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The Effect of Group Tutorials Teaching Strategy on Achievement and Interest in Mathematics of Ninth Standard Students

Education

KEYWORDS : Group Tutorials, Teaching Strategy, Achievement, Interest

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ABSTRACT

Mathematics is considered to be the father of all sciences. Mathematics is a core subject in secondary schools. The study of mathematics was established to produce a competent person who is able to apply knowledge of mathematics in everyday life effectively and responsibly in solving problems and making decisions. One strategy that has been used for mathematics teaching is the incorporation of tutorial groups teaching strategy into mathematics lessons. This study explored the effect of group tutorials teaching strategy on achievement and interest in mathematics. The study adopted a quasi-experimental design referred to as pre-test, post test control group design. The sample consisted of 60 students assigned to experimental group and control group. Mathematics Achievement Test (MAT) and Interest in Mathematics (IIM) were constructed, validated, and used for the collection of relevant data. The experimental groups were taught the arithmetic, algebra and geometry using group tutorials model, while the control group was taught the same topics using the conventional method. The data collected was analyzed using 't' test. The results of the study revealed that there was a significant difference in the level of achievement and interest in mathematics of IX standard students of the treatment group. The treatment group performed better than the control group in the achievement and interest levels.

1. INTRODUCTION :

At ent Mathematics play a significant role in every field.. In this era of science and Technology, it has permeated through the human life in such a way that, it has now become very important aspect and human life. Even the knowledge of mathematics of elementary and secondary level students is very essential to identifying their future prospect. One strategy that has been used for mathematics teaching is the incorporation of tutorial teaching strategies into mathematics lessons.

A good tutorial is highly interactive, promotes opportunity for discussion, debate and critical reflection, and engages students in the subject content by way of analysis of the material being studied. Tutorials give students the opportunity to make mistakes (and learn from them) in a collegial and supportive environment. This strategy helps students to review the material they have learned in lectures, develop their ideas and implement their learning though questions and problem-solving. Group tutorials are useful for average students. Group tutorials are more useful in adult teaching. It is a valuable teaching strategy from individual differences point of view and it provides an opportunity to organize remedial teaching. It can fulfill the need of entering behaviour of the learner. It is also more useful for achieving higher order cognitive, affective and psychomotor objectives lf learning.

Köller, Baumert, & Schnabel (2001) showed that subject-specific interest in mathematics had no significant influence on the development of performance if the previous knowledge was controlled. Nevertheless, the subject-specific interest was important for the students' choice of mathematics as a basic or as an advanced course at the upper secondary level. Research finding suggest that secondary school students indicated that the use of cooperative learning groups resulted in higher mathematics achievement test scores and also suggested that students enjoyed working together (Whicker, Bol, and Nunnery, 1997). Recent findings indicate that students in Japan who reported that they more frequently used cooperative learning strategies during their mathematics lessons also tended to express more enjoyment for learning mathematics (House, 2001). He found that students who used cooperative learning more frequently during their typical mathematics lessons tended to earn higher mathematics test scores. He also identified several classroom strategies that were associated with the mathematics achievement of adolescent students in Japan. In addition, the composition of cooperative learning groups is important for enhancing student achievement. Ma (1996) found that students who were at lower achievement levels tended to gain the most from group learning in mathematics. These findings provide evidence that teaching strategies can be effective for improving student achievement and interest in mathematics

Lack of interest in mathematics has direct implications for student involvement in areas that require a strong math background, including science, technology and mathematics and careers. Lower interest is closely related to lower performance on math-related achievement tests (Singh, Granville & Dika, 2002). In assessing Mathematics performance and potential of students, interest and attitude towards Mathematics are frequently cited as factors contributing to success. Several studies have shown that more interest is conductive to good performance. Necessitate of literature on group tutorials teaching strategy has uncovered the need for the study on the nature and effect of group tutorials teaching strategy on students' achievement and interest in mathematics. Thus, the present study was designed to investigate the impact of group tutorials strategy on achievement and interest in mathematics of IX standard students.

2. METHODOLOGY

Research Design : The study adopted an untreated control group, pre test and post test quasi experimental design.

Sample: Participants (N=60) were ninth grade students studying in private aided institution under state syllabus for the year 2011-12.

Procedure: The present study follows the experimental methodology and participants were randomly assigned to experimental and control groups to identify effect of the independent variable (Group tutorials strategy) on the dependent variable (Achievement and Interest in Mathematics)

Instrumentations :

Mathematics Achievement Test: Content analysis of ninth mathematics textbooks and screening facts, concepts, and the mathematical operations resulted in developing 30-item mathematics achievement test measuring mathematics achievement level of ninth grade students.

Interest in Mathematics Scale : Interest in Mathematics scale having sixty items scale developed by the author measured ninth grade interest in mathematics

Lesson Plans: The Lesson and Group Tutorials Strategy (GTS) was designed as a teaching material for teaching the treatment group. This was looked into by three mathematics education experts to ensure its suitability and representation of a true mathematics strategy. The plan was written in two forms. TTS lesson Plan used as a teaching material for teaching for experimental group and ordinary lesson plan used in conventional classroom for traditional group.

3. ANALYSIS OF DATA

The independent sample 't' test at the 0.05 and 0.01 confidence levels was used to compare means of pre and post test scores among the two groups for possible test of significant difference.

Table-1: Comparison of the Students' Pre and Post tests scores of Mathematics Achievement of secondary school students (N=30).

Group	Test	Mean	Standard Deviation	df	't' table value	't' obtained value	Remarks
Experimental Group	Pre Test	25.966	2.684	58	2.00 (0.05) 2.66 (0.01)	7.38	**(p<0.01)
	Post Test	33.066	4.532				
Control Group	Pre Test	26.133	2.788	58	2.00 (0.05) 2.66 (0.01)	0.96	NS(P>0.05)
	Post Test	26.933	3.600				

**Significant ; NS Not Significant

Table-1 shows the means and standard deviations of the students' pre and post-test scores in the achievement in mathematics of the two groups. The results revealed an insignificant difference in the students' mathematics achievement scores in the control group ('t'=0.96, p<0.05) but significant differences in the students' mathematics achievement scores in the experimental group ('t'=7.38, p>0.01). The result that the experimental group members scored higher compared with the control group members implies that the tutorial teaching strategy effectively improved mathematics achievements of students.

Table-2: Comparison of the Students' Pre and Post tests scores of Interest in Mathematics of secondary school students (N=30).

Group	Test	Mean	Standard Deviation	df	't' table value	't' obtained value	Remarks
Experimental Group	Pre Test	30.733	5.830	58	2.00 (0.05) 2.66 (0.01)	5.153	**(p<0.01)
	Post Test	39.900	7.805				
Control Group	Pre Test	40.566	8.002	58	2.00 (0.05) 2.66 (0.01)	1.820	NS(P>0.05)
	Post Test	44.300	7.883				

**Significant ; NS Not Significant

Table-2 shows the means and standard deviations of the students' pre and post-test scores in the interest in mathematics of the two groups. The results revealed an insignificant difference in the students' interest in mathematics scores in the control group ('t'=1.820, p<0.05) but significant differences in the students' interest in mathematics scores in the experimental group ('t'=5.153, p>0.01). The result that the experimental group members scored higher compared with the control group members implies that the tutorial teaching strategy effectively increase interest in mathematics.

4. DISCUSSION OF RESULTS

The major findings in the research work have shown that tutorial teaching strategies environment by group tutorials is an important method of teaching which affects students' achievement and interest in mathematics. The effectiveness of group tutorials strategy compared with traditional method on the improve mathematics achievement and interest of students and increasing their mastery of basic skills. Tutorials are an important psychological principle in learning. This is helpful for teacher to give individual attention in solving the learning difficulties. It develops a positive reinforcement among learners towards the learning process. The results revealed that teachers should need to adopt the group tutorials strategy through the idealistic and rational techniques to improve the achievement and develop interest in the mathematics of IX standard students.

5. CONCLUSION

To improve the achievement in mathematics the teachers should be formed tutorial groups on some background abilities and entering behaviour and should have very objective in dealing with the students. The teachers should form the tutorial groups on the basis of student's difficulties in mathematics and encouraged every student to place his difficulty.

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