ISSN 0973-6190

JERE

Journal of Educational Research and Extension

Peer Reviewed Quarterly Journal

Vol.59, No.3
July - September 2022

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

EDITORIAL BOARD

ISSN 0973-6190

VOL. 59 (3)

JULY - SEPTEMBER 2022

Peer Reviewed Quarterly Journal

JOURNAL OF EDUCATIONAL RESEARCH AND EXTENSION

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

Published by :

Sri Ramakrishna Mission Vidyalaya College of Education
(Autonomous), Coimbatore - 641 020
Phone No.: (+91) 80125 33915, Website: www.srkvcoe.org
E-mail: srkvcoejere@gmail.com

Printed at :

Ramakrishna Mission Vidyalaya Printing Press

CONTENTS

ISSN: 0973-6190

INFLUENCE OF ACHIEVEMENT MOTIVATION ON ACADEMIC PERFORMANCE IN MATHEMATICS AMONG HIGHER SECONDARY SCHOOL STUDENTS

1

Mrs. S. SRI DEVI
Assistant Professor in Mathematics
Avinasi Gounder Mariammal College of Education
Kollampalayam, Erode
Tamil Nadu - 638 002

INTRODUCTION

The issue of achievement motivation is still a relevant topic in psychology research. A social psychological perspective, which takes into account one's interactions in social relationships, reveals how these relationships assist in shaping the individual's achievement orientation. One may assume that achievement orientation of the student is not solely influenced by the teacher but is shaped by the overall classroom climate, including the student's social position in the class. Although there has been a great body of research concerning achievement motivation at school, in most cases, the studies focused on specific learning motivation, or on school performance, which is understood as a result of this motivation. At the moment, achievement motivation is a very topical issue owing to today's society's focus on success. For a long time, the dominant theories of achievement motivation were those postulated by McClelland, Atkinson and Heckhausen (Wigfield & Eccles, 2002), who understood achievement motivation as the resulting tendency of an emotional conflict between the motive of achieving success and the motive of avoiding failure.

According to Atkinson and Feather (1974) 'Achievement motive is conceived as a latest disposition which is manifested in overt striving only when the individual perceives performance as instrumental to a sense of personal accomplishment'. McClelland (1985) states achievement motivation as a physical satisfaction and feeling of personal mastery. Weiner (1986) in his achievement motivation and emotion theory states that achievement motivation deals with success and failure, causal thinking, and emotional thinking of achievement behaviour. Achievement motivation materializes student's ambition, increases attitudes towards taking difficult tasks, and increases their ability to resolve them. Achievement motivation maintains a sustainable desire for better achievement

at increasing rate. According to Colman (2001) achievement motivation is a self-determinant to academic success. Achievement motivation is considered as intrinsic motivation of a person and it concerned with work planning, pattern of actions and self-feeling to achieve success at the standard of excellence in education and all spears of life.

SIGNIFICANCE OF THE STUDY

Recent interest in higher secondary school students' level of achievement has led to greater examination of the predictors that facilitate such performances. Colleges and Universities have become more selective in students' admissions mainly examining school academic records (marks). The achievement of a person is very much related to the extent of motivation he or she has. Motivation as a factor of predicting achievement and found that motivation correlated more highly with achievement than did other factors. Need for Achievement is one of the psychological motives that play an important role in success and achievements of a man. Motivation as an academic engagement refers to "cognitive, emotional, and behavioral indicators of student investment in and attachment to education". People with high achievement motives will act in ways that will help them to outperform others, meet or surpass some standard of excellence, or do something unique. All students are influenced by a need to achieve to a certain degree. Those students, who hold a high desire of success, work hard to achieve and they have positive motive to achieve high grade. There is considerable evidence to support the contention that achievement motivation contributes to academic achievement. Hence this study is conducted to explore students' achievement motivation and its influence on academic performance in Mathematics subject.

REVIEW OF RELATED LITERATURE

Pretty Rani and Geetha Reddy (2019) studied achievement motivation of adolescent students of different academic streams and found that significant differences were found between the achievement motivation of sciences and arts stream students and achievement motivation among male and female college students. Chauhan Ajay (2018) found significant difference in achievement motivation between male and female students. The achievement motivation score of male students found to be higher as compared to the female students. The achievement motivation score of urban students found to be higher as compared to the rural students. The achievement motivation score of private school's students found to be higher as compared to the government school's students.

Sabina Kołodziej (2016) investigated the role of achievement motivation in educational aspirations and performance and concluded that achievement motivation is one of the important psychological predictors of graduates' academic success. Santha Kumari and

Chamundeswari (2015) found significant correlation between achievement motivation and academic performance of students. A significant difference is found between students in different categories of schools and gender pertaining to achievement motivation and academic achievement. Anitha and Umesh (2014) examined the achievement motivation among adolescent students in colleges of Trichirappalli and found that there is a significant difference existed between the groups in their level of achievement motivation based on their gender, locality and socio economic status.

Barnabas, Tobias and Solomon (2013) examined the relationship between self-esteem and achievement motivation among undergraduates in South Eastern Nigeria and it was concluded that self-esteem is positively related to achievement motivation among university undergraduates. The achievement motivation supported academic performance of the students. Kulwinder Singh (2011) stated that there is a positive relationship existed between achievement motivation and academic achievement among higher secondary schools. Sarawat Anil (2008) studied about achievement motivation, occupational aspiration and academic achievement of adolescents in different types of school climate in Aligarh District. It was found that male-female, rural-urban students, science-art students significantly differed in their academic achievement. The coefficient of correlation among achievement motivation, occupational aspiration and academic achievement were significant. Indrani (2005) explored the study of relationship between academic achievement and achievement motivation of IX class students of Bangalore city, and to locate high and low achiever among boys and girls. The major finding showed that significant high positive relationship existed between academic achievement and achievement motivation in IX standard boys and girls.

OBJECTIVES

- To find out the level of achievement motivation among higher secondary school students.
- To find out level of academic performance in Mathematics among higher secondary school students.
- To find out the significant difference in the level of achievement motivation among the students based on the demographic variables namely, Gender, Locality, Nature of School, Class and Medium of Study
- To find out the significant relationship between achievement motivation and academic performance in Mathematics among the students.

HYPOTHESES

The hypotheses of the present study are as follows.

- The level of achievement motivation is high among higher secondary school students.
- The level of academic performance in Mathematics is high among the students.

- There is no significant difference in the level of achievement motivation among the students based on the selected demographic variables.
- There is a significant relationship exists between achievement motivation and academic performance in Mathematics among the students.

METHODOLOGY

In the present study the investigator has selected Survey method which comes under the category of descriptive research to carry out the investigation. The independent variable is achievement motivation and dependent variable is academic performance in Mathematics. The population of the present study consisted of the higher secondary school students in government, government aided and private matriculation schools in Erode district. The sample of the study included 315 higher secondary school students and the sample is selected by using simple random sampling technique. In order to collect data, the investigator constructed an "Achievement Motivation Scale". The validity and reliability of the scale was established by using appropriate norms and the reliability value found from test- retest method was 0.76. The final form of Achievement Motivation Scale consisted of 40 items with four-point scale. For collection of data the researcher visited the schools and administered the tools among the sample. The annual examination marks obtained by the students in Mathematics were collected from the respective schools and considered as achievement scores. For the analysis of data, the investigator used Descriptive analysis (Mean, Standard Deviation), Differential analysis (t-test and ANOVA) and Correlation analysis.

ANALYSIS AND INTERPRETATION OF DATA

Hypothesis 1:

The level of achievement motivation is high among higher secondary school students.

Table 1 : Level of Achievement Motivation among the Students based on the Demographic Variables

Maximum Mean =160

Demographic Variable		Sample	Mean	SD
Gender	Male	177	97.65	9.56
	Female	138	101.15	8.26
Locality of Students	Rural	178	97.12	8.16
	Urban	137	101.87	9.72

Demographic Variable		Sample	Mean	SD
Nature of School	Government	159	96.82	9.15
	Govt. Aided	53	99.58	11.76
	Matriculation	103	102.28	10.09
Class	XI	175	96.19	8.38
	XII	140	102.18	10.09
Medium of Study	Tamil	212	97.98	9.31
	English	103	102.28	8.83
Overall		315	99.18	9.17
Overall Mean		99.18 out of 160		
In Percentage		99.18/160 x 100 =		61.98 %

The Table 1 showed the Mean and Standard Deviation values of higher secondary school students' achievement motivation based on their demographic variables. The overall mean value is 99.18 (61.98%) revealed that the higher secondary school students have moderate level of achievement motivation. Hence the hypothesis the level of achievement motivation is high among higher secondary school students is not accepted.

Hypothesis 2:

The level of academic performance in Mathematics is high among the students.

Table 2: Level of Academic Performance in Mathematics among the Students

Sample (N)	Mean	Standard Deviation	Standard Error
315	75.634	15.43	0.98

It is revealed from the Table 2 that the mean value of students' academic performance in Mathematics is 75.634 which is high. Hence the hypothesis the level of academic performance in Mathematics is high among the students is accepted.

Hypothesis 3:

There is no significant difference in the level of achievement motivation among the students based on the selected demographic variables.

Table 3: Mean Score Difference in Achievement Motivation of Students based on Demographic Variables

Demographic Variable		Sample	Mean	SD	t/F-Value
Gender	Male	177	97.65	9.56	3.48 S
	Female	138	101.15	8.26	

Demographic Variable		Sample	Mean	SD	t/F-Value
Locality of Students	Rural	178	97.12	8.16	4.60 S
	Urban	137	101.87	9.72	
Nature of School	Government	159	96.82	9.15	9.53 S
	Govt. Aided	53	99.58	11.76	
	Matriculation	103	102.28	10.09	
Class	XI	175	96.19	8.38	5.64 s
	XII	140	102.18	10.09	
Medium of Study	Tamil	212	97.98	9.31	3.98 S
	English	103	102.28	8.83	

S = Significant at 0.05 level.

The Table 3 showed the mean score difference in achievement motivation of students based on the demographic variables. Analysis based on students' gender showed that the mean value of male students is 97.65 and female students is 101.15. It showed that female students have higher level of achievement motivation than male students. The calculated t-value 3.48 is greater than the table value 1.96 at 0.05 level of significance. This implies that there is a significant difference existed between male and female students in their achievement motivation.

Analysis based on students' locality of residence stated that the mean value of rural students is 97.12 and urban students is 101.87. It showed that urban students have higher level of achievement motivation than rural students. The calculated t-value 4.60 is greater than the table value 1.96 at 0.05 level of significance. This implies that there is a significant difference existed between rural and urban students in their achievement motivation.

Analysis based on students' nature of school showed the mean value of government school students is 96.82, aided school students is 99.58 and matriculation school students is 102.28. It showed that matriculation school students have better level of achievement motivation followed by government aided and government school students. The calculated F-value 9.53 is greater than the table value at 0.05 level of significance. This implies that there is a significant difference existed in the achievement motivation of students based on their nature of school.

Analysis based on students' class disclosed that the mean value of students studying in class XI is 96.19 and the mean value of students studying in class XII is 102.18. It showed that students studying in class XII have higher level of achievement motivation than students in class XI. The calculated t-value 5.64 is greater than the table value at 0.05 level of significance. This implies that there is a significant difference existed in the

achievement motivation of students based on their class studying.

Analysis based on students' medium of study showed that the mean value of students studying in Tamil medium is 97.98 and English Medium is 102.28. It showed that students studying in English medium have higher level of achievement motivation than students studying in Tamil medium. The calculated t-value 3.98 is greater than the table value at 0.05 level of significance. This implies that there is a significant difference existed in the achievement motivation of students based on their medium of study.

Hence the null hypothesis, there is no significant difference in the level of achievement motivation among the students based on the selected demographic variables is not accepted.

CORRELATION ANALYSIS

Hypothesis 5:

There is a significant relationship exists between achievement motivation and academic performance in Mathematics among the students.

Table 4: Relationship between Achievement Motivation and Academic Performance

Independent Variable	Dependent Variable	'r'
Achievement Motivation	Academic Performance in Mathematics	0.335

The above Table 4 showed the relationship between Achievement Motivation and Academic Performance in Mathematics. The calculated r-value 0.335 stated that there is a significant positive correlation existed between the variables. Hence the hypothesis is accepted.

FINDINGS

- It is revealed from the descriptive analysis that the higher secondary school students have moderate level of achievement motivation.
- The academic performance in Mathematics among higher secondary school students is is high.
- The gender wise analysis showed that the female students have higher level of achievement motivation than male students. There is a significant difference existed between male and female students in their level of achievement motivation.
- Analysis based on locality of students showed that urban students have higher level of achievement motivation than rural students. There is a significant difference existed between rural and urban students in their achievement motivation.
- Analysis based on the nature of school showed that matriculation school students have better level of achievement motivation followed by

government aided and government school students. There is a significant difference existed in the achievement motivation of students based on their nature of school.

- Analysis based on the students' class of study showed that students studying in class XII have higher level of achievement motivation than students in class XI. There is a significant difference existed in the achievement motivation of students based on their class studying.
- Analysis based on the students' medium of study showed that students studying in English medium have higher level of achievement motivation than students studying in Tamil medium. There is a significant difference existed in the achievement motivation of students based on their medium of study.
- It is found from the correlation analysis that there is a significant positive correlation existed between the achievement motivation and academic performance in Mathematics among the higher secondary school students.

CONCLUSION

The study revealed that the higher secondary school students have moderate level of achievement motivation. It is also found that the academic performance in Mathematics among higher secondary school students is high. There were significant differences existed among the students' level of achievement motivation based on all the selected demographic variables. Though significant differences existed between the group of students, the differences can be eradicated by the teachers, parents and students by taking necessary remedial measures. Students' achievement motivation had positive relationship with the academic performance in Mathematics. From the findings of this study, the researchers hereby concluded that achievement motivation is one of the important components to almost every student to attain high academic performance. The positive achievement motivation leads to academic success not only in Mathematics but also in all the subjects.

REFERENCES

Anitha, P., & Umesh Samuel Jebaseelan. (2014). Study on achievement motivation among adolescent students in colleges of Trichirappalli. *IOSR Journal of Humanities and Social Science, 3,* 25-31.

Atkinson, J., & Feather, D. (1974). *Motivation and achievement*. Washington, D.C.: V.H. Winston and Sons.

Barnabas E. Nwankwo., Tobias Obi., & Solomon Agu. (2013). Relationship between self-esteem and achievement motivation among undergraduates in South Eastern Nigeria. *Journal of Humanities and Social Science, 13*(5), 102-106 .

Chauhan Ajay. (2018). An achievement motivation and academic anxiety of school going students. *International Journal of Psychology and Behavioral Science, 1* (4), 1-12.

Colman, A.M. (2001). *Dictionary of Psychology*. New York: Oxford University Press Inc.

Indrani, N. (2005). Relationship between academic achievement and achievement motivation of IX class students of Bangalore city. *Journal of Educational Studies, 4*, 32-37.

Kulwinder Singh. (2011). Study of achievement motivation in relation to academic achievement of students. *International Journal of Educational Planning & Administration, 1*, 161-171.

McClelland, D. C. (1985). *Human motivation*. Chicago:Scott Foresman.

McClelland, D.C., & Winter, D.G. (1969). *Motivating economic achievement*. New York: Free Press.

Pretty Rani., & Geetha Reddy. (2019). A study on achievement motivation of adolescent students of different academic streams. Retrieved from http://www.ijcmas.com.

Sabina Kołodziej.(2016). The role of achievement motivation in educational aspirations and performance. General and professional education. Ph.D Thesis, Kozminski University, Poland

Santha Kumari, V. R., & Chamundeswari, S. (2015). Achievement motivation, study habits and academic achievement of students at the secondary level. *International Journal of Emerging Research in Management &Technology, 4* (10), 7-14.

Saraswat, Anil. (2008). A differential study of achievement motivation, occupational aspiration and academic achievement of adolescents in different types of school climate in Aligarh District. Retrieved from www.eric.com.

Weiner, B. (1986). *An Attributional Theory of Motivation and Emotion*. New York: Springer-Verlag.

Wigfield, A., & Eccles, K. (2004). *Educational psychology*. Boston, MA: Allyn & Bacon.

ISSN: 0973-6190

PREVALENCE OF DEPRESSION, ANXIETY AND STRESS AMONG UNDERGRADUATE STUDENTS OF PUNJAB

2

Dr. HARPAL KAUR AUJLA
Associate Professor
Akal College of Education
Mastuana Sahib
Sangrur
Punjab - 148 001

INTRODUCTION

Mental health among undergraduate students is an important public health concern in research. The COVID-19 pandemic contributed a significant role in affecting public mental health with more severity. People faced unexpected and distressing situations. Restrictions imposed by governments increased feelings of loneliness, depression and anxiety. Millions of people, including students have experienced the feelings of loneliness, anxiety, stress and depression due to Covid-19. Depression is extremely dominant and widespread problem across the world and it is predicted to be the leading cause of disease burden by 2030. Undergraduate students have a higher prevalence of loneliness than other age groups as they are more socially isolated in the present scenario of virtual technology. They prefer to sit alone with their phones using social media and of course, loneliness ultimately leads them at risk of depression, anxiety and stress. Students with depression, anxiety and stress cannot cope with academic difficulties and academic stress. So as more and more undergraduate students are found to be having higher incidence of loneliness, depression, stress and anxiety, the current study aimed to evaluate the prevalence of loneliness, depression, anxiety and stress among undergraduate students of Punjab. Islam et al. (2020) investigated the prevalence of depression and anxiety among Bangladeshi university students during the COVID-19 pandemic and the determinants of depression and anxiety. A total of 476 university students living in Bangladesh participated in this cross-sectional web-based survey. A standardized e-questionnaire was generated using the Google Form, and the link was shared through social media—Facebook. Results showed that students were experiencing heightened depression and anxiety. Around 15% of the students reportedly had moderately severe depression, whereas 18.1% were

severely suffering from anxiety. Salari et al (2020) aimed to analyse the existing research works and findings in relation to the prevalence of stress, anxiety and depression in the general population during the COVID-19 pandemic. The prevalence of stress in 5 studies with a total sample size of 9074 is obtained as 29.6% (95% confidence limit: 24.3–35.4), the prevalence of anxiety in 17 studies with a sample size of 63,439 as 31.9% (95% confidence interval: 27.5–36.7), and the prevalence of depression in 14 studies with a sample size of 44,531 people as 33.7% (95% confidence interval: 27.5–40.6). Verma and Mishra (2020) conducted a study to find the prevalence rates of depression, anxiety and stress and their socio-demographic correlates among Indian population during the lockdown to contain the spread of COVID-19. A cross-sectional survey was conducted using an electronic questionnaire. A total of 354 participants were recruited through convenience sampling. Depression, anxiety and stress were measured using Depression Anxiety Stress Scale (DASS-21), a 21-item self-reported questionnaire of each variable. Results indicated that in total, 25%, 28% and 11.6% of the participants were moderate to extremely severely depressed, anxious and stressed, respectively.

OBJECTIVES

- To find out the prevalence of depression among undergraduate students.
- To find out the prevalence of anxiety among undergraduate students.
- To find out the prevalence of stress among undergraduate students.

HYPOTHESES

- The level of depression among undergraduate students is moderate.
- The level of anxiety among undergraduate students is moderate
- The level of stress among undergraduate students is moderate.

METHODOLOGY

Methodology occupies an important place in any kind of research work. It refers to the design through which validity of result is to be established. It is pointed out that the success of any research largely depends on the suitability of the techniques used to collect reliable and valid data. Research methodology is a way for solving the research problem systematically. The present study is carried out by using descriptive survey method. The main variables of the study are depression, anxiety and stress, and the population of the study included all the undergraduate students studying in various college of affiliated to Punjab University. The sample of the study included 200 students who were studying randomly B.A. and B.Sc. First year selected from the colleges affiliated to Punjabi University, Sangrur, Patiala and Barnala districts of Punjab. The adapted version tools prepared by Lovibond, S.H., and Lovibond, P.F. (1995) were administered among the sample using

Google forms and data were collected. Validity and reliability of the tools were establish using standardised procedure. Percentage analysis was used to check the level of depression, anxiety and stress among undergraduate students.

ANALYSIS AND INTERPRETATIONS OF DATA

Table 1: Level of Depression, Anxiety and Stress among Undergraduate Students

Level	Depression	Anxiety	Stress
Normal	37(18.5%)	33 (16.5%)	129 (64.5%)
Mild	72 (36%)	11 (5.5%)	20 (10%)
Moderate	48 (24%)	111 (55.5%)	16 (8%)
Severe	14 (7%)	9 (4.5%)	24 (12%)
Extremely severe	29 (14.5%)	36 (18%)	11 (5.5%)
Mean (Max =21)	15.36	14.81	15.31

The Table 1 revealed that in terms of depression, it is found that mean of scores of depression among undergraduate students is found to be 15.36 which showed that the selected sample has moderate level of depression. In terms of anxiety, mean of scores of anxiety among the students is 14.81 which showed that selected sample is on border line of moderate and severe level of anxiety. In terms of stress, mean of scores of stress of undergraduate students is 15.31 which showed that the students on the whole has moderate level in prevalence of stress.

Figure 1 : Level of Depression

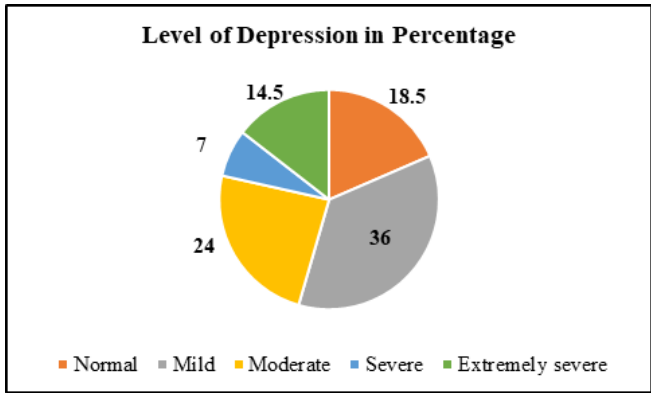
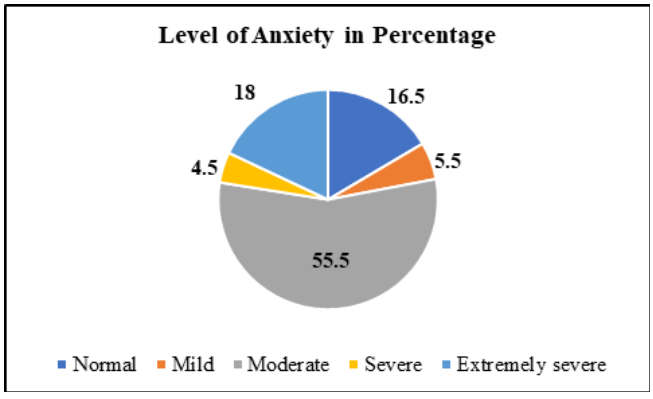


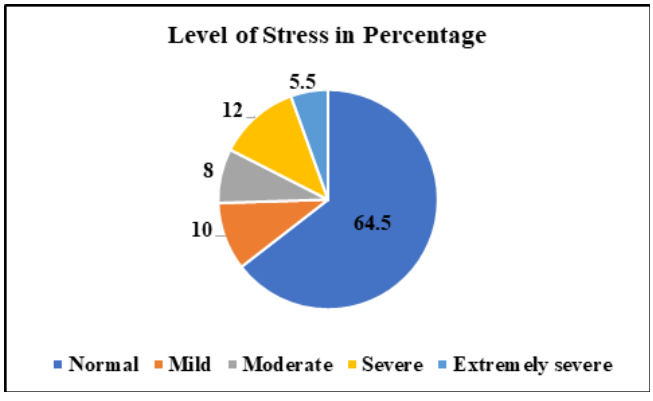
Figure 1 revealed percentage level depression among the sample. It showed that 18.5% undergraduate students have normal level of depression and 36% students have mild level of depression. 24% of students have moderate level of depression and 7% students have severe level of depression where as 14.5 % students have extremely severe level of depression.

Figure 2 : Level of Anxiety



The figure 2 showed that vast majority (55.5%) of the respondents have moderate level of anxiety 18% of the respondents have extremely severe level of anxiety and 4.5 % students have severe level of anxiety. Only 16.5 % of students have normal level of anxiety.

Figure 3: Level of Stress



The figure 3 revealed that a majority (64.5%) of the respondents have normal level of stress. 12% of students have severe level of stress and 5.5% students have extremely severe level of stress. 10% of students have mild prevalence of stress and only 8% of students have moderate level of stress.

FINDINGS

In terms of depression, it is found that the mean of scores of depression among undergraduate students is found to be 15.36 which showed that the selected sample has moderate level of depression. Out of 200 sample only 18.5 % students have normal level of depression and 36% students have mild level of depression. 24% of students have moderate level of

depression and 7% students have severe level of depression where as 14.5 % students have extremely severe level of depression.

In terms of anxiety, the mean of scores of anxiety among students is 14.81 which showed that selected sample is on border line of moderate and severe level of anxiety. The vast majority (55.5%) of the respondents have moderate level of anxiety and 18% of the respondents have extremely severe level of anxiety and 4.5% students have severe level of anxiety. Only 16.5% of students have normal level of anxiety.

In terms of stress, the mean scores of stress among the students is 15.31 which showed that undergraduate students had mild prevalence of stress. Out of 200 students a significant vast majority (64.5%) of the respondents have normal level of stress. 12% students have severe level of stress and 5.5% students have extremely severe level of stress. 10% of students have mild prevalence of stress and only 8% of students have moderate level of stress.

CONCLUSION

The study revealed that the students' depression, anxiety and stress were prevalent and moderate among undergraduate students. In order to reduce their depression, anxiety and stress guidance and counselling session would be arranged by the respective departments and colleges. The concerned departments and colleges may organise workshops on mental health and mental hygiene and overcoming depression, anxiety and stress. They must be taught to strengthen their relations with others like family members, friends and teachers. Colleges authorities should arrange various academic and nonacademic programmes to overcome these traits and enhance their mental health.

REFERENCES

Islam, M. A., Barna, S.D., Raihan, H., Khan, M.N.A., & Hossain, M.T. (2020). Depression and anxiety among university students during the COVID-19 pandemic in Bangladesh: A web-based cross-sectional survey. PLOS ONE 15(8): e0238162. Retrieved from https://doi.org/10.1371/journal.pone.0238162

Lovibond, S.H., & Lovibond, P.F. (1995). *Manual for the Depression Anxiety and Stress Scales.* (2nd Ed.) Sydney: Psychology Foundation.

Salari, N., Hosseinian-Far, A., Jalali, R. (2020). Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: a systematic review and meta-analysis. *Global Health, 16*, 57-62 (2020). Retrieved from https://doi.org/10.1186/s12992-020-00589.

Verma, S., & Mishra, A. (2020). Depression, anxiety, and stress and socio-demographic correlates among general Indian public during COVID-19. *International Journal of Social Psychiatry*, *66*(8), 756-762.

ISSN: 0973-6190

A CROSS SECTIONAL STUDY ON ENVIRONMENTAL CONSERVATION AWARENESS AMONG B.ED STUDENT TEACHERS

3

Dr. K. KARTHIGEYAN
Assistant Professor of Education
Sri Ramakrishna Mission Vidyalaya
College of Education (Autonomous)
Coimbatore, Tamil Nadu – 641 020

INTRODUCTION

In today's era of globalization, we are faced with a lot of societal upheavals including dilemmas pertaining to the environment. Rogayan (2019) reiterated that the earth is now suffering from innumerable afflictions at present caused by egregious human activities that relentlessly denuding the environment. The challenge for everybody is to take the wheel of action and move towards a common cause in preserving life on earth. The growing concern with environmental issues and their impact on general awareness is one of the most noticeable phenomena of the last two decades (Sivamoorthy, Nalini & Satheesh Kumar, 2013). The rapid depletion of the earth's natural resources and the fast degrading environment are the realities which can no longer be denied. These are the grave scenarios that threaten the existence of both man and the earth (Marpa & Juele, 2016).

The Education for Sustainable Development of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) reiterates that education is an indispensable tool towards sustainable development. Environmental education is a process aimed at developing a world population that is aware of and concerned about the total environment and its associated problems and which has the knowledge, attitudes, commitments and skills to work individually and collectively towards the solution of current problems and prevention of new ones (Puri & Joshi, 2017).

People's awareness has been recognized as a powerful tool in environmental sphere. Information through education has an important impact to alter behaviour (Gonzaga, 2017). Several studies have been conducted to gauge the environmental awareness and practices of students in various levels. Many studies have focused

mainly on the environmental awareness and practices of college students (Sivamoorthy, Nalini & Satheesh Kumar, 2013; Sharma, 2016), tertiary students' environmental awareness in relation to their stream of study and their area of residence (Singh, 2015), college students' level of awareness, attitude and participation in environmental activities (Bhat et al., 2016), intrinsic and extrinsic motivation of tertiary students and their ecological awareness and practice (Milos & Cicek, 2014), the level of environmental awareness and practices on recycling of solid waste of college students (Omran, Bah & Baharuddin, 2017) and the high school students' environmental risk perceptions and environmental awareness levels (Anilan, 2014).

While almost all the previous studies conducted are focused only in describing the extent of environmental awareness and practices of the students, the present study looked into the environmental conservation awareness of B.Ed. student teachers.

STATEMENT OF THE PROBLEM

Environment constitutes a very important part of our life. To understand life without studying the impact of environment is simply impossible. The need to protect environment can be ignored only at our peril. Nature conservation must become a people's movement. To achieve this purpose, environmental knowledge or education is essential among the public. Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and appreciate interrelatedness among human beings, their culture, and their biophysical surroundings. Environmental education also contains practice in decision-making and self-formulating a code of behaviour about issues, concerning environmental quality. Today, environment has become an issue of survival. This land will be ours, as long as the grass grows and the water flows. According to Mahatma Gandhi, "A society can be judged by the way it treats its environment" (1998). Environmental consciousness is not a new concept for our society, which is evident from the accounts of rulers, custodians, visitors, rock and pillar edicts, etc. It is the prime duty of all the human beings to protect the natural environment with the objective to conserve the natural resources and the existing natural environment. Since environment played significant role in human life it is necessary to identify the awareness of environmental education, environmental conservation and management among the student teachers. Since they are the prospective teachers they can inculcate the attitude of students towards conservation of environment and natural resources.

SIGNIFICANCE OF THE STUDY

Environment education is a life-long process that encourages people to explore, raise questions, investigate issues and seek solutions regarding environmental and related social problems. It is universally accepted that environmental education

should be interdisciplinary. Regarding environmental education and preserving the environment from pollution and manmade disasters, students and teachers and all the human beings should have some environmental awareness. By conducting this study, student teachers may develop their positive attitude towards environmental protection. They may teach and inculcate their students regarding environment, protection of natural resources and avoiding global warming and other hazards. This study will help to foster clear awareness and concern about economic, social, political and ecological interdependence among the student teachers. It will provide the student teachers with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment. It will assist them to create new patterns of behaviour of individual groups and society as a whole towards the conservation of environment.

OBJECTIVES

- To find out the level of environmental conservation awareness among B.Ed student teachers.
- To find out the significant difference in the level of environmental conservation awareness among B.Ed student teachers based on their gender, locality, educational status, stream of study, year of study and age.

HYPOTHESES

- The level of environmental conservation awareness is high among B.Ed Student Teachers.
- There is no significant difference in the level of environmental conservation awareness among B.Ed student teachers based on their gender, locality, educational status, stream of study, year of study and age.

METHODOLOGY

Research methodology is a way to systematically solve the search problem. It may be understood as a science of studying how research is done scientifically with appropriate method. All those methods which are used by the researcher during the course of studying the research problem are termed as research methods. In this study Survey Method has used to collect the data from target group. The variables used in this study are classified into main variable and demographic variables. The main variable of the study is Awareness of Environmental Conservation and the demographic variables includes gender, locality, educational qualification, stream of study, year of study and age.

The population of the present study consisted of all the B.Ed student teachers studying B.Ed course in teacher education institutions in Dharmapuri district and the sample consisted of 320 B.Ed., student teachers selected by using simple random sampling technique. In order to collect data from the sample, the researcher

has constructed an Environmental Conservation Awareness Questionnaire and established the standardisation norms. The questionnaire was administered among the sample and data were collected. For the analysis of data, the investigator has used Descriptive analysis (Mean, Standard Deviation) and Differential analysis (t-test,).

DESCRIPTIVE ANALYSIS OF THE DATA

Hypothesis 1:

The level of environmental conservation awareness is high among B.Ed Student Teachers.

Table 1: Level of Environmental Conservation Awareness among B.Ed Student Teachers

Maximum Score: 200

Demographic Variable		Number of Sample (N)	Mean	SD
Gender	Male	72	159.37	10.91
	Female	248	163.75	10.29
Locality	Rural	192	161.99	11.12
	Urban	128	162.97	10.96
Educational Status	UG	238	160.72	12.48
	PG	82	163.77	10.08
Stream of Study	Arts	204	161.88	10.95
	Science	116	163.28	10.38
Year of Study	First	188	160.74	09.47
	Second	132	164.35	11.88
Age	Below 30	245	162.66	10.85
	Above 30	75	161.76	11.28
Overall		320	162.56 (81.28%)	10.52

The Table 1 showed the Mean and Standard Deviation values that revealed the level of environmental conservation awareness among B.Ed student teachers. The overall mean value 162.56 (81.28%) revealed that the B.Ed student teachers had high level of environmental conservation awareness. It determines that B.Ed student teachers have more concern and positive view on conservation of natural environment. Hence the hypothesis is accepted.

DIFFERENTIAL ANALYSIS OF THE DATA

Hypothesis 2:

There is no significant difference in the level of environmental conservation awareness among B.Ed student teachers based on their gender.

Table 2 : Differences in Level of Environmental Conservation Awareness among B.Ed Student Teachers based on their Gender

Demographic Variable		Sample	Mean	SD	t-value	Remark
Gender	Male	72	159.37	10.91	3.04	S
	Female	248	163.75	10.29		

S = Significant at 0.05 level

It is revealed from the Table 2 that the mean value of male B.Ed student teachers is 159.37 and female B.Ed student teachers is 163.75. The mean score differences revealed that female student teachers had more favourable and higher level of environmental conservation awareness than their male counterparts. Since the calculated t-value 3.04 is greater than the tabulated value 1.96 at 0.05 level of significance, it is stated that there is a significant difference existed in the level of environmental conservation awareness among B.Ed student teachers based on their gender. Hence the null hypothesis is not accepted.

Hypothesis 3:

There is no significant difference in the level of environmental conservation awareness among B.Ed student teachers based on their locality.

Table 3: Differences in Level of Environmental Conservation Awareness among B.Ed Student Teachers based on their Locality

Demographic Variable		Sample	Mean	SD	t-value	Remark
Locality	Rural	192	161.99	11.12	0.78	NS
	Urban	128	162.97	10.96		

NS = Not Significant at 0.05 level

The above Table 4 showed that the mean value of rural B.Ed student teachers is 161.99 and urban student teachers is 162.97. Since the calculated t-value 0.78 is lesser than the tabulated value 1.96 at 0.05 level of significance, it is stated that there is no significant difference existed in the level of environmental conservation awareness among B.Ed student teachers based on their locality. Hence the null hypothesis is accepted.

Hypothesis 4:

There is no significant difference in the level of environmental conservation awareness among B.Ed student teachers based on their educational status.

Table 4: Differences in Level of Environmental Conservation Awareness among B.Ed Student Teachers based on their Educational Status

Demographic Variable		Sample	Mean	SD	t-value	Remark
Educational Status	Under Graduation	238	160.72	12.48	2.23	S
	Post Graduation	82	163.77	10.08		

S = Significant at 0.05 level

It is revealed from the Table 4 that the mean value of student teachers having under graduation degree is 160.72 and post-graduation degree is 163.77. The mean score difference stated that student teachers completed post-graduation had more favourable and higher level of environmental conservation awareness than their student teachers having under graduation. Since the calculated t-value 2.23 is greater than the tabulated value 1.96 at 0.05 level of significance, it is stated that there is a significant difference existed in the level of environmental conservation awareness among B.Ed student teachers based on their educational status. Hence the null hypothesis is not accepted.

Hypothesis 5:

There is no significant difference in the level of environmental conservation awareness among B.Ed student teachers based on their stream of study.

Table 5: Differences in Level of environmental conservation awareness among B.Ed Student Teachers based on their Stream of Study

Demographic Variable		Sample	Mean	SD	t-value	Remark
Stream of Study	Arts	204	161.88	10.95	1.14	NS
	Science	116	163.28	10.38		

NS = Not Significant at 0.05 level

The above Table 5 showed that mean score difference in the level of environmental conservation awareness between B.Ed student teachers studying in Arts stream and Science stream. The mean value of student teachers in arts stream is 161.88 and science stream is 163.28. Since the calculated t-value 1.14 is lesser than the tabulated value 1.96 at 0.05 level of significance, it is stated that there is no significant difference existed in the level of environmental conservation awareness among B.Ed student teachers based on their stream of study. Hence the null hypothesis is accepted.

Hypothesis 6:

There is no significant difference in the level of environmental conservation awareness among B.Ed student teachers based on their year of study.

Table 6: Differences in Level of Environmental Conservation Awareness among B.Ed Student Teachers based on their Year of Study

Demographic Variable		Sample	Mean	SD	t-value	Remark
Year of Study	First	188	160.74	09.47	2.90	S
	Second	132	164.35	11.88		

S = Significant at 0.05 level

The above Table 6 showed that the mean value of student teachers studying in first year is 160.74 and student teachers studying in second year is 164.35. The mean score difference showed that student teachers studying in second year had more favourable and higher level of environmental conservation awareness than first year students. Since the calculated t-value 2.90 is greater than the tabulated value 1.96 at 0.05 level of significance, it is stated that there is a significant difference existed in the level of environmental conservation awareness among B.Ed student teachers based on their year of study. Hence the null hypothesis is not accepted.

Hypothesis 7:

There is no significant difference in the level of environmental conservation awareness among B.Ed student teachers based on their age.

Table 7: Differences in Level of Environmental Conservation Awareness among B.Ed Student Teachers based on their Age

Demographic Variable		Sample	Mean	SD	t-value	Remark
Age Group	Below 30	245	162.66	10.85	0.61	NS
	Above 30	75	161.76	11.28		

NS = Not Significant at 0.05 level

The above Table 7 showed that mean score difference in the level of environmental conservation awareness among the B.Ed student teachers based on their age group. The mean value of student teachers with below 30 years of age group is 162.66 and above 30 years of age group is 161.76. Since the calculated t-value 0.61 is lesser than the tabulated value 1.96 at 0.05 level of significance, it is stated that there is no significant difference existed in the level of environmental conservation awareness among B.Ed student teachers based on their age group. Hence the null hypothesis is accepted.

FINDINGS AND DISCUSSIONS OF THE STUDY

The findings from the results revealed that B.Ed student teachers have high level of environmental conservation awareness and it determined that they have more concern and positive view on conservation of natural environment.

- Result based on the gender wise analyses stated that there is a significant difference existed in the level of environmental conservation awareness among B.Ed student teachers based on their gender. The mean score differences revealed that female student teachers had more favourable and higher level of environmental conservation awareness than their male counterparts.
- Result based on the locality wise analyses stated that there is no significant difference existed in the level of environmental conservation among B.Ed Student teachers based on their locality. Both the rural and student teachers had high level of environmental conservation awareness and concerns.
- Result based on the educational status of student teachers stated that there is a significant difference existed in the level of environmental conservation awareness among B.Ed Student teachers. The mean score difference stated that student teachers completed post-graduation had more favourable and higher level of environmental conservation awareness than student teachers having under graduation.
- It is revealed from the result that there is no significant difference existed in the level of environmental conservation awareness among B.Ed student teachers based on their stream of study. The mean value of student teachers in science stream had higher level of awareness than arts stream student teachers.
- It is disclosed from the result that there is a significant difference existed in the level of environmental conservation awareness among B.Ed student teachers based on their year of study. The mean score difference showed that student teachers studying in second year had more favourable and higher level of environmental conservation awareness than their first year students.
- The result from the analysis based on student teachers' age group showed that there is no significant difference existed in the level of environmental conservation awareness among B.Ed student teachers.

The results clearly stated that some of the factors like gender, educational qualifications and year of study had an effect on the mean score differences in environmental conservation awareness among the student teachers. On the other hand, locality of students, stream of study and age had no effect on mean score differences in environmental conservation awareness.

Based on the findings it is recommended that teachers, parents and educators should create awareness among their children regarding environmental education, conservation of environment and natural resources from the grass root level irrespective of their demographic background. It is their duty to enhance the positive attitude towards conservation of environment.

CONCLUSION

The study revealed that B.Ed Student teachers have higher level of environmental conservation awareness. Though there are differences existed between the groups in their level of environmental awareness, it can be eradicated by conducting awareness programmes on environmental protection, environment management and various issues related to conserve the natural environment irrespective of the demographic background of the student teachers. Since B.Ed Student teachers are going to be the teachers in near future they should have positive attitude towards environmental conservation and they should teach environmental education among their students.

REFERENCES

Anilan, B. (2014). A study of the environmental risk perceptions and environmental awareness levels of high school students. *Asia-Pacific Forum on Science Learning and Teaching, 15* (2), 1-23.

Bhat, B.A., Balkhi, M.H., Ashraf Wani, M., Nusrat, Tiku, A., Ganai, B.A. & Sidiq, T. (2016). Environmental awareness among college students of Kashmir valley in the state of Jammu and Kashmir and their attitude towards environmental education. *International Journal of Innovative Research and Review, 4*(2), 20-25.

Danilo, V. Rogayan JR., & Eveyen Elyonna D. Nebrida. (2019). Environmental awareness and practices of science students: Input for ecological management plan. *International Electronic Journal of Environmental Education, 9* (2), 106-119.

Department of Environment and Natural Resources, (2016). June is Environment Month. Retrieved from https://goo.gl/dVReE6.

Garcia, E.C., & Luansing, B. (2016). Environmental awareness among select graduating college students in Region IV-A. *LPU-Laguna Journal of Multidisciplinary Research, 5*(1), 1-10.

Gonzaga, M.L. (2017). Awareness and practices in green technology of college students. *Applied Mechanics and Materials, 848*, 223-227. doi:10.4028/www.scientific.net/AMM.848.223.

Marpa, E. P., & Juele, M.H.R. (2016). Environmental awareness and practices among high school students: Basis for disaster preparedness program. *Applied Mechanics and Materials, 848,* 240-243.

Milos, D., & Cicek, F. (2014). Findings on motivation and the environmental awareness and practice of future engineers in Zagreb. *Interdisciplinary Description of Complex Systems 12*(2), 119-136.

Omran, A., Bah, M., & Baharuddin, A.H. (2017). Investigating the level of environmental awareness and practices on recycling of solid wastes at university's campus in Malaysia. *Journal of Environmental Management and Tourism, 8*(3), 554-566. DOI:10.14505/jemt.v8.3(19).06

Puri K., & Joshi R. (2017). Ecoclubs: An effective tool to educate students on biodiversity conservation. *Biodiversity International Journal, 1*(5):50–52.

Rogayan, D.V. (2019). I heart nature: Perspectives of University students on environmental stewardship. *International Journal of Engineering, Science and Technology, 1*(1), 10-16.

Sharma, H.K. (2016). Environmental awareness and practices in Bulandshahr. *Imperial Journal of Interdisciplinary Research, 2*(11), 1922-1926.

Singh, R. (2015). Environmental awareness among undergraduate students in relation to their stream of study and area of residence. *Scholarly Research Journal for Interdisciplinary Studies, 4*(26), 2830-2845.

Sivamoorthy, M., Nalini, R. & Satheesh Kumar, C. (2013). Environmental awareness and practices among college students. *International Journal of Humanities and Social Science Invention, 2*(8), 11-15.

ISSN: 0973-6190

IMPROVING STUDENTS LEARNING THROUGH MATHEMATICAL APTITUDES AND MATHEMATICAL INTEREST

4

V. MANIKANDAN
Research Scholar
Department of Education
Annamalai University
Chidambaram
Tamil Nadu - 608 002

Dr. V. AMBEDKAR
Professor and Head
Department of Education
Annamalai University
Chidambaram
Tamil Nadu - 608 002

INTRODUCTION

"Aptitude" got its origin from "Aptos" which means fitted for; aptitude is the sum of capacity and interest. Aptitude is the aptness or quickness to succeed in a specific field of activity. It is a present condition that indicative of individual's potentialities for future. It refers to potential capacity in a narrow area. An aptitude is an innate or learned or developed component to do a certain kind of work at a certain level. Aptitudes may be physical or mental (Crow & Crow, 1963). The ability to learn, a broad term with a wide variety meaning aptitude may be genetic or acquired or both. Because of the developmental nature of various acquired aptitude, they may change radically from year to year. Aptitude may be general or specific, mental or physical, scholastic or vocational and may or may or may not reflect intelligence or accurately predict future performance. (Dabir & Pandit, 1988). Aptitude, which reflects a student's ability to perform in school, is made up a wide variety of specific component such as mathematical, verbal comprehension, verbal expression, language, abstract reasoning, numerical and science information. Mathematical Aptitude is, traditionally, described as a set of characteristics that relate to an individual's ability to acquire knowledge or skills, individual differences that are related to subsequent learning during a fixed time frame, aptitude is another name for potential or ability.

MATHEMATICAL APTITUDE AND MATHEMATICAL INTEREST

Mathematical Aptitude and Mathematical Interest are often thought of as being equal but these are different concepts. Interest cannot be measured directly but it related to general intelligence and aptitude and is determined by social environment and activities of an individual. Mathematical Interest is not as consistent as an aptitude.

Aptitude and interests are essential. Next are values. Personality encompasses some of Mathematical interest and values. So, Mathematical aptitude and interest have relation and have effect on each other. Both Mathematical Aptitude and Mathematical Interest are helpful in future educational and career decisions but are different terms (Siam, 2014). In term future education or career, no one can neglect the importance of Science. Science helps students to apply varied set of skills. Mathematical Interest is the feeling that prompts us to spontaneous activity. Once interests are aroused in studies, games, literature and good conduct, the child will consider no sacrifice and effort too great to attain proficiency. Interests are something within the child. It is to be aroused and promoted by different means (Bingham, 1998).

CHARACTERISTICS OF MATHEMATIC APTITUDE

- Aptitude is a symptomatic of both inborn capacities and developed abilities and skills etc.
- An aptitude is not a unitary trait of human personality for example: aptitude for Science involves basic intellectual qualities like logical learning, arithmetical reasoning, temperamental qualities like interest in experimentation and initiative for invention, personality characteristic like persistence and hard work.
- An aptitude is symptomatic or indicative of one's ability for particular work or job. This ability means fitness, suitability and similar other things.
- An understanding of one's aptitude helps us to know what he can do in the future.
- Training honest the innate capacity of a person. At the time of birth, a particular aptitude is present and later on it is trained through education.
- Aptitude stabilizes in the early years of life but there is no specific time of demarcation after which there is no effect on the formation of aptitudes. Generally, it is considered that aptitudes are formed up to puberty.

SCHOLASTIC APTITUDE

This type of aptitude can be used to predict performance in academic situations. They differ from general intelligence primarily by having a more limited focus, concerning academic performance. However, both general intelligence and multiple aptitudes tests predict academic success and as basic intellectual skills are important determiners of success in most educational settings. It would be surprising if the contents of scholastic tests differed markedly from that of general intelligence and multiple aptitudes tests. Yet because of their distinctive features scholastic tests can be considered as a category of their own like,

- Scientific Aptitude
- Engineering Aptitude

- Medical Aptitude
- Commercial Aptitude
- Sports Aptitude
- Linguistic Aptitude

The concept of aptitude is much broader, covering vocational and occupational aptitudes. Certainly, intellectual aptitudes, such as verbal and numerical reasoning are important determiners of vocational success, especially in the professions and occupation requiring extensive academic preparation. Yet there is another class of aptitude measure, which focuses on vocational skills and emphasis prediction of vocational rather than academic criteria. In this way any reasonable guidance and counselling programme or the entrance examination to specialized, academic and professional courses or the selection procedure for specialized jobs is required to give a proper weight age to Mathematics Aptitude testing. Mathematics Aptitude testing, when combined with the other information received through Interest Inventory, Personality tests, Intelligence tests and cumulative record etc. can greatly help in avoiding the huge wastage of human as well as material resources by placing the individuals to their proper places and lines of work. Mathematics Aptitude tests measure ability to succeed in a particular kind of training. Scholastic aptitude tests measure ability to succeed in college or school. Vocational aptitude tests measure the likely hood of success in vocational training or in an occupation (Dabir & Pandit,1988). For constructing Mathematics aptitude test in music, for e.g., one has to consider the factors, which enter into good musical performance, like, ability to recollect between differences in pitch, rhythm, pattern, intensity, etc. In most walks of life, past performance is the best predictor of future performance in the same realm of activity.

DIMENSIONS OF TEACHING MATHEMATICAL APTITUDE

- **Enthusiasm towards Understudies:** Under studies wellbeing and sustenance, preschool encounter, period of section into school, bolster from guardians and kin, financial status, and home dialect factor impacts the fitness of an instructor.
- **Social Contacts:** It incorporates keeping up great social association with partners, dynamic support in social and social exercises taking part enthusiastically in heath programs, instructing individuals about wellbeing and cleanliness and so forth.
- **Advancements:** Regarding Activities of the school an educator's fitness is how much the destinations are accomplished and the degree to instruct in the correct route by applying their scholarly status, industriousness, inventiveness, and capacity to apply information and work beneficially with other matters being acquainted with up-and-coming education and so forth.
- **Proficient Ethics:** Proficient qualities of an instructor are polished

methodology, certainty and regard for other people. An educator having investigative capacity to think intelligently and the constant vitality for setting addressing difficulties with arranging and prompting set clear desires and parameters and to consider other responsible for execution.

- **Showing Potentials and Current Information:** It alludes to classroom showing procedures, choice of appropriate instructing strategies to suit singular contrast, reception of kid focused methodology, organizing bunch actuates, show systems and so on. (Mulugeta Atnafu, 2014).

Estimating Mathematics Aptitude test attempts to anticipate the limits or the level of accomplishment that might be normal from people in a specific field. Fitness tests measure and portray uncommon capacities, limits or abilities which should decide their activity that produce great outcomes. Assessing Mathematics Aptitude test attempts to anticipate the limits or the level of accomplishment that might be normal from people in a specific field. Interest is a content-specific concept. It is always related to specific topics, tasks or activities. Interest is a directive force. It is able to explain students' choice of an area in which they strive for high levels of performance or exhibit intrinsic motivation. Mathematical Interest plays an important role as an explanatory factor in the subjective theories of teachers and educators (Aggarwal, 1980). Mathematical Interest consists of valences attached to a topic or activity. It may be either enduring or short lived, and either general or specific. Mathematical Interest is not a personality trait like other motives of behaviour. The use of specific cognitive factors, such as prior knowledge or domain-specific learning strategies, should be supplemented by the inclusion of equally specific motivational factors. Subject-matter-specific interest is probably more amenable to instructional influence than are general motives or motivational orientations.

CONCLULSION

Mathematical Aptitude is a present condition but with a forward reference. It is a condition but or a set of characteristics regarded as symptomatic, indicative of potentialities. It should nevertheless be apparent that in measuring a person Mathematical aptitudes, we do not understand to place a measure against some mysterious intangibles. To get desirable success in a given activity, a person must have both an aptitude for activity and an interest in it. Therefore, Mathematical interest and Mathematical Aptitude usually go hand in hand. But by this co-ordination, we should never mean that interests and aptitudes are the role of school teachers', principals and administrators are also critical in the process of inclusion. The Mathematical Interest, Mathematics Attitude and Mathematical Aptitude of above all affects the extent to which the philosophy of presence is formulated and implemented. Attitude, Mathematical Interest and

Mathematical Aptitude of school teachers, Principals and administrators are a pre requisite condition. Mathematical interest and Mathematical Aptitude are some important and basic area of the study because this influence much of our high school education system and personal life an individual. Identification of Mathematical Aptitude at an early stage will help in utilizing the potentials of tomorrow and contribute to the prosperity of the nation.

REFERENCES

Aggarwal, T.C. (1980). *Teacher and education in a developing society.* New Delhi: Vikas.

Bingham, W. V, (1998). *Aptitude and aptitude teaching.* New York: Harper and Brothers.

Crow, L.D., & Crow, A. (1963). *Educational psychology*. Agra, Vinod Pustak Book Co.

Dabir, D., & Pandit, K.L., (1988). A study of vocational aspirations and aptitudes among the school going youth. *Journal of Educational Research and Extension, 25*(2), 78-84.

Mulugeta Atnafu. (2014). Secondary school teachers' aptitude in teaching mathematics. *Mathematics Education, 9*(1), 57-72.

Siam, I. (2014). A study of the interest in teaching among teacher trainees of Shillong. *Journal of Humanities and Social Science, 19*(5), 78-79.

ISSN: 0973-6190

APPROACHES AND STRATEGIES OF PROFESSIONAL DEVELOPMENT OF TEACHER EDUCATOR THROUGH ICT

5

Dr. A. THANGAVEL
Principal
A.S. College of Education
Kannanur, Madurai
Tamil Nadu - 625 514

INTRODUCTION

The aim of teacher education is to develop skills and appropriate knowledge among teacher trainees for using and integrating the correct technology in an appropriate manner. Every teacher should know how to use technology, pedagogy and subject area content effectively in their daily classroom teaching. It is clear that merely introducing technology to the educational process is not enough. One must ensure technological integration since technology by itself will not lead to change. Rather, it is the way in which teachers integrate technology that has the potential to bring change in the education process. Hence, attitude and self-efficacy towards technology play an important role. For teachers to become fluent in the usage of educational technology means going beyond mere competence with the latest tools to developing an understanding of the complex web of relationships among users, technologies, practices, and tools. Teachers must understand their role in technologically-oriented classrooms. Thus, knowledge about technology is important in itself, but not as a separate and unrelated body of knowledge divorced from the context of teaching. It is not only about what technology can do, but perhaps what technology can do for them as teachers. In techno-pedagogy, there are three areas of knowledge, namely: Content, Pedagogy, and Technology. *Content (C)* is the subject matter that is to be taught. *Pedagogy (P)* describes the collected practices, processes, strategies, procedures, and methods of teaching and learning. It also includes knowledge about the aims of instruction, assessment, and student learning. *Technology (T)* encompasses modern technologies such as computer, Internet, digital video and commonplace technologies including overhead projectors, digital boards and books. UNESCO (2021), stated that digital innovations has demonstrations powers to complement, enrich and transform education, and has the

potential to speed up progress towards sustainable development of education and transform modes of provision for universal access to learning. In general, technology integration entails the understanding and negotiating of the relationships among the aforementioned three components. Good teaching is not simply adding technology to the existing teaching and content domain. Rather, the introduction of technology causes the representation of new concepts and requires developing sensitivity to the dynamic, transactional relationship between all three components suggested. Depending upon the nature of content, scope of content, and level of students, appropriate technology integration must be sought. Technology as an aid enhances the process of learning and helps in achieving higher level objectives (Mohanty, 2021).

ROLE OF ICT IN PROFESSIONAL DEVELOPMENT OF TEACHER EDUCATOR

The following are the thrust areas for the professional development of teacher educator, which will meet by integrating ICT in education.

- ***A new society requires new skills:*** Due to the fact that ICTs are the preeminent tools for information processing, new generations need to become competent in their use, should acquire the necessary skills, and therefore must have access to computers and networks during their school life.
- ***Productivity enhancement:*** Schools are knowledge-handling institutions; therefore, ICTs should be fundamental management tools on all levels of an educational system, from classrooms to ministries.
- ***A quest for quality learning:*** Schools should profoundly revise present teaching practices and resources to create more effective learning environments and improve life-long learning skills and habits in their students.

APPROACHES OF ICT IN PROFESSIONAL DEVELOPMENT OF TEACHER EDUCATOR

Use of ICT within teacher training programs around the world is being approached in a number of different ways with varying degrees of success. These approaches were subsequently described, refined and merged into following approaches:

- ***ICT skills development approach:*** Here importance is given to providing training in use of ICT in general. Student teachers are expected to be skilled users of ICT for their daily activities. Knowledge about various software, hardware and their use in educational process is provided.
- ***ICT pedagogy approach:*** Emphasis is on integrating ICT skills in a respective subject. Drawing on the principles of constructivism, pre-service teachers design lessons and activities that centre on the use of ICT

tools that will foster the attainment of learning outcomes. This approach is useful to the extent that the skills enhance ICT literacy skills and the underlying pedagogy allows students to further develop and maintain these skills in the context of designing classroom- based resources.

- ***Subject-specific approach:*** Here ICT is embedded into one's own subject area. By this method, teachers/ subject experts are not only exposing students to new and innovative ways of learning but are providing them with a practical understanding of what learning and teaching with ICT looks and feels like. In this way, ICT is not an 'add on' but an integral tool that is accessed by teachers and students across a wide range of the curricula.
- ***Practice driven approach:*** Here emphasis is on providing exposure to the use of ICT in practical aspects of teacher training. Focus is on developing lessons and assignments. Using ICT and implementing it in their work experience at various levels provides students an opportunity to assess the facilities available at their school and effectively use their own skills.

Thus, ICT in teacher training can take many forms. Teachers can be trained to learn how to use ICT tools. ICT can be used as a core or a complementary means to the teacher. From the above suggested approaches, regarding ICT as a core component at the pre-service level, integration of all approaches would help in developing proper attributes among prospective teachers. There should be joint efforts of educators and prospective teachers in implementing and sharpening ICT skills. Whatever approach is followed in educational institutions to develop knowledge about ICT, it has inherent limitations. Coupled with other reasons, it is the responsibility of the teachers in all levels to apply various innovative technological tools in classroom activities (MHRD, 2020).

STRATEGIES FOR PROFESSIONAL DEVELOPMENT OF TEACHER IN ICT

Policy and Management of Teacher Training on ICT:

To ensure continuous training of teachers from pre-service teacher education to induction to in-service professional development, training agencies should be mobilized and labour divided among them. Professional development is more likely to succeed if continuous training of teachers is a built-in process and is offered as a benefit to them. A centralized training administration system for all teaching and non-teaching staff is crucial to document and monitor professional development

Teacher Training Modalities:

Peer and school-based training of teachers by their more experienced

peers from other schools or senior instructors. Incorporating online learning into professional development on ICT enriches teachers' experience and makes them comfortable with online learning. Needs-based just-in-time learning and peer coaching ensure further development of teachers' ICT and pedagogical skills.

Teachers' Competencies and Standards:

ICT competency standards serve as a benchmark for formulating and evaluating teacher training programmes and use of ICT in teaching. Customizing national-level ICT competency standards for each school, depending on its socio-cultural context, ensure ICT integration and acceptance.

Change Mindset of Teachers:

A buddy system approach where novice teachers work together with expert teachers in a classroom using ICT contributes towards changing prevailing mindsets.

Content Focus of Capacity Building for Teachers:

Training teachers on ICT-related skills within the context of classroom objectives and activities ensures development of skills in the integrated use of ICT in teaching. ICT professional development programme for teachers should be planned, taking into account the vision of ICT in education policy.

Capacity Building for Education:

Training education personnel at all levels ensures that all aspects of ICT use in schools and higher education institutions are implemented in an efficient, coherent and complementary way.

Incentive System and Motivational Strategies for Teachers:

Formal certification of in-service professional development that leads to diplomas or degrees could provide an incentive for teachers to upgrade and update their skills in and knowledge of ICT integration. Teachers' interest in using ICT after their training is more likely to grow if they are provided with computers, training materials and software for classroom use. (Urbanski, 2018).

CONCLUSION

Technology as an aid enhances the process of learning and helps in achieving higher level objectives. Due to the fact that ICTs are the preeminent tools for information processing, new generations need to become competent in their use, should acquire the necessary skills, and therefore must have access to computers and networks during their school life. Educational institutions are knowledge-handling institutions where ICT is used as fundamental management tools on all levels of an educational system, from classrooms to ministries. Teachers and teacher educators in all level should profoundly revise present teaching practices learn and utilize advanced

technological tools and resources to create more effective learning environments, teaching, improve life-long learning skills and habits in their students. They should acquire and apply various approaches that contribute to the professional development of teacher educators.

REFERENCES

Mohanty, M.M. (2021). *Empowerment of teachers and role of ICT: On conceptual analysis, in report of international workshop on information and communication technology for professional development of teacher.* DEP-DPEP, IGNOU: New Delhi.

MHRD. (2020). *Sarva Shiksha Abhiyan: A programme for Universal Elementary Education. A framework for implementation*. Government of India: New Delhi.

UNESCO. (2021). *Teacher education through distance learning: Technology, curriculum, cost, evaluation, summary of case studies,* Paris.

Urbanski, A. (2018). Teacher professionalism and teacher accountability. Towards a more genuine teaching profession. *Confeb Journal of Education, 18*, 45-54.

ATTENTION TO AUTHORS

- Our Journal invites articles from Research Scholars, Academicians, Consultants, Heads of organisation etc., on various topics in different fields of education.
- While sending articles, it should be accompanied by a declaration that they have not been sent for publication in any other journal.
- The articles should be sent in both soft (CD/e-mail) and hard copy (Two Copies) to the chief editor.
- If the articles that are not selected for publication, it will be returned to the author, if self-addressed envelope with sufficient stamp affixed is enclosed with the article.
- If your article is published in our journal, the author copy will be sent.
- The articles (both hard and soft copy) should be sent to **"The Chief Editor/Principal, Journal of Educational Research and Extension, Sri Ramakrishna Mission Vidyalaya College of Education, Sri Ramakrishna Vidyalaya Post, Coimbatore - 641 020"**.

THE JOURNAL OF EDUCATIONAL RESEARCH AND EXTENSION is published quarterly in January, April, July and October. It contains research findings, results and educational experiments, highlights of extension work, review of books and articles of practical interest to teachers.

Revised subscription Rates with effect from January 1, 2013.

Type of membership

i.	Individual and Institutional	-	Annual	₹ 500	US $ 150
			Life	₹ 5,000	US $ 750
ii.	Patron	-		₹ 10,000	US $ 3000

Articles, abstracts of research reports, results of experiments and books for review should be sent to the editors. The length of contributions should not normally exceed 4,000 words.

Journal of Educational Research and Extension

Sri Ramakrishna Mission Vidyalaya
College of Education (Autonomous)
SRKV Post, Coimbatore - 641 020, email: srkvcoejere@gmail.com

SUBSCRIPTION FORM

Name : .....

(a) Individual : .....

(b) Institution : .....

Address : .....

.....

.....

Pin code : .....

Phone No. : .....

E-mail : .....

Annual Subscription : ₹ 500/- Life Member : ₹ 5,000/-

DD/UTR No. : ..... Date : .....

Subscription Payment Details:

Subscription is to be paid by DD/ECS in the name of 'Journal of Educational Research and Extension' Payable at Sri Ramakrishna Vidyalaya Branch, Coimbatore.

ECS Payment details:

State Bank of India, Sri Ramakrishna Vidyalaya Branch, Coimbatore.

Account Number : 10397970266
IFS Code No. : SBIN0001541
MICR No. : 641002004

In case of ECS Payment, details may kindly be intimated along with UTR number accordingly to the Chief Editor.

PROCEEDINGS OF THE DIRECTOR OF COLLEGIATE EDUCATION, CHENNAI - 6.
L.Dis 3079 R3/80 Dated 4.3.1980

Sub : Books and Publications - Request for purchase of Journal of Educational Research and Extension to Collegiate Libraries - Instructions issued.

Read : RC. No. 6, Lib 79, dated 20.2.1980 from the Principal, Teachers College, Saidapet, Chennai - 15.

The following Journal is brought to the notice of the Principals of all Colleges for purchasing to the College Library if they so desire.

Name of the Journal : Journal of Educational Research and Extension (Quarterly)

Price : Annual Subscription Rs.500/-

Publisher : Sri Ramakrishna Mission Vidyalaya College of Education (Autonomous)
Sri Ramakrishna Vidyalaya Post, Coimbatore - 20.

Further particulars can be had from the publishers.

N. ANANTHAPADMANABHAN
For Director of Collegiate Education

To
The Principals of all (Government and Aided) Colleges in the State
Copy forwarded to the Publishers

PROCEEDINGS OF THE DIRECTOR OF PUBLIC LIBRARIES CHENNAI
RC. No.9408 C3/66. Dated 19.9.1966

Sub : Books and Publications - Commendation of books to Public Libraries.

The publications mentioned below are brought to the notice of all Public Libraries in the State.

RC. No. 6, Lib 79, dated 20.2.1980 from the Principal, Teachers College, Saidapet, Chennai - 15.

	Name of Publication	Name of Publisher
1.	* * *	* * *
2.	* * *	* * *
3.	Journal of Educational Research and Extension	Publisher journal of Educational Research and Extension Sri Ramakrishna Mission Vidyalaya College of Education (Autonomous) Sri Ramakrishna Vidyalaya Post Coimbatore - 641 020.

For further particulars, the publishers concerned may be addressed.

To
The Secretaries of all Local Library Authorities in the State

(Sd.) M. PONNAIAH
For Director of Public Libraries

ISSN 0973619-0

SRI RAMAKRISHNA MISSION VIDYALAYA
COLLEGE OF EDUCATION (AUTONOMOUS)
Affiliated to Tamil Nadu Teachers Education University, Chennai and Accredited with 'A''' Grade by NAAC
SRKV Post, Coimbatore - 641 020, Tamil Nadu, India.