

A STUDY ON BARRIERS IN TEACHING LEARNING PROCESS OF MATHEMATICS AT SECONDARY STANDARD LEVEL

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Abstract

Mathematics has become a nightmare for most of the students. Whatever the reasons, this is very alarming news for India as knowledge of science and mathematics broadens the way to development and become a productive member of the contemporary global society. If this phenomenon continues, a time will come when good scientists and engineers will not be easily available in India. Although India has experienced quantitative educational improvement the qualitative aspects of education have become a cause of government concern. The quality of education is seriously questionable, which is the crying need now. However the importance of quality education in nation building has also been realized by several nations including India. Teaching-learning activities have a great impact on students achievement, hence it is essential to investigate how effectively are being carried out in classroom. Hilda Taba (1966) said, "Appropriate teaching strategy can lead the students to master the abstract and symbolic forms of thought much earlier and more systematically". Students learn much more effectively if the teaching-learning techniques meet their special needs. This unfortunate situation indicates that there must be multifaceted challenges and barriers in teaching learning of mathematics in secondary level. This study targets to assess the existing challenges and shed some lights on those loopholes.

Keywords: Barriers in Teaching Learning Process of Mathematics and Secondary Standard Level

Introduction

Mathematics is the one of the most important subjects in daily life and most human activities are linked to knowledge of mathematics. In the rapidly changing world and in the era of technology, mathematics plays an essential role. To understand the mechanized world and match with the newly developing information technology knowledge in mathematics is vital. Mathematics is the mother of all sciences. Without the knowledge of mathematics, nothing is possible in the world. The world cannot progress without mathematics. Mathematics fulfills most of the human needs related to diverse aspects of everyday life. Mathematics has been accepted as significant element of formal education from ancient period to the present day. Mathematics has a very important role in the classroom not only because of the relevance of the syllabus material, but because of the reasoning processes the student can develop. The quality of teaching and learning in mathematics is a key challenge for teachers. It is important for teachers to adopt instructional design techniques to achieve higher accomplishment in mathematics (Rasmussen & Marrongelle, 2006). Instructional design alone cannot produce better learning and achievement. The instructional designer must know critical factors that influence student learning and build a bridge between goals and student performance. Identifying these factors will help to utilize limited resources including financial resources and time more effectively (Libiensi & Gutierrez, 2008).

Need for the Study

According to Francis Bacon “mathematics is the key of all sciences”. Today's world largely depends on science, and science in turn depends on mathematics. People grant it as a theoretical subject. But the truth is all the branches of mathematics were developed to meet the demand of day to day practical life. Modern math, consisting of arithmetic, algebra and geometry has an important role in the field of education. Mathematics has a vital role in the classroom not only because of direct application of the syllabus material but because of the reasoning processes the student can develop.

Life for a variety of purposes. It is essential for all. Mathematics is everywhere in our daily life activities from dawn to midnight. It is in everyone’s life from birth to death, from the creation of universe to today’s modern world, from home to society. That is why, not only today, but from ancient times, learning of mathematics is indispensable for all from childhood. All students must learn mathematics so that they can face the challenges of their day to day life as well for the newly formed technological globe of today and tomorrow. Therefore, Mathematics is an essential subject from the beginning of the school education. Earlier it was a misconception that mathematics is required only for being an Engineer, Mathematician or Scientist and for this reason the subject was treated as a difficult and complicated subject by the society, and school students had a fear for mathematics. But since last few decades, strong efforts are done to make the elementary education a fundamental right for all children. In spite of such importance at the present time it is regrettable that many students have wrong impressions about mathematics and they dislike mathematical activities; many seem to have fear, even little hate mathematics. For these students mathematics becomes frightening. As the students are the pillars of the future generations their mathematics is vial subject. So the present study intends to measure to barriers in teaching learning mathematics which is entitled the present study, “**BARRIERS IN TEACHING LEARNING PROCESS OF MATHEMATICS AT SECONDARY LEVEL**”.

Variables of the Study

Dependent Variable:

Barriers in teaching learning process of Mathematics

Independent Variables:

1. Gender : Male / Female
2. Residence : Rural / Urban
3. Standard studying : IX / X
4. Medium of study : Tamil / English

Objectives of the Study

1. To measure the level of barriers in teaching learning process of mathematics at secondary level.
2. To find out the significant influence of independent variables viz., Gender, Residence, Standard Studying and Medium of Study on dependent variable barriers in teaching learning process of mathematics at secondary level.

Hypothesis of the Study

Each of the population variables involved in the study exerts a significant influence on barriers in teaching learning process of mathematics at secondary level.

Methodology-In-Brief

Design : Descriptive; Method : Normative; Technique : Survey

Sample of the Study:

A stratified representative sample of 350 students constituted from eight schools recognized by the Department of School Education, Tamil Nadu situated in Madurai District with due representation given to the variables viz., Gender, Residence, Standard Studying and Medium of Study.

Tools used:

The following tools were used by the investigator for the data collection:

1. General Information Sheet developed by the Investigator.
2. Barriers in Teaching Learning Process of Mathematics Scale constructed and developed by Velmurugan, K.(2016).

Statistical Treatments:

't'- test for significance of difference between the means of large independent samples.

STUDIES RELATED TO BARRIERS OF TEACHING LEARNING PROCESS OF MATHEMATICS

Shah, (1992) has evaluated the primary school syllabus of Gujarat by carrying out a large sample survey of students' performance and teachers' opinions. The teachers of classes I and II feel that the syllabus could sustain the interest of the students, but the teachers of classes III and IV do not agree with this view. Some difficult topics in the syllabus have also been identified. About half the teachers were found to be using appropriate audio-visual

Pal (2009) concluded that many difficulties that children face in leaning are rooted in the lack of understanding of lower level concepts and lack of clarity about different rules that are often conflicting can lead to misconceptions and affect mathematical learning.

Wang, Du and Liu (2009) identified two types of learning difficulties: learned helplessness and defensive attribution. The students enhanced their learning in mathematics with the use of appropriate strategies in the interventions.

Analysis and Discussion

The average score of the Barriers in teaching learning process of mathematics at secondary level is found to be 37.22, while the theoretical average is 31.5. This shows that the barriers in teaching learning process of mathematics at secondary level is above the average level.

Table 1: The results of tests of significance of difference between the mean scores of barriers in teaching learning process of mathematics at secondary level in terms of Gender are presented in Table -1:

Variable	Sub-category	N	M	S.D.	't'- value	Significance at 0.05 level
Gender	Male	185	37.48	5.78	2.931	Significant
	Female	165	36.89	7.05		
Residence	Rural	228	37.31	7.08	3.132	Significant
	Urban	122	35.39	5.52		
Standard Studying	IX	205	36.44	6.13	2.254	significant
	X	145	35.63	5.52		
Medium of Study	Tamil	220	37.86	7.55	3.307	Significant
	English	130	35.93	6.03		

Gender and Barriers in teaching learning process of mathematics

It is evident from table that the obtained 't' value 2.931 is greater than the table value 1.96 at 0.05 level of significance. This shows that there is a significant difference between the male and female students in terms of barriers in teaching learning process of mathematics. Further, it is observed that male students have high barriers in teaching learning process of mathematics than female students.

Residence and Barriers in teaching learning process of mathematics

It is evident from table that the obtained 't' value 3.132 is greater than the table value 1.96 at 0.05 level of significance. This shows that there is a significant difference between the rural and urban residency students in terms of barriers in teaching learning process of mathematics. Further, it is observed that rural residence students have high barriers in teaching learning process of mathematics than urban residence students.

Standard studying and Barriers in teaching learning process of mathematics

It is evident from table that the obtained 't' value 1.254 is lower than the table value 1.96 at 0.05 level of significance. This shows that there is no significant difference between IX and X standard students in terms of barriers in teaching learning process of mathematics.

Medium of study and Barriers in teaching learning process of mathematics

It is evident from table that the obtained 't' value 3.307 is greater than the table value 1.96 at 0.05 level of significance. This shows that there is a significant difference between Tamil and English medium students in terms of barriers in teaching learning process of mathematics. Further, it is observed that Tamil medium students have high barriers in teaching learning process of mathematics than English medium students.

Conclusions

The major conclusions arrived at from the study are listed below:

1. Barriers in teaching learning process of Mathematics at secondary level are found high.
2. Barriers in teaching learning process of Mathematics at secondary level is found dependent upon-
 - Gender
 - Residence
 - Medium of study

Educational Implications

This study states that Barriers in teaching learning process of Mathematics at secondary level is found high, male students, those who are from rural, those father's education is upto schooling, those who are studying Government schools and those who are studying Tamil medium. More programmes to be implemented to remove the barriers in teaching learning process of Mathematics at secondary level on the part of the students for the better achievement. Schools should organize various developmental programmes from time to time to help secondary level students in mathematics.

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