private colleges and university campus.

TOOLS USED

ATTITUDE TOWARDS INTEGRATING TECHNOLOGY IN MATHEMATICS SCALE (AITMS)

The researcher constructed the attitude towards integrating technology in mathematics scale by adapting the tools "Attitudes to technology in mathematics learning" developed by Fogarty, Cretchley, Harman, Ellerton & Konki, 2001 and "Integrating technology in mathematics learning" developed by Galbraith, Renshaw, Goos & Geiger, 1999 suiting to Indian Context.

LEARNING STRATEGIES IN MATHEMATICS SCALE (LSMS)

Learning strategies in mathematics scale was standardized by Pintrich et.al (1991). It was used to assess students learning strategies. Cronbach α analysis was calculated for each component of this scale.

STATISTICAL TECHNIIQUES USED

Percentage Analysis and t' – test were used to analyse the data.

DATA ANALYSIS

From table 1 it was found that 281 (16.31%) college students have high attitude towards integrating technology in learning mathematics while 266 (15.44%) have low attitude towards integrating technology in learning mathematics.

Table 2 indicates that 360 (20.89%) students followed cognitive strategies, 378 (21.93%) students adopted metacognitive strategies, 322 (18.69%) students were of non - informational resource management strategies while 357 (20.72%) students were using informational management strategies meanwhile 993 (57.63%) students followed no learning strategy.

Table 3 reveals that 101(26.72 %) students who practiced metacognitive learning strategy have low level of attitude towards integrating technology in mathematics. 215(66.77%) students who use non – informational resource management learning strategy have moderate level of attitude towards integrating technology in mathematics. 58(16.25%) students who adhere informational resource management learning strategy have high level of attitude towards integrating technology in mathematics whereas College students who adopted all learning strategies have moderate level of attitude towards technology for learning mathematics.

Table 4 shows that college students who adopted all the learning strategies have moderate level of attitude towards technology for learning mathematics. Similarly students who followed no learning strategy also have moderate level of attitude towards technology for learning mathematics.

ATTITUDE TOWARDS TECHNOLOGY N MATHEMATICS

From table 5 it was found that significant differences are not noted in thirteen cases. Hence it is concluded that the hypothesis is accepted in these cases. As there is significant difference in eight cases, it is concluded that the hypothesis is not accepted in these cases.

LEARNING STRATEGES IN MATHEMATICS

From the table 6 it was observed that significant differences are not noted in two cases. Hence it is concluded that the hypothesis is accepted in these cases. As there is significant difference in thirteen cases, the hypothesis is not accepted in these cases

CORRELATIONAL ANALYSIS

From table 7, it was noticed that the variables attitude towards integrating technology in mathematics and learning strategies in mathematics had a significant positive correlation of 0.095.

CONCLUSIONS

Only 16.31 percentage of college students have high attitude towards integrating technology in learning mathematics whereas 68.25 percentage of them have moderate attitude towards integrating technology in learning mathematics while 15.44 percentage have

low attitude towards integrating technology in learning mathematics.

Among the 1723 college students taken for this study, 20.89 percent college students prefer cognitive, 21.93 percent college students follow metacognitive, 18.69 percent college students of them practice non - informational resource management while 20.72 college students used informational management learning strategies.

College students practicing cognitive learning strategy have moderate level of attitude towards integrating technology in mathematics. College students following metacognitive learning strategy have low level attitude towards integrating technology in mathematics. College students using non – informational resource management learning strategy have moderate level of attitude towards integrating technology in mathematics while College students who adapt informational resource management learning strategy have high level of attitude towards integrating technology in mathematics.

Students practicing all the four learning strategies have moderate level of attitude towards technology for learning mathematics while Students adopting no learning strategy have moderate level of attitude towards technology for learning mathematics.

Male and female college students differ in the dimensions motivation, collaborative preferences, confidence while using technology in learning mathematics and in the total scores of attitude towards integrating technology in mathematics. Women students faired well.

Tamil medium and English medium college students do not differ in their attitude towards integrating technology in mathematics.

Day scholar and hostel college students differ in the dimensions collaborative preferences, interaction and engagement with technology, confidence while using technology in learning mathematics and in the total scores of attitude towards integrating technology in mathematics.

Male students scored more than female students. Male and female college students differ in the four strategies and in the total scores of learning in mathematics. Male students excellent their counterparts.

Tamil medium and English medium college students differ in the strategies non-informational management, informational management and in the total scores of learning in mathematics. Mean scores of English medium students was high.

Day scholar and hostel college students differ in all the strategies and in the total scores of learning in mathematics.

CORRELATIONAL ANALYSIS

There is significant positive correlation between the attitude towards integrating technology in mathematics and learning strategies of college students.

DISCUSSION ON THE FINDINGS

Ramya (2015) revealed that boys expressed more positive views towards mathematics and more positive views towards the use of technology in mathematics compared to girls. The conclusion of the above studies did not conform to the present study.

Senar Temel, Sinem Dincol Ozgur, Senol Sen, Ayhan Yilmaz (2012) showed that significant difference was not found between the usage of both cognitive and metacognitive learning strategies. The above finding did not support the current study. Because the current study has indicated that most frequently used strategies are cognitive and then metacognitive.

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TABLE - 1

LEVEL OF ATTITUDE OF COLLEGE STUDENTS TOWARDS INTEGRATING TECHNOLOGY IN MATHEMATICS

DIMENSIONS	LOW		MODERATE		HIGH	
	N	%	N	%	N	%
Motivation	309	17.93	992	57.57	422	24.49
Collaborative preferences	334	19.38	957	55.54	432	25.07
Interaction and engagement with technology	247	14.34	1143	66.34	333	19.33
Confidence while learning mathematics	300	17.41	1129	65.53	294	17.06
Confidence while using computers	212	12.30	1196	69.41	315	18.28
Confidence while using technology in learning mathematics	247	14.34	1158	67.21	318	18.46
Attitude towards integrating technology in mathematics	266	15.44	1176	68.25	281	16.31

TABLE - 2

NUMBER OF STUDENTS IN EACH STRATEGY OF LEARNING MATHEMATICS

LEARNING STRATEGIES	NUMBER OF STUDENTS	%
Cognitive	360	20.89
Metacognitive	378	21.93
Non – Informational resource management	322	18.69
Informational resources management	357	20.72
No learning strategy	993	57.63

TABLE - 3

LEVEL OF ATTITUDE OF COLLEGE STUDENTS TOWARDS INTEGRATING TECHNOLOGY IN MATHEMATICS AND LEARNING STRATEGIES

VARIABLES		ATTITUDE TOWARDS INTEGRATING TECHNOLOGY IN MATHEMATICS						TOTAL
		LOW	%	MODERATE	%	HIGH	%	
Learning strategies	Cognitive	89	24.72	228	63.33	43	11.94	360
	Metacognitive	101	26.72	222	58.73	55	14.55	378
	Non – Informational resources management	65	20.19	215	66.77	42	13.04	322
	Informational resources management	61	17.09	238	66.67	58	16.25	357
	No learning strategy	118	11.88	717	72.21	158	15.91	993

TABLE - 4

STUDENTS FOLLOWING THE LEARNING STRATEGIES AND THEIR LEVEL OF ATTITUDE TOWARDS INTEGRATING TECHNOLOGY IN MATHEMATICS

LEARNING STRATEGIES		LOW	MODERATE	HIGH
Attitude towards integrating technology in mathematics	Four learning strategies (95)	25	57	13
	No learning strategy (993)	112	723	158

TABLE - 5

MEAN DIFFERENCES IN ATTITUDE OF COLLEGE STUDENTS TOWARDS INTEGRATING TECHNOLOGY IN MATHEMATICS BASED ON DEMOGRAPIC VARIABLES

VARIABLES	MALE (788)		FEMALE (935)		t VALUE	S/NS
	M	SD	M	SD		
Motivation	12.05	5.32	13.91	5.33	7.69**	S
Collaborative preferences	13.48	4.81	14.19	4.44	3.60**	S
Interaction and engagement with technology	24.66	7.55	24.81	6.61	0.68	NS
Confidence while learning mathematics	29.43	7.36	28.87	6.49	1.89	NS
Confidence while using computers	33.21	8.31	33.36	7.14	0.38	NS
Confidence while using technology in learning mathematics	31.99	9.06	33.07	7.64	2.68**	S
Total	144.82	27.30	148.2	24.55	2.87**	S
	TAMIL (186)		ENGLISH(1537)			
Motivation	13.04	5.14	13.13	5.46	0.24	NS
Collaborative preferences	14.08	4.56	13.90	4.63	0.49	NS
Interaction and engagement with technology	24.26	7.30	24.85	6.98	1.06	NS
Confidence while learning mathematics	29.02	7.70	29.09	6.82	0.13	NS
Confidence while using computers	33.37	8.54	33.27	7.57	0.15	NS
Confidence while using technology in learning mathematics	33.45	9.02	32.48	8.21	1.41	NS
Total	147.21	27.07	146.73	25.74	0.23	NS
	DAY SCHOLAR (1255)		HOSTEL (468)			
Motivation	13.18	5.37	12.96	5.57	0.77	NS
Collaborative preferences	14.08	4.53	13.50	4.84	2.25*	S
Interaction and engagement with technology	25.14	7.08	23.85	6.76	3.46**	S
Confidence while learning mathematics	29.20	6.94	28.76	6.85	1.19	NS
Confidence while using computers	33.48	7.69	32.75	7.62	1.77	NS
Confidence while using technology in learning mathematics	32.88	8.14	31.79	8.67	2.35*	S
Total	147.96	25.81	143.61	25.84	3.11**	S

*Significant at 5% level **Significant at 1% level NS- Not significant S- Significant

TABLE - 6

MEAN DIFFERENCES IN LEARNING STRATEGIES IN MATHEMATICS OF COLLEGE STUDENTS BASED ON DEMOGRAPHIC VARIABLES

VARIABLES	MALE (788)		FEMALE (935)		t VALUE	S / NS
	M	SD	M	SD		
Cognitive	67.51	12.34	63.56	12.15	6.78**	S
Metacognitive	43.87	9.09	41.32	8.91	5.86**	S
Non- Informational resources management	91.86	17.12	86.66	16.46	6.39**	S
Informational resources management	49.09	9.53	46.23	9.45	6.22**	S
Total	252.33	39.18	237.76	39.32	7.68**	S
	TAMIL (186)		ENGLISH (1537)			
Cognitive	63.22	12.68	65.63	12.34	2.46*	NS
Metacognitive	42.18	8.86	42.52	9.11	0.49	NS
Non – Informational resources management	85.39	19.29	89.48	16.63	2.77*	S
Informational resource management	43.90	10.68	47.98	9.36	4.98**	S
Total	234.69	43.62	245.60	39.30	3.26**	S
	DAY SCHOLAR (1255)		HOSTEL (468)			
Cognitive	64.81	12.64	66.87	11.58	3,21**	S
Metacognitive	42.13	9.11	43.43	8.93	2.66**	S
Non – Informational resources management	88.04	17.05	91.70	16.53	4.10**	S
Informational resources management	47.19	9.63	48.46	9.42	2.47	S
Total	246.43	38.88	243.89	40.18	4.01**	S

*Significant at 5% level **Significant at 1% level

NS – Not significant S - Significant

TABLE – 7

CORRELATION MATRIX FOR ATTITUDE TOWARDS INTEGRATING TECHNOLOGY IN MATHEMATICS AND LEARNING STRATEGIES IN MATHEMATICS OF COLLEGE STUDENTS

VARIABLES	ATTITUDE TOWARDS INTEGRATING TECHNOLOGY IN MATHEMATICS
LEARNING STRATEGIES IN MATHEMATICS	0.095** (Significant at 0.01 level)

NS – Not significant

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INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT

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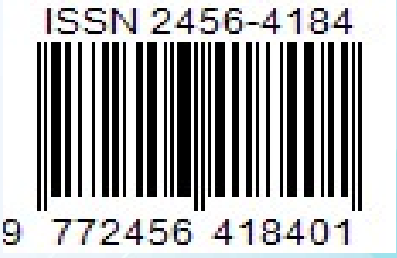

INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT

(ISSN: 2456-4184)

International Peer Reviewed & Refereed Journals, Open Access Journal

Impact factor: 8.76 | ESTD Year: 2016

INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT is published under the name of IJNRD Publication and URL: www.ijnrd.org

Published in India

Typesetting: Camera-ready by author, data conversation by IJNRD Publishing Services – IJNRD Journal.

IJNRD Journal, WWW.IJNRD.ORG

ISSN (Online): 2456-4184

INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) is published in online form over Internet. This journal is published at the Website http://www.ijnrd.org, maintained by IJNRD, Gujarat, India.

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To,
Dr.R.Saraswathy
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Title of Paper	:	METACOGNITION AND LEARNING STYLE OF B.ED STUDENTS
Impact Factor	:	8.76 (Calculate by Google Scholar)
DOI	:	
Published in	:	Volume 7 | Issue 4 | April-2022
Publication Date	:	2022-04-06
Page No	:	87-94
Published URL	:	http://www.ijnrd.org/viewpaperforall.php?paper=IJNRD2204009
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METACOGNITION AND LEARNING STYLE OF B.ED STUDENTS

Published In IJNRD (www.ijnrd.org) ISSN Approved & 8.76 Impact Factor

Published in Volume 7 Issue 4, April-2022 | Date of Publication: 2022-04-06

Co-Authors -

Registration ID : 180815 **Paper ID - IJNRD2204009** **Editor-In Chief**

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Website: www.ijnrd.org | Email: editor@ijnrd.org | ESTD: 2016

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METACOGNITION AND LEARNING STYLE OF B.ED STUDENTS

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Abstract

The problem of the present study is titled as "**Metacognition and Learning Style of B.Ed. Students** ". The researcher adopted normative survey method. In the study 126 B.Ed. students from 3 education colleges in Salem District during the year 2020 -2021 were selected as sample by random sampling method. They were from government, government aided and private colleges. Three research tools were used to collect the required data. Percentage analysis and Pearson product moment correlation was done. It was noted that gender were playing a vital role in hindering the choice of metacognition and learning style. Research findings shows that there was a significant positive correlation between the metacognition and learning style of B.Ed. students.

Key words: Metacognition, Learning styles, B.Ed. students.

Introduction

Education which shapes and moulds the quality of life of the people of a country and whose goals or extremely sacred and whose influences are permanent and developmental should be placed in the hands of appropriate and dedicated teachers who can be trusted to perform a noble and a challenging role in the educational process. Learning plays a vital role in our life. learning starts from one's birth and till to 'the end of his life' . It shapes, moulds and modifies human behaviour experiences bring about a change in the behaviour of the individual. It is a Universal human experience. It imparts an individual with all the power and necessities in making A Remarkable mark in any of the field it is one's education which decides what one can make out in their life.

Metacognitive learning is a new concept in the emerging field of education. Metacognition is the one of the holy grains of education. People engage in metacognitive activities everyday. Metacognition enables us to be successful learners and it has been associated with intelligence. Metacognition literally

means cognition about cognition or knowledge about knowing of learning. Metacognition is simply defined as "thinking about thinking". Metacognition refers to one's knowledge concerning one's own cognitive process and the products or anything related to them. It is higher order thinking which involves active control over the cognitive process engaged in learning. Metacognitive activities help the teacher to determine how students can be taught to apply their cognitive resources through metacognitive control.

Learning is a partial development and occurs in different ways for different people. Learning process occurs through different situations as student's observation; awareness and processing of information are varied. For instance, some individuals recognize incredible in real manner whereas some individuals perceive something in concrete and abstract manner.

Learning style addresses the biological uniqueness and developmental changes that make one person learn differently from another individuals do change in the way they learn similarly, development aspects related to how we learn but more predictable follower recognisable pattern. Learning styles as perception, thought, remembering or problem - solving of the individual in the way that student is used to do. Each person's individual learning style is unique as a signature. When a person has something difficult to learn, that students learn faster and enjoy learning more if student unique learning style a affirmed by the way the teacher teaches.

Review of Related Literature

Pradhan & Das (2021) analysed the influence of Metacognition on Academic Achievement and Learning Style of Undergraduate Students in Tezpur University. The result showed that only 34-36% of the undergraduate students had above-average metacognitive skills. The undergraduate students had equal preferences in all the five learning styles rather than focusing on one learning style. There was a significant difference between metacognition levels and academic achievement of the undergraduate students of SOS, HSS and SOE. The metacognitive skill explicates only 43% variability of academic achievement of the undergraduate students which implies that the undergraduate student's metacognitive skills influence and determines their academic achievement to some extent.

Saraswathy (2019) aimed to investigate the relationship between learning strategies in mathematics and learning styles among IX standard students. Result showed that there was significant positive correlation between learning strategies in mathematics and learning styles.

Significance of the Study

Today, all teachers are facing the on-going challenges of making their teaching more effective. Teachers must develop their skills to meet the students educational needs during their training period. The teacher trainee has to put his heart and soul on the course. As the duration of the B.Ed. programme is one year, the stresses more on the content then the development of attitudes, skills and competencies. All the B.Ed. students may not developed the desired level of teaching competence within the short duration of time. Soundness of judgement and the practical intelligence must be immediate in certain situations. The

capacity to do the right thing in the right way at the right time should be developed. So, the students are able to think about their thinking, understand and control their cognitive process.

Title of the problem

The problem of the present study is selected and entitled as "**Metacognition and Learning Style of B.Ed. Students".**

Operational definitions of the terms

Metacognition

In this context metacognition refers to Knowledge of Cognition and Regulation of Cognition.

Learning Styles

In this context learning styles include three styles; Visual , Auditory and Kinesthetic.

B.Ed. Students

In this study B.Ed. students refers to those who are studying B.Ed. first year and B.Ed .second year students.

Objectives of the Study

- To find out the level of metacognition of B.Ed. students.
- To find out the level of learning style of B.Ed. students.
- To find out the level of male and female B.Ed. students in their metacognition.
- To find out the level of male and female B.Ed. students in their learning style.
- To find out the relationship between metacognition and learning style of B.Ed. students.

Hypothesis of the Study

- The level of metacognition of B.Ed. students is moderate.
- The level of learning style of B.Ed. students is moderate.
- The level of male and female B.Ed. students in their metacognition is moderate.
- The level of male and female B.Ed. students in their learning style is moderate.
- There is no relationship between metacognition and learning style of B.Ed. students.

Methodology

The investigator has used the survey method for obtaining the data.

Population and Sample for the Study

All the students studying in the colleges of education in Salem district. The investigator has randomly selected 126 B.Ed. students from Salem district.

Tools Used

1.The Metacognitive inventory (MCI) by Punita Govil (2003).

2. The learning style tool developed by the investigator.

Statistical Techniques Used

Percentage Analysis and Pearson Product Moment Correlation used for analysis of the data.

Data Analysis

Hypothesis 1

The level of metacognition of B.Ed. students is moderate.

Table - 1

Level of Metacognition of B.Ed. Students

Metacognition and its dimensions	Low		Moderate		High	
	N	%	N	%	N	%
Knowledge of cognition	27	21.23	74	58.73	25	19.84
Regulation of cognition	18	14.29	87	69.05	21	16.67
Metacognition	21	16.67	82	65.0	23	18.25

It is inferred from the above table that 21.23% of the B.Ed. students have low 58.73 % of them have moderate and 19.84 % of them have high level of knowledge of cognition. Also it is inferred that 11.29% of the B.Ed. students have low, 69.05 % of them have moderate and 16.67% of them have high level of regulation of cognition.

On the whole, 16.67 % of the B.Ed. students have low, 65.0 % of them have moderate and 18.25% of them have high level of metacognition. Hence the hypothesis is accepted.

Conclusion

The level of metacognition of B.Ed. students is moderate.

Hypothesis 2

The level of learning style of B.Ed. students is moderate.

Table - 2

Level of Learning Style of B.Ed. Students

Learning Style and its dimensions	Low		Moderate		High	
	N	%	N	%	N	%
Visual	23	18.25	68	53.96	35	27.78
Auditory	26	20.63	62	49.21	38	30.16
Kinesthetic	27	21.43	60	47.62	39	30.95
Learning Style	14	11.11	65	51.59	47	37.30

It is analysed from the above table that 18.25 % of the B.Ed. students have low 53.96 % of them have moderate and 27.7 % of them have high level of visual learning style. Also it is inferred that 20.63 % of the B.Ed. students have low, 49.21 % of them have moderate and 30.16 % of them have high level of auditory learning style. Meanwhile 21.43 % of the B.Ed. students have low 47.62 % of them have moderate and 30.95 % of them have high level of kinaesthetic learning style.

On the whole, 11.11 % of the B.Ed. students have low, 51.59 % of them have moderate and 37.30 % of them have high level of learning style. Hence the hypothesis is accepted.

Conclusion

The level of learning style of B.Ed. students is moderate.

Hypothesis 3

The level of male and female B.Ed. students in their metacognition is moderate.

Table - 3

Level of Metacognition of B.Ed. Students with regard to Gender

Metacognition and its dimensions	Gender	Low		Moderate		High	
		N	%	N	%	N	%
Knowledge of cognition	Male (73)	12	16.44	40	54.79	21	28.77
	Female (53)	8	15.09	34	64.15	11	20.75
Regulation of cognition	Male (73)	14	19.18	39	53.42	20	27.40
	Female (53)	7	13.21	32	60.38	14	26.42
Metacognition	Male (73)	11	15.07	41	56.16	21	28.77
	Female (53)	10	18.87	30	56.60	13	24.53

It is noticed from the above table that 16.44 % of the male B.Ed. students have low, 54.79 % of them have moderate and 28.77% of them have level of knowledge of cognition. Also it is preferred that 19.18% of the male B.Ed. students have low, 53.42% of them have moderate and the 27.40 % of them have high level of regulation of cognition.On the whole 15.07 % of the male B.Ed. students have low, 56.16 % of them have moderate and 28.77 % of them have high level of metacognition.

Again, it is inferred from the above table that 15.09% of the female B.Ed. students have low, 64.15% of them have moderate and 20.75 % of them have high level of knowledge of cognition. Also it is inferred that 13.21% of the female B.Ed. students have low, 60.38% of them have moderate and 26.42 % of them have high level of regulation of cognition. On the whole 18.87 % of the female B.Ed. students have low, 56.60 % of them have moderate and 24.53 % of them have high level of metacognition. Hence the hypothesis is accepted.

Conclusion

The level of male and female B.Ed. students in their metacognition is moderate.

Hypothesis 4

The level of male and female B.Ed. students in their learning style is moderate.

Table - 4

Level of Learning Style of B.Ed. Students with regard to Gender

Learning Style and its dimensions	Gender	Low		Moderate		High	
		N	%	N	%	N	%
Visual	Male (73)	12	16.44	47	64.38	14	19.18
	Female (53)	8	15.09	34	64.15	11	20.75
Auditory	Male (73)	10	13.70	43	58.90	20	27.40
	Female (53)	7	13.21	32	60.38	14	26.42
Kinesthetic	Male (73)	13	17.81	41	56.16	19	26.03
	Female (53)	9	16.9	29	54.72	15	28.30
Learning Style	Male (73)	11	15.07	40	54.79	22	30.14
	Female (53)	8	15.09	33	62.26	12	22.65

It is inferred from the above table that 16.44% of the B.Ed. students have low, 64.38% of them have moderate and 19.18% of them have high level of visual learning. Also it is inferred that 13.70 % of the B.Ed. students have low, 58.90 % of them have moderate and 27.40% of them have high level of auditory learning. Also, it is inferred from the above table that 17.81% of the B.Ed. students have low, 56.16% of them have moderate and 26.03% of them have high level of kinesthetic learning. On the whole 15.07 % of the male B.Ed. students have low, 54.79% of them have moderate and 30.14% of them have high level of learning style.

It is inferred from the above table that 15.09% of the female B.Ed. students have low, 64.15% of them have moderate and 20.75 % of them have high level of visual learning. Also it is inferred that 13.21 % of the female B.Ed. students have low , 60.38 % of them have moderate and 26.42 % of them have high level of auditory learning . Also it is inferred from the above table that 16.9 % of the female B.Ed. students have low, 54.72% of them have moderate and 28.30% of them have high level of kinesthetic learning. On the whole, 15.09 % of the female B.Ed. students have low, 62.26% of them have moderate and 22.65 % of them have high level of learning style. Hence the hypothesis is accepted.

Conclusion

The level of male and female B.Ed. students in their learning style is moderate.

Hypothesis 5

There is no relationship between metacognition and learning style of B.Ed. students.

Table – 5

Correlation Table showing the Metacognition and Learning style of B.Ed. students

VARIABLE	'r' value
Metacognition	0.234**
Learning Style	(Significant at 0.01 level)

** Table value of r for df 126 at 0.01 level is 0.134

There is significant positive correlation between the metacognition and learning style of B.Ed. students**.**

MAJOR FINDINGS OF THE STUDY

- 16.67 % of the B.Ed. students have low, 65.0 % of them have moderate and 18.25% of them have high level of metacognition.
- 11.11 % of the B.Ed. students have low, 51.59 % of them have moderate and 37.30 % of them have high level of learning style
- 15.07 % of the male B.Ed. students have low, 56.16 % of them have moderate and 28.77 % of them have high level of metacognition.
- 18.87 % of the female B.Ed. students have low, 56.60 % of them have moderate and 24.53 % of them have high level of metacognition.
- 15.07 % of the male B.Ed. students have low, 54.79% of them have moderate and 30.14% of them have high level of learning style.
- 15.09 % of the female B.Ed. students have low, 62.26% of them have moderate and 22.65 % of them have high level of learning style.
- There is significant positive correlation between the metacognition and learning style of B.Ed. students**.**

Conclusion

From the above study the investigator found that metacognition and the learning style are closely correlated. Therefore the investigator desire that educational institutions should provide training programs and give importance to metacognition in the regular classroom teaching and the learning process. It helps and enriches the skill of learning style of B.Ed. students in their walks of life.

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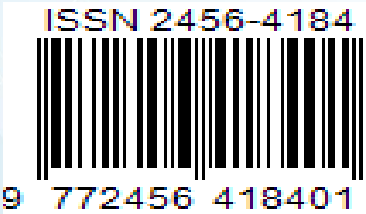

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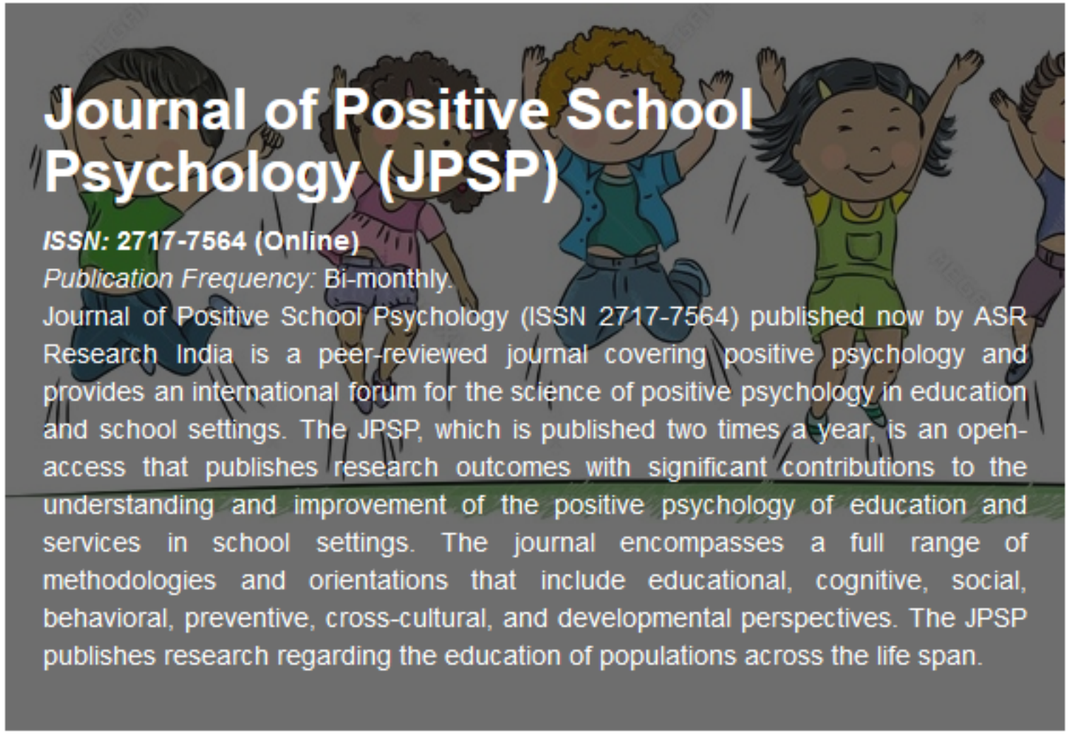
ISSN: 2717-7564
Frequency: Bi-monthly
Indexing: *Scopus , EBSCO*



Journal of Positive School Psychology (JPSP)

***ISSN:* 2717-7564 (Online)**
Publication Frequency: Bi-monthly.

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Secondary School Teachers' and Students' Level of Utilization of ICT Tools for Teaching and Learning Mathematics

Dr. R. Saraswathy
10183 – 10187

1 - 2 of 2 items

Keywords

Secondary School Teachers' and Students' Level of Utilization of ICT Tools for Teaching and Learning Mathematics

Dr. R. Saraswathy

Abstract

Information and Communication Technology (ICT) is an instrument par excellence that a nation can rely upon to bring about self-reliance in an educational system. Therefore, there is the need to integrate ICT into teaching and learning; hence, the study investigated the assessment of Teachers' and Students' level of utilization of ICT tools for teaching and learning mathematics in Indian education system. Survey method was used for the present study. The population for the present study was all secondary schools in Salem District. A total number of 120 students and 70 mathematics teachers were randomly selected from secondary schools in Salem District. The tools used for the study was researchers-designed questionnaire, which comprised of 24 ICT tools. The instrument was validated and the reliability index of 0.856 was obtained. The data gathered was analyzed statistically using percentage analysis. The research findings from the study shows that the more number of secondary school mathematics teachers and students frequently utilized ICT Tools for teaching & learning mathematics.

Issue

Journal of Positive School Psychology
2022, Vol.6, No.4, 10183 – 10187

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Secondary School Teachers' and Students' Level of Utilization of ICT Tools for Teaching and Learning Mathematics

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Abstract

Information and Communication Technology (ICT) is an instrument par excellence that a nation can rely upon to bring about self-reliance in an educational system. Therefore, there is the need to integrate ICT into teaching and learning; hence, the study investigated the assessment of Teachers' and Students' level of utilization of ICT tools for teaching and learning mathematics in Indian education system. Survey method was used for the present study. The population for the present study was all secondary schools in Salem District. A total number of 120 students and 70 mathematics teachers were randomly selected from secondary schools in Salem District. The tools used for the study was researchers-designed questionnaire, which comprised of 24 ICT tools. The instrument was validated and the reliability index of 0.856 was obtained. The data gathered was analyzed statistically using percentage analysis. The research findings from the study shows that the more number of secondary school mathematics teachers and students frequently utilized ICT Tools for teaching & learning mathematics.

Keywords: Information Communication Technology (ICT), secondary school, teachers', students', utilization of ICT Tools.

Introduction

Mathematics is one of the most important core subjects offered at the primary and secondary school levels of Indian educational system. As stated in the National Curriculum for secondary schools of the Federal Ministry of Education (FRN, 2013), the aims and objectives of Mathematics teaching at this level of education are to; help develop further conceptual and manipulative skills and their applications; provide an intermediate course of study and meet the needs of potential mathematicians, engineers, scientists and other professionals, such as businessmen, administrators and architectures.

Information and Communication Technology (ICT) is a tool that comprise of electronic devices which are utilized for the information and communication needs of institutions, organizations, students and individuals. The use of information and communication technology (ICT) creates a powerful learning environment and it transforms the learning and teaching processes in which students deal with knowledge in an active, self-directed and constructive ways (Volman & Van Eck, 2001). ICT is not just regarded as a tool, which can be added to or used as a replacement of existing teaching methods, but seen as an important instrument used to support new ways of teaching and learning. It should be used to develop students' skills for communication, problem solving and lifelong learning of mathematics (Voogt, 2003).The study therefore sought to find out secondary school teachers' and students' level of utilization of ICT tools for teaching and learning mathematics.

Statement of the problem

The importance of Mathematics as a compulsory subject at the senior secondary school level cannot be overemphasized. Despite the importance of Mathematics to the development of the nation, the achievements of students have remained consistently poor over the years (Eze, 2003;

Betiku, 2003; Aprerbo, 2003). The use of ICT tools has captured the attention of the education community to enhance teaching and learning of mathematics, but also has the capability not only of engaging students in instructional activities to increase their learning, but of helping them to solve complex problems in mathematics to enhance their cognitive skills (Jonassen & Reeves, 1996).

Numerous teaching strategies have been developed by expert to respond to the problem of students' poor performance in Mathematics. One of such strategies is the use of ICT (Adeyemo, 2010), which have now detracted from teaching and learning due to so many reasons such as insufficient and limited access to computer hardware and computer software, Sufficient time in the school timetable to involve students in using ICT for learning mathematics, Lack of opportunities for teachers on ICT training and teachers' lack of knowledge in integrating ICT into teaching and learning to enhance performance and innovation in curriculum development.

Straub (2009) reported that for the use of ICT tools in teaching and learning to remain sustained, personal factors such as teacher's skills, knowledge, competencies, readiness characteristics of the love for innovations and the influences of individual's context should never be ignored as part of the planning process. Aina (2013) concluded that ICT is very good if fully integrated in Mathematics class; and it can improve students' academic achievements in mathematics. Furthermore, it has been proved that new technologies have lots of benefits on the students. Based on these various importance of ICT tools in teaching and learning of mathematics, hence, the study assessed secondary school teachers' and students' level of utilization of ICT tools for teaching and learning mathematics.

OBJECTIVES OF THE STUDY

- To find the level of secondary school mathematics teachers' utilization of the ICT tools.
- To study level of secondary school students' utilization of the ICT tools.
- To investigate the level of competency of secondary school mathematics teachers' utilization of ICT tools.
- To find level of competency secondary school students' utilization of ICT tools.

HYPOTHESIS OF THE STUDY

- The level of secondary school mathematics teachers' utilization of the ICT tools is high.
- The level of secondary school students' utilization of the ICT tools is high.
- The level of competency of secondary school mathematics teachers' utilization of ICT tools is high.
- The level of competency secondary school students' utilization of ICT tools is high.

METHODOLOGY OF THE STUDY

The study was a descriptive research of the survey type. In a survey research, information are
obtained from the respondents and are used to describe the population. This is a survey research because information was obtained from respondents to describe them with regards to their level of utilization of ICT tools for teaching and learning Mathematics.

The population for the study comprised of all secondary schools' mathematics teachers and students in Salem District, the target population consisted of mathematics teachers and students in secondary schools' in Salem. Fifty (70) mathematics teachers and one hundred and twenty (120) secondary school students were randomly selected from government, government aided and private schools. The tools used for data collection was researchers-designed questionnaire that was validated by three experts in mathematics education and an expert in educational technology. Test re-test method was used to determine the reliability of the tool. A reliability coefficient of 0.856 was obtained using
Pearson Product Moment Correlation (PPMC) at 0.05 level of significance. The study lasted for a period of two weeks during which the questionnaire was administered on the

mathematics teachers and students. Percentage analysis were used to the present study.

Data Analysis of the study

Table 1

Demographic variable of secondary school teachers and students based on gender

Demographic Variable (Gender)		Respondents	Percentage (%)
Teachers'(70)	Male	31	44.29
	Female	39	55.71
Students'(120)	Male	43	35.83
	Female	77	64.17

From the above table shows that, seventy (70) secondary school mathematics teachers participated in this study comprised of 39 (55.71%) female and 31 (44.29%) male teachers. Meanwhile 120 secondary school students participated in this study that comprised of 77 female and 43 male students. The secondary school female students participated more in the study with 77 representing 64.17 % while their male counterpart was 43 representing 35.83 %.

Hypothesis 1

The level of secondary school mathematics teachers' utilization of the ICT tools is high.

Table 2

Table showing the level of utilization of ICT Tools of secondary school mathematics teachers

Utilization of ICT Tools	Number of teachers	Percentage
Frequently Used	33	47.14
Rarely Used	23	32.86
Not Used	14	20.00
Total	**70**	**100.0**

From the above table shows that the secondary school mathematics teachers frequently utilized ICT Tools for teaching mathematics as by 33(47.14%) of the respondents. Also, it was revealed that 23(32.86%) of secondary school mathematics teachers rarely utilized ICT tools with the responses and some of the secondary school mathematics teachers do not utilized ICT Tools for teaching mathematics as the frequency for these responses was 14 (20.00%).

Conclusion

The level of secondary school mathematics teachers' utilization of the ICT tools is high.

Hypothesis 2

The level of secondary school students' utilization of the ICT tools is high.

Table 3

Table showing the level of utilization of ICT Tools of secondary school students

Utilization of ICT Tools	Number of students	Percentage
Frequently Used	57	47.50
Rarely Used	34	28.33
Not Used	29	24.17
Total	**120**	**100.0**

From the above table shows that the secondary school students frequently utilized ICT Tools for learning mathematics as by 57(47.50%) of the respondents. Also, it was revealed that 34(28.33%) of secondary school students rarely utilized ICT tools with the responses and most of the secondary school students do not utilized ICT Tools for learning mathematics as the frequency for these responses was 29 (24.17%).

Conclusion

The level of secondary school students' utilization of the ICT tools is high.

Hypothesis 3

The level of competency of secondary school mathematics teachers' utilization of ICT tools is high.

Table 4

Table showing the level of competency in using ICT Tools of secondary school mathematics teachers

Level of Competency	Number of teachers	Percentage
Highly Skilled	33	47.14
Skilled	23	32.86
Not Skilled	14	20.00
Total	**70**	**100.0**

From the above table notices that the secondary school mathematics teachers frequently utilized ICT Tools for teaching mathematics as by 33(47.14%) of the respondents. Also, it was revealed that 23(32.86%) of mathematics teachers rarely utilized ICT tools with the responses and some of the mathematics teachers do not utilized ICT Tools for teaching mathematics as the frequency for these responses was 14 (20.00%).

Hypothesis 4

The level of competency secondary school students' utilization of ICT tools is high.

Table 5

Table showing the level of competency in using ICT Tools of secondary school students

Level of Competency	Number of students	Percentage
Highly Skilled	54	45.00
Skilled	46	38.33
Not Skilled	20	16.67
Total	**120**	**100.0**

From the above table shows that the secondary school students frequently utilized ICT Tools for learning mathematics as by 54(45.00%) of the respondents. Also, it was revealed that 46(38.33%) of secondary school students rarely utilized ICT tools with the responses and most of the secondary school students do not utilized ICT Tools for learning mathematics as the frequency for these responses was 20 (16.67%).

Conclusion

The level of competency secondary school students' utilization of ICT tools is high.

Major findings of the study

- The level of secondary school mathematics teachers' utilization of the ICT tools is high.

- The level of secondary school students' utilization of the ICT tools is high.
- The level of competency of secondary school mathematics teachers' utilization of ICT tools is high.
- The level of competency secondary school students' utilization of ICT tools is high.

Recommendations

Based on the findings of this study, the following recommendations were made:

- The educational resource centers should join hand with state Ministries of Education to create awareness about ICT tools and their usefulness to both teachers and students. Also, both parties should organize workshops and seminars for in-service teachers irrespective of their gender, experience and qualification on the application of ICT tools for effective delivery of instructions.
- Teachers should communicate and utilize some ICT tools effectively with their students to extricate fear that may show up amongst them.
- The government should properly encourage the teachers by providing them ICT tools, monetary and non-monetary benefits to enable them put in more effort and increase their efficacy in teaching mathematics with the technology.

Conclusion

The finding reveals amongst others that the mathematics teachers and students utilized ICT tools for teaching and learning mathematics respectively. The research findings from the study shows that the more number of high school mathematics teachers and students frequently utilized ICT Tools for teaching & learning mathematics.

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International Journal of Health Sciences (IJHS)

Higher secondary students' perception of information and communication technology (ICT)

https://doi.org/10.53730/ijhs.v6nS3.8397

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ABSTRACT

In the present study the investigators have an attempted to gauge the higher secondary students' perception of information and communication technology at school level. The sample for the study consisted of 200 plus one students from various higher secondary schools in Salem district. The investigators developed and validator a tool to measure the higher secondary students' perception of information and communication technology. The data collected from the respondents were analysed by using standard deviation and t test. The findings reveals that the students studying in rural and urban schools are significantly different in their perception of Information and Communication Technology.

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PUBLISHED

03-06-2022

HOW TO CITE

Saraswathy, R. (2022). Higher secondary students' perception of information and communication technology (ICT). *International Journal of Health Sciences*, *6*(S3). https://doi.org/10.53730/ijhs.v6nS3.8397

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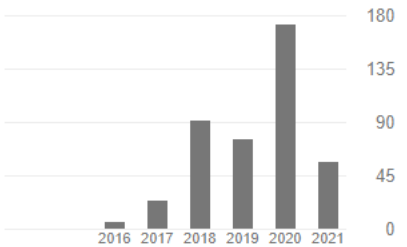

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Higher secondary students' perception of information and communication technology (ICT)

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***Abstract*---**In the present study the investigators have an attempted to gauge the higher secondary students' perception of information and communication technology at school level. The sample for the study consisted of 200 plus one students from various higher secondary schools in Salem district. The investigators developed and validator a tool to measure the higher secondary students' perception of information and communication technology. The data collected from the respondents were analysed by using standard deviation and t test. The findings reveals that the students studying in rural and urban schools are significantly different in their perception of Information and Communication Technology..

***Keywords*---**perception, information communication technology, higher secondary school students.

Introduction

Information and Communication Technology is defined as the combination of informatics technology with other interconnected technologies, particularly communication technology. Information and Communication Technologies are the most important factor in shaping the new overall economy and producing quick changes in society. They also have the potential to transform the nature of education-where and how learning takes place and the roles of students and teachers in the learning process. Information and Communication Technology has become one of the basic building blocks of modern society within a very short time. Many countries understand Information and Communication Technology and have mastering the basic skills and concepts of Information and Communication Technology as part of the core of mathematics education, alongside reading, writing and numeracy.

In a broader sense, Information and Communication Technology is taken to refer to the whole set of enabling Technology concerned with communication, manipulation of information, networking, data storage, transmission - encompassing data, voice and video. The problem is that the growth of newer information and Communication Technology as an instructional tool influence the students learning and their acquisition of knowledge maybe raised at certain extent as possible. Hands the integration of all types of Technology into the classroom is viewed as an effective instructional strategy for improving the standard of education at higher secondary schools. Higher secondary students perception of Information and Communication Technology can influence them towards they are effective use of Information and Communication Technology. To fill the gap between the students' perception of Information and Communication Technology and the teaching learning situation in the classroom the study was undertaken.

Review of Related Literature

Nurjahan Khatun Keya & Muhammad Kamal Uddin. (2019) analysed Perception of Secondary School Students towards ICT Education. Findings of study showed a significant difference between rural and urban areas in students' perceptions towards ICT education. The F-test showed that grade nine students had a more positive perception towards ICT education than grades seven and eight.

Saraswathy, R.(2015) analysed technological pedagogical content knowledge in the mathematics classroom. Findings of the study reported that the working technology knowledge of a mathematics teacher using graphing calculators, computer software programs, and computer-based laboratories to deeply explore a mathematical topic is vastly different than that of an English teacher using the Internet and software programs to investigate and prepare literary documents. Each content area has specific instructional goals and needs that technology can address in a variety of ways.

Significance of the Study

Communication is Education and Education is knowledge. This is an age of knowledge explosion and exploration through Information and Communication Technology. Rapid progress in in Information and Communication Technology has invaded the arena of education. Technology has had a significant effect on the educational system for many years. In the classroom teachers have moved from the days of chalks and talk to the use of overhead projectors and more recently to the use of software and multimedia presentation techniques. Information and Communication Technology is widely recognized as a tool and modern education should aim at creating a relevant insight into its nature for the development of useful skills. The advent of Information Technology has had a profound and commanding global influence on the matrix of socio-economic activity the world over. Information Communication Technology is the latest development and program for improving the teaching learning process in schools. It is an urgent need to study the higher secondary student's perception and utilisation of Information and Communication Technology in their schools.

If India could attend world recognition in computer software and information technology today, it is because of our past investment in education. If it is to maintain this lead and become globally competitive in other emerging areas of Technology also, it must continue to strength and our educational system to suite the changing needs. Information and Communication Technology modifies students' environment and their perception through the variety techniques of presentation and arrangement of learning activities. Quantitative expansion and Qualitative improvement of education could be facilitated and accelerated with the help of Information and Communication Technology.

Objectives of the Study

- To find the difference between male and female students in respect of their perception of Information and Communication Technology.
- To investigate the differences between rural and urban school students in respect of their perception of Information and Communication Technology.
- To find the differences between Government and self- financing school students in respect of their perception of Information and Communication Technology.
- To investigate the differences between Arts and Science group students in respect of their perception of Information and Communication Technology.

Hypothesis of the Study

- There is no significant difference between male and female students in respect of their perception of Information and Communication Technology.
- There is no significant differences between rural and urban school students in respect of their perception of Information and Communication Technology.
- There is no significant differences between Government and self- financing school students in respect of their perception of Information and Communication Technology.
- There is no significant differences between Arts and Science group students in respect of their perception of Information and Communication Technology.

Methodology

Investigator followed the survey method in the present study. Railway station developed and used a standardized questionnaire. The items given in the questionnaire verified and the pulled with the help of the guide and the subject experts. The tool was administrated to the sample selected from Salem District. The data where character from the students and where analysed by adopting appropriate statistical techniques for measuring the Higher Secondary Students perception of Information and Communication Technology.

Sample

A sample of 200 students from higher secondary schools in Salem District was chosen as sample for the study by using the simple random sampling technique.

Data Analysis

Hypothesis 1
There is no significant difference between male and female students in respect of their perception of Information and Communication Technology.

Table 1
Significance Difference in Perception Mean Scores of Male and Female Students

S.No	Gender	N	Mean	Standard Deviation	t-Value	S / NS
1	Male	101	20.21	4.92	1.47	NS
2	Female	99	21.65	4.21		

Critical value for 0.05 level = 1.96 NS- Not significant

From the above table the calculate t value 1.47 is less than the critical value of 1.96 corresponding to the 0.05 level of significance. Hence the null hypothesis is accepted. Therefore it is concluded that male and female students do not differ significantly in respect of their perception of Information and Communication Technology.

Hypothesis 2
There is no significant differences between rural and urban school students in respect of their perception of Information and Communication Technology.

Table 2
Significance difference in Perception mean scores of rural and urban school students

S.no	Variable	N	Mean	Standard deviation	t –value	S / NS
1	Rural	88	24.67	5.09	2.65**	S
2	Urban	112	27.80	6.01		

Critical value for 0.05=1.96 Significant at 0.05 level

The calculated t value 2.65 is higher than the critical value of 1.96 corresponding to 0.05 level of significance. Hence the null hypothesis is rejected. Therefore it is concluded that the higher secondary students from rural and urban schools differ significantly in respect of their perception of Information and Communication Technology. Further higher means course of the urban school students indicate better perception of Information and a Communication Technology than in the case of rural school students.

Hypothesis 3
There is no significant difference between the students of government and itself financing schools in respect of their perception of Information and Communication Technology.

Table 3
Significance of Difference in Perception Mean Scores of Government and Self Financing School Students

S.no	Variable	N	Mean	Standard deviation	t-value	S / NS
1	Government	98	18.69	4.08	2.34**	S
2	Self-financing	102	20.85	4.56		

Critical value for 0.05= 1.96 Significant at 0.05 level

From the above table the calculated t value 2.34 is greater than the critical value of 1.96 corresponding to 0.05 level of significance. Hence the null hypothesis is rejected. Therefore it is concluded that government and self-financing school students refers significantly in respect of their perception of Information and Communication Technology. Further the high mean score of the students of self-financing schools indicates better perception of Information and Communication Technology than in the case of government school students.

Hypothesis 4
There is no significant differences between Arts and Science group students in respect of their perception of Information and Communication Technology.

Table 4
Significance of Difference in Perception Mean Scores of the Students of Arts and Sciences

S.No	Variable	N	Mean	Standard Deviation	t-Value	S / NS
1	Government	103	30.64	5.84	2.65**	S
2	Self-financing	97	25.69	5.53		

Critical value for 0.05 = 1.96 Significant at 0.05 level

From the above table that the calculated t value 2.65 is greater than the critical value of 1.96 corresponding to 0.05 level of significance. Hence the null hypothesis is rejected. Therefore it is concluded that the students of Arts and Science differ significantly in respect of their perception of Information and Communication Technology. Further the high mean score of the students of Science indicates better perception of Information and Communication Technology than in the case of Arts students.

Summary of the Findings

- Higher secondary students Salem District have better perception of Information and Communication Technology.
- Both male and female students are similar in their perception of Information and Communication Technology.

- Higher secondary school students from different types of schools referred significantly in respect of their perception of Information and Communication Technology. Students of government schools have a lesser perception than the students of self-financing school.
- Students studying in rural and urban schools are significantly different in their perception of Information and Communication Technology.
- Science group students have better perception of Information and Communication Technology than Arts group students.

Recommendations of the study

All the higher secondary education institutions should improve their infrastructure and switch to smart classrooms, virtual learning and equip with needed devices and gadgets so that the teachers and learners may be technocrats and bridge the digital divide that exists and create awareness for any time learning a reality with the latest technologies.

Conclusion

The problem of the present study is higher secondary students' perception of information and communication technology. It was found that higher secondary school students from different types of schools referred significantly in respect of their perception of Information and Communication Technology.

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OLLEGE TEACHERS' ATTITUDE TOWARDS ICT LEVELS OF TECHNOLOGY USE IN CLASSROOMS

Dr. R. Saraswathy

Abstract

This study aims to measure the relationship between college teachers' attitude towards ICT and Technology used in the classroom.The study included the categorical variables gender, stream and designation. The sample consists of 80 college teachers from 3 colleges selected through random sampling technique. They were from government, government aided and private colleges. Normative survey method was adopted for the study. Two research tools were used to collect the required data.The result shows that the level of college teachers' attitude towards ICT and the technology used by the college teachers' in the classroom were moderate. It was also found that there is no significant relationship between college teachers' attitude towards ICT and Technology used in the classroom.

Keywords *: Attitude towards ICT, Technology, College teachers.*

Introduction

Information and communication technology (ICT) is an important element in the education scenario in order to prepare the citizen for the future. The quality of teaching is often related to the use of ICT in teaching and learning. ICT is now a part of education from the primary stage itself. The last two decades have witnessed a worldwide proliferation of Information and Communication Technology (ICT) in the field of education. The global adoption of ICT into education has often been premised on the potential of the new technological tools to revolutionize an outmoded educational system, better prepare the students for the informational age, and/or accelerate national development effort in developing countries in particular the about promises have generated a whole set of wild speculation about the necessity of educational reforms that will accommodate the new tools. By adopting ICT we can offer high quality education.

Cox et.al. (1999) carried out study examining the factors relating to the uptake of ICT in teaching. The results showed that teachers who are already regular users of ICT have confidence in using ICT, perceive it to be useful for their personal work and for their teaching and plan to extend their use further in the future. The factors that were found to be the most important to the teachers in their teaching were making the lessons more interesting, easier, more fun for them and their pupils, more diverse, more motiva ting for the pupils and more enjoyable. More personal factors were improving presentation of materials, allowing greater access to computers for personal use, giving more power to the teacher in the school, giving the teacher more prestige, and making the teachers' administration more efficient and providing professional support through the internet.

ICT enhances higher education in a number of ways:

- It enables defective storing sorting of Information and can offer new fast ways of communication.
- It can be integrated into teaching and learning Strategies and used to support relative learning theories and
- ICT can be used to create new types of interactive learning media for improved quality equality and access in higher education (Rosswall 1999).

Teaching has become one of the most challen -ging professions in our society as knowledge

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is expanding rapidly and much of it is available to students as well as teachers at the same time (Perraton, Robinson and Creed, 2001). As new concepts of learning have involved, teachers are expected to facilitate learning and make it meaningful to increase the Learner's rather than just to provide knowledge and skills.

Simply having ICT in educational Institution will not guarantee their effective use. Regardless of the quantity and quality of Technology placed in classrooms, the key to how those tools are used by the teacher ; therefore teachers must have the competence and right attitude towards technology (Kadel, 2005). Attitudes refer to one's positive or negative judgement about a concrete subject. Attitudes are determined by the analysis of the information regarding the result of an action and by the positive or negative evaluation of these results (Ajzen & Fishbein, 1980).

Review of related literature

Manpreet Kaur (2019) studied the role of teachers' attitude and beliefs regarding use of ICT in Indian classrooms. The results revealed that the attitude of Indian teachers towards the use of ICT was positive but the use of ICT in Indian classrooms is not sufficient.

Eickelmann and Vennemann (2017) analysed teachers' attitudes and beliefs regarding ICT in teaching and learning in European countries. Research findings reported that the positive attitudes and beliefs are regarded as crucial determinants and predictors for teachers' use of ICT in instruction.

Objectives of the study

1. To find out the level of college teachers' attitude towards ICT.
2. To find out the level of Technology used by the college teachers' in the classroom
3. To find out relationship between college teachers' attitude towards ICT and Technology used in the classroom.

Hypotheses of the study

1. The level of college teachers' attitude towards ICT is moderate.
2. The level of Technology used by the college teachers' in the classroom is moderate.
3. There is no significant relationship between levels of college teachers' attitude towards ICT and Technology used in the classroom.

Method of the study

Normative survey method was adopted. 80 college teachers from 3 colleges in salem district were selected as sample by stratified random sampling technique.Attitude towards ICT Scale and Levels of technology use in classrooms inventory were used to collect data. Frequency, Percentage, Mean, Standard Deviation and Pearson Correlation were used to analyse data.

Analysis of Data

Hypothesis 1 : The level of college teachers' attitude towards ICT is moderate.

Table 1 : Level of College teachers' attitude towards ICT.

S. No	Descriptions of Attitude towards ICT	% of Range of Scores	No.of Teachers	% of Teachers	% of Males	% of Females
1	Very High	121-145	4	5.00	10.0	-
2	High	100-120	11	13.75	16.5	11.0
3	Moderate	76-99	24	30.00	25.5	34.5
4	Low	53-75	33	41.25	42.00	40.5
5	Very Low	29-52	8	10.00	6.0	14.0

The above table shows that 30.00% of the teachers had moderate attitude towards ICT whereas only 5.00% had very high. 13.75% had high attitude towards ICT; 41.25% of college teachers had low and 10.00% had very low attitude towards ICT. 10.0 % male teachers had very high attitude towards ICT; 16.5% males and 11.0% females had high attitude towards ICT; 25.5% males and 34.5% females had moderate attitude towards ICT; 42.00% males and 40.5% females had low attitude towards ICT; 6.0% males and 14.0 % females had very low attitude towards ICT. Hence the level of college teachers' attitude towards ICT was low.

Hypothesis 2 : The level of technology used by the college teachers' in the classroom is moderate.

Table 2 : Range of scores and percentage of college teachers under various categories of use of technology in the classroom.

S. No.	Description of Use of Technology in the Classroom	% of Ranges of Scores	No. of Teachers	% of Teachers	% of Males	% of Females
1.	Excellent	68-90	-	-	-	-
2.	Above Average	55-67	04	5.00	5.5	4.5
3.	Average	42-54	17	21.25	20.5	22.0
4.	Below Average	29-41	46	57.50	56.5	58.5
5.	Poor	16-28	13	16.25	17.5	15.0

The above table shows that 57.5% of the teachers were under below average category regarding the use of technology in the classroom whereas only 5.00% were above average and 21.25% were under average category regarding the use of technology in the classroom; 16.25% college teachers were under poor category regarding the use of technology in the classroom and no teachers under excellent category. 5.5% male and 4.5% female teachers were under above average category regarding the use of technology in the classroom; 20.5% males and 22.0% females were under average category regarding the use of technology in the classroom; 56.5% males and 58.5% females were under below average regarding the use of technology in the classroom; 17.5% males and 15.0 % females were under poor category regarding the use of technology in the classroom. Hence the level of technology used by the college teachers' in the classroom was below average.

Hypothesis 3 : There is no significant relationship between levels of college teachers' attitude towards ICT and Technology used in the classroom.

Table 3 : Correlation of College teachers' attitude towards ICT and Technology used in the classroom.

Variables			N	Mean	SD	Pearson Correlation	Remarks
Gender	Male	A	40	83.70	21.50	0.037	NS
		U		35.10	7.07		
	Female	A	40	71.78	17.08	0.196	NS
		U		36.89	7.79		
Stream	Arts	A	46	75.67	20.00	0.430	S
		U		36.02	8.66		
	Science	A	34	78.90	20.53	0.810	S
		U		35.67	6.09		
Desig nation	Associate Professor	A	32	78.05	16.79	0.211	NS
		U		36.07	8.12		
	Assistant Professor	A	48	77.54	7.90	0.071	NS
		U		35.54	7.34		
Attitude towards ICT				77.81	20.89	0.052	NS
Use of Technology in the classroom				35.99	7.02		

A - Attitude towards ICT U - Use of Technology in the classroom

*Significant at 1% level S- Significant NS – Not Significant

The table shows that there is no significant relationship between college teachers' attitude towards ICT and technology use in the classroom in case of male teachers and also in case of female teachers. Meanwhile in case of arts stream teachers and science stream teachers, there is significant positive relationship between college teachers' attitude towards ICT and technology use in the classroom and in case of Associate Professor and in case of Assistant Professor there is no significant relationship between college teachers' attitude towards ICT and technology use in the classroom.

In Toto there is no significant relationship between college teachers' attitude towards ICT and technology use in the classroom. Hence the formulated hypothesis is accepted.

Findings of the study

1. 30.00% of the teachers had moderate attitude towards ICT whereas only 5.00% had very high. 13.75% had high attitude towards ICT; 41.25% of college teachers had low and 10.00% had very low attitude towards ICT.
2. 57.5% of the teachers were under below average category regarding the use of technology in the classroom whereas only 5.00% were above average and 21.25% were under average category regarding the use of technology in the classroom; 16.25% college teachers were under poor category regarding the use of technology in the classroom and no teachers under excellent category.
3. There is no significant relationship between college teachers' attitude towards ICT and technology use in the classroom in case of male teachers.
4. There is no significant relationship between college teachers' attitude towards ICT and technology use in the classroom in case of female teachers.
5. There is significant relationship between college teachers' attitude towards ICT and techno logy use in the classroom in case of arts stream teachers.
6. There is significant relationship between college teachers' attitude towards ICT and technology use in the classroom in case of science stream teachers.
7. There is no significant relationship between college teachers' attitude towards ICT and technology use in the classroom in case of Associate Professor.

8. There is no significant relationship between college teachers' attitude towards ICT and technology use in the classroom in case of Assistant Professor.
9. There is no significant relationship between college teachers' attitude towards ICT and technology use in the classroom in general.

Recommendations of the study

1. Effective implementation of ICT in education requires commitment from the state government of India, administrators, teachers, parents, students and the community. That is all the stake holders and responsible authorities including teachers and other staff should be made to be aware of the importance of technology in developing student's learning and should strive to overcome the barriers which prevent the use of technology in classroom settings, so that the students can benefit effectively from this ICT.
2. Lack of resources within educational institutions is major hindrance to the implemen tation of ICT in a developing country like ours. The stakeholders and school authorities need to be provided with adequate facilities and resources for effective implementation of ICT.

Conclusion

The problem of the present study is college teachers' attitude towards ICT and levels of technology use in classrooms. The level of college teachers' attitude towards ICT and the technology used by the college teachers' in the classroom were found moderate. It was also found that there is no significant relationship between levels of college teachers' attitude towards ICT and Technology used in the classroom.

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> The function of education is to teach one to think intensively and to think critically. Intelligence plus character - that is the goal of true education.
>
> - Martin Luther King