IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Relationship Between Self-Efficacy And Achievement In Mathematics

1Manpreet Kaur, 2Dr Harpal Kaur

1Research Scholar , 2Assiciate Professor

1Department of Education and Community Service, Punjabi University Patiala,

2ACE, Mastuana Sahib Sangrur

ABSTRACT

Self-efficacy plays a vital role in achievement in mathematics. This study is an attempt to study the relationship between self-efficacy and achievement in mathematics. The sample was comprised of 200 secondary students studying in Government Senior Secondary School, Bajakhana, and Hans Raj Memorial Senior Secondary School District Faridkot, Punjab. For the data collection, Self-efficacy Scale by Mathur and Bhatnagar (2012) and the marks obtained by student in Xth (P.S.E.B.) considered as their achievement scores in mathematics were used by investigator. T-test was used to ascertain the difference of means between variables. The analysis revealed that school students studying in Private schools had greater self-efficacy mathematics as compared to school students studying in Government schools. It was also found that urban students had higher self-efficacy as compared to rural students. There was a positive and significant relationship between self-efficacy and achievement in mathematics.

Keywords: Self-efficacy, achievement in mathematics, rural and urban, government and private, secondary school students.

INTRODUCTION

Mathematics is seen as an essential pioneer to success in modern society. Mathematics is a branch of science deals with numbers and their processes. It involves calculation, solving of problems, computation etc. Dictionary states that, ‘Mathematics is the science of measurement, quantity and magnitude’.Mathematics as a subject, is imperative for excelling in any field of study i.e. engineering,

medicine and social sciences throughout the world. Mathematics is necessary for people of all ages to be successful in life.It involves conversion of abstract concepts into concrete form (Kulshrestha, 2014).

Achievement in Mathematics is the capability shown by the student in mathematics. It is the result of attained knowledge, understanding, skills and techniques developed in mathematics at a particular stage. Its measure is the score in the achievement test in mathematics (Pandey, 2017).

Walberg's Educational Productivity Theory (1981) revealed that there were nine variables student ability/prior achievement, motivation, age/developmental level, quantity of instruction, quality of instruction, classroom climate, home environment, peer group, and exposure to mass media outside of school that have positive effects on achievement in mathematics. Students' intrinsic ability to learn played an important role in the achievement in mathematics. Mathematics is the gateway and key of the Science. So, all scientific education which does not commence with Mathematics is said to be defective at its foundation. Neglect of mathematics works damage to all knowledge.

On the other hand, People's judgement of their capacity to integrate and carry out the actions necessary to achieve specific performance kinds is known as self-efficacy. It is focused on an individual's experiences that lead to additional assessments and knowledge about what an individual can do with their personal and professional experiences. (Bandura, 1986). Self-efficacy refers to beliefs in one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands (Wood Bandura's, 1989). So, it is true that for attaining high achievement and proper learning in mathematics, one should posses highly self-efficacy in the subject.

REVIEW RELATED LITERATURE

Hackett and Betz (1989) found that mathematics performance was correlated moderately with mathematics selfefficacy. Pietsch and Chapman (2003) revealed that self-efficacy beliefs were positively correlated with performance in mathematics. Recber et al. (2018) revealed that self-efficacy, anxiety, attitude, gender and school type significantly affected the achievement scores of seventh grade students. Talluri (2018) found that there was no significant difference in self-efficacy of secondary school students in relation to their gender and type of school. Venugopal and Nath (2019) investigated that urban high school students had higher self-efficacy than the rural high school students.

OBJECTIVES

1. To study the significant difference in the self-efficacy of secondary school students in terms of locale.
2. To study the significant difference in the self-efficacy of secondary school students in terms of type of school.

3. To study the relationship between self-efficacy and achievement in mathematics of secondary school students

HYPOTHESES

1. There is no significant difference in the self-efficacy of secondary school students in terms of locale.
2. There is no significant difference in the self-efficacy of secondary school students in terms of type of school.
3. There is no significant relationship between self-efficacy and achievement in mathematics of secondary school students.

DELIMITATIONS

The present study was delimited to:

1. The study was delimited to comparing and finding relationship of achievement in mathematics with self-efficacy.
2. The study was confined to locale and type of school.

SAMPLE OF THE STUDY

The sample was consisted of 200 secondary school students (100 rural and 100 urban, 100 government and 100 Private) from Faridkot, studying at Punjab School Education Board Mohali-affiliated schools.

TOOLS USED

For the present study, following tools were used:

1. Self-efficacy Scale developed by Mathur and Bhatnagar, (2012).
2. The marks obtained by student in Xth (P.S.E.B.) were considered as their achievement scores in mathematics.

STATISTICAL TECHNIQUES EMPLOYED

The following statistical techniques were employed in order to analyze the data:

1. Descriptive statistics: Mean and Standard deviation are calculated for rural and urban, government and private.
2. Product moment coefficient correlation was applied to draw out the meaningful results.

RESULTS AND DISCUSSION

After collecting the data, analysis and interpretation of data were performed in accordance with the objectives of the study. The results of t-test and correlation are given below:

Table 1.1

Self-Efficacy among School Students in Relation to Locale and Type of School

S. No.	Variable	Group	N	Mean	SD	t-value
1.	Locale	Urban	100	70.89	7.75	0.78
		Rural	100	71.78	8.20	
2.	Type of School	Government	100	70.40	8.10	2.13*
		Private	100	72.74	7.40	

* $p<0.05$

Further the table 1.1 shows that mean scores of self-efficacy among students belonging to urban areas was 70.89 with SD of 7.75 and mean scores of group of students from rural background was 71.78 with SD of 8.20. The t-value came out 0.78 which is not significant. This indicates that self-efficacy among school students does not differ significantly in relation to their locality.

The table 1.1 also reveals that mean scores of self-efficacy among students of government schools was 70.40 with SD of 8.10 whereas the mean scores of self-efficacy among students of private schools was 71.74 with SD of 7.10. The t-value signifying the difference between self-efficacy of students from government and private school turned out to be 2.13 which is significant at 0.05 level. This indicates that students belonging to government and private schools differ significantly in their levels of self-efficacy. This shows that mean scores of students of private schools on self-efficacy is 72.74 which is significantly higher than students of government schools whose mean scores of self-efficacy was 70.40. It can be said that the students of private schools were found to have higher level of self-efficacy than their counterparts i.e. students of government schools.

Table 4.42

Coefficient of Correlation of Achievement in Mathematics with Self-Efficacy among School Students

Group	N	r
Total	200	0.26**

** $p<0.01$

The table 4.42 further indicates that the coefficient of correlation between achievement in mathematics and self-efficacy was positive and significant (r= 0.26, **$p<0.01$).

FNDINGS OF THE STUDY

On the basis of the study, the following findings are as follows:

1. There was no significant difference found between the self-efficacy of urban students and rural students.
2. A significance difference was found between the mean scores of self-efficacy of government and private school students. It concludes that government school students have higher level of self-efficacy as compared to school students studying in private schools.
3. A positive and significant relationship was found between self-efficacy and achievement in mathematics of secondary school students.

SUGGESTIONS OF THE STUDY

1. It is suggested that teachers should use real life examples those must be realistic in order to enhance self-efficacy.
2. Holistic approach i.e. integrate multiple strategies for teaching math concepts and thinking skills can enhance the students' achievement in mathematics.

REFERENCES

1. Bandura, A., & Wood, R. E. (1989). Effects of perceived controllability and performance standards on self-regulation of complex decision making. Journal of Personality and Social Psychology, 56(3), 407-415.
2. Bandura. (1986). Social foundation of thought and action: A social cognitive theory. Englewood Cliffs, New Jersey: Patience Hall.
3. Hackett, G., & Betz, N. E. (1989). An exploration of the mathematics self- efficacy/mathematics performance correspondence. Journal for Research in Mathematics Education, 20(3), 261-273.
4. Koul, L. (2011). Methodology of educational research (4th ed.). New Delhi: Vikas Publishing House.
5. Kulshrestha, A. K. (2014). Teaching of mathematics. Meerut: R. Lall Book Depot.
6. Mangal, S. K. (2013). Teaching of mathematics. Ludhiana: Tandon Publications.
7. Mathur, G. P., & Bhatnagar, R. K. (2012). Manual for Self-Efficacy Scale. Agra: National Psychological Corporation.
8. Pandey, B. D. (2017). A study of mathematical achievement of secondary school students. International Journal of Advanced Research, 5(12), 1951-1954. doi: 10.21474/IJAR01/6165
9. Pietsch, J., Walker, R., & Chapman, E. (2003). The relationship among self- concept, self-efficacy, and performance in mathematics during secondary school. Journal of Educational Psychology, 95(3), 589-603.
10. Recber, S., Isiksal, M., & Koc, Y. (2018). Investigating self-efficacy, anxiety, attitudes and mathematics achievement regarding gender and school type. Analog of Psychology, 34(1), 14-51. doi.org/10.6018/analesps.3 4.1.229571.
11. Talluri, S. (2018). Self-efficacy of secondary school students in relation to their gender and type of management, International Journal of Research and Analytical Reviews,5(3), 1131-33.