



Utility of Innovative Techniques (Smart Class) in Learning Mathematics among Secondary School Students

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Abstract

Education is the social process by which an individual learns the things necessary to fit him to the life of his society. The students learn to use the computer in solving difficult problems and also they changes on the individuals with respect to positive question, different types can take a test with the computer and can obtain immediate meaningful feedback. The computer can be used by teacher in many innovative ways to improve the effectiveness of instruction. The advances claimed of using computers in education for saving time and effort. Smart class is a comprehensive solution designed to assist teachers in meeting with their day to day classroom challenges and enhancing student's academic performances with simple, practical and meaningful use of technology. It simplifies the problems of teaching abstract curriculum concepts that are difficult for students of visualize or relate through the provision of three dimensioned interactive multimedia modules. Investigator used by survey method and simple random technique are followed. The Sample of 300 IX standard students in Erode District from Tamil Nadu State. Descriptive and differential statistics are used this study.

Keywords: Utility, innovative techniques, smart class, learning mathematics and computer.

Introduction

Education is the social process by which an individual learns the things necessary to fit him to the life of his society. The students learn to use the computer in solving difficult problems and also they changes on the individuals with respect to positive question, different types can take a test with the computer and can obtain immediate meaning full feedback. The computer can be used the teacher in many innovative ways to improve the effectiveness of instruction. The advances claimed of using computers in education in saving time and effort. Smart class is a differ from other classes and enhancing student's academic achievement to improve to use of technology¹.

Need and significance of the study: Over the last few decades everything has change the life with the all pervasive intervention of technology. However classrooms have remained untouched by technology. The class rooms in which children study in chalk and blackboard, a packed classroom, textbooks. Regimentals, curriculum, a teacher painstakingly, explaining abstract concepts with the limited tools at her disposal.

Teacher demands of these technological of schools, parental educational qualification and parent income basis are leading to greater concern for minimizing future opportunities for high school students.

Every student is unique in his capacity to learn as a result of their variation in interest intelligence abilities, attitudes and aptitudes. The student can gain more knowledge by studying school subject with the help of computers².

Statement of the problem: Computer and smart class help to teaching is ensure that every child in the class in learning, given the wide diversity of learning styles in the classroom. It is also highly efficient in maintaining student's interest and engagement in learning inside the classroom⁴. So the investigator has chosen the entitled as "Utility of Innovative Techniques (Smart Class) In Learning Mathematics among Secondary School Students".

Objectives of the study: To find out the significant difference exist in the utility of innovative techniques in learning mathematics with regard following demographic variables. i. Gender, ii. Medium of instruction, iii. Locality of the school.

To find out the significant difference between the utility of innovative techniques in learning mathematics with regards type of schools. i. Government, ii. Government aided, iii. Private.

To find out the significant difference between the utility of innovative techniques in learning interest in mathematics and interest in computer.

Hypotheses of the study: There is no significant difference exist in the utility of innovative techniques in learning mathematics with regards following demographic variables. i. Gender, ii. Medium of instruction, iii. Locality of school.

There is no significant difference between the utility of innovative techniques in learning mathematics with regards type of schools. i. Government, ii. Government aided, iii. Private

There is no significant difference between the utility of innovative techniques in learning interest in mathematics and interest in computer.

Review of Related Literature: Carr³, refers to computer assisted instruction in teaching of Mathematics. Banerjee, Subramanian and Naik⁴ refer to the study describe the evolution of a teaching approach for beginning Algebra and highlight the value of arithmetic in specific ways to help students make the transition. Bevan⁵ refer to the study boys and girls differ in their typical learning styles; and that ability impacts differently on boys and girls. Ghose J. B⁶ refers to the study on e-learning programme. Fennema, E⁷ and Sharma refer to the study identified as critical, beliefs about the usefulness of, and confidence in learning mathematics with males better than the females. Kapur⁸ in the Fifth survey of Educational Research (1998-02) had point out that improvement of classroom learning and teaching. Menon⁹ refer to the study of children's understanding of angles, which was found to be very much within their zone of proximal development. Investigator collects to related studies on fifty of Innovative techniques in learning mathematics by different authors in India and Abroad.

Methodology

The researcher used survey method in this study. The independent variable is innovative techniques in learning mathematics and the dependent variable is secondary school students⁵. IX standard school students in Erode District constitutes of the population of about 5,675 for this study. The investigator has decided to use simple random sampling for the present study. The refined tool was administrated to 300 students of 5 schools selected for the final study. The refined tool contained 25 items on learning ability of the students, interest towards mathematics utility of innovative techniques in

learning mathematics. Personal data was used to elicit responses from the teachers regarding with gender, medium of instruction, locality of school, type of school, interest in mathematics and interest in computer. The statistical techniques applied in this research were descriptive measures (Mean and SD) and differential measures ANOVA.

Delimitation of the study: The study was conducted 300 samples for eighth and ninth standard secondary students only in Erode District.

Results and Discussion

Analysis of Data and Interpretation: Testing the Hypotheses

Hypothesis-1: There is no significant difference exist in the utility of innovative techniques in learning mathematics with regards following demographic variables. i. Gender, ii. Medium of instruction, iii. Locality of school.

From the table-1, it is found that the significant calculated value 3.57 which is greater from the table value 1.96 at 0.05% level of significance. Hence the null hypothesis is rejected. Therefore there is significant difference in utility of innovative techniques in learning mathematics among secondary school students with regards (gender) male and female.

From the table-1, it is found that the significant calculated value 1.27 and 0.44 which is less than the table value 1.96 at 0.05% level of significance. Hence the null hypothesis is accepted. There is no significant difference in utility of modern techniques in learning mathematics among secondary school students with regards (medium of instruction) English and Tamil, and (locality of school) rural and urban.

Table-1
Significant difference between the utility of innovative techniques in learning mathematics with regards demographic variables

Demographic variables	Demographic sub variables	N	mean	S.D	Calculated t test	Table value	#Sig. of 0.05%	
Gender	Male	120	57.50	6.7	3.57	1.96	Sig	
	Female	180	60.25	6.2				
Medium of instruction	English	161	61.64	7.4	1.27		1.96	Not Sig
	Tamil	139	60.68	7.4				
Locality of school	Rural	148	61.95	12.1	0.44			1.96
	urban	152	61.40	7.3				

Significance of 0.05% level

Hypothesis-2: There is no significant difference between and within the utility of innovative techniques in learning mathematics with regards following type of school. i. Government, ii. Government aided, iii. Private.

From the table-2, it is found that the obtained calculated value 0.22 is less than the table values 2.96 at 0.05% level of significant. Hence the null hypothesis is accepted. There is no significant difference between and within the utility of innovative techniques in learning mathematics with regards following type of school.

The table-3, reveals that the mean value are very high for the utility of innovative techniques in learning mathematics in the

govt. and govt. aided secondary school students where as the mean value of private school students is comparatively less.

Hypothesis-3: There is no significant difference in utility of innovative techniques in learning mathematics with regards to the interest in mathematics and interest in computers.

From the table-4. It is found that the obtained calculated value 43.9 and 3.51 is greater than table value 2.96 at 0.05% level of significant. Hence the null hypothesis is rejected. Therefore, it is proved that there is a significant difference in utility of modern techniques in learning mathematics with regards interest in mathematics and interest in computers.

Table-2
Significant difference between and within the utility of innovative techniques in learning mathematics with regards following type of schools

Source of variable	Degree of freedom	Sum of square	Mean variance	Calculated value	Table value	#Sig. of 0.05% level
Between the group	2	204.5	102.3	0.22	2.96	Not sig.
Within the group	298	4095.5	435.1			
Total	300	4300	657.30			

Table-3
Mean and S.D of the utility of innovative techniques in learning mathematics with regards to type of school

Type of school	Sample (N)	Mean	S.D
Government	92	60.76	7.34
Government aided	85	60.40	8.23
Private	123	60.12	7.08

Table-4
Significant difference in the utility of innovative techniques in learning mathematics with regards interest in mathematics and interest in computer

Source of variable	Demographic variable	df	Sum of square	Mean variance	Calculated variable	Table value	#Significant at 0.05% level
Between the group	Interest in mathematics	2	903.5	451	43.9	2.96	Sig.
Within the group		298	3066.5	10.29			
Total		300	3970	462			
Between the group	Interest in computer	2	356.02	178	3.51	2.96	Sig.
Within the group		298	15163	50.71			
Total		300	15519.4	228.72			

Table-5

Mean and S.D of utility of modern techniques in learning mathematics with regards to interest in mathematics and interest in computers

Level	Interest in mathematics			Interest in computer		
	Sample (N)	Mean	Standard Deviation	Sample (N)	Mean	Standard Deviation
Very High	99	60.5	8.8	101	61.7	8.2
High	143	59.75	7.6	133	58.5	7.6
Low	58	61.53	10.4	66	63.5	11.5

The above table-5, reveals that the mean values and Standard deviation of the students having interest in mathematics and interest in computer is low from compare to the other two.

Major Findings: i. There is significant difference in utility of innovative techniques in learning mathematics among school students with regards to gender. ii. There is no significant difference in utility of innovative techniques in learning mathematics with regards medium of instruction and locality of the school. iii. There is no significant difference between the group and within the group of utility of innovative techniques in learning mathematics with regards type of the school. iv. There is significant difference between and within the group of utility of innovative techniques in learning mathematics with regards to interest in mathematics and interest in computer.

Recommendations of the study: i. The smart class can be implemented for the govt. schools. ii. The smart class can be enhanced to teach the language subjects like Tamil, computer science and Hindi. iii. The smart class can be enhanced to teach the subjects like arts, music and drawings.

Suggestion for the Further Study: i. This study can be carried out for the students of VI and XII standard in matriculation schools and government. ii. This study may be extended to other districts. iii. This study will continue to find new ways to motivate students. iv. Similar studies can be conducted on various subjects. v. The study may be carried out to find the role of exhibitions, clubs and museums promoting the achievement in mathematics.

Conclusion

This study concludes that there is a significant difference between the gender, interesting in mathematics and computer with respect to the innovative techniques in learning mathematics. There is no significant difference between the medium of institution, type of schools and locality of the school with respect to the innovative

techniques in learning mathematics and 50% of the student learning computer.

Reference

1. Asija H, Developing project and inquiry based learning in mathematics at the secondary school, Presentation made at the national initiative on mathematics education, *northern region conference*, Delhi (2011)
2. Buch M.B. and Joshi J.N., *National council of educational research and training*, (1991)
3. Carr M., Motivation in mathematics, *Newyork: Hampton press, Inc*, (1996)
4. Benerjee R., Subramanian K. and Naik S., Braiding Arithmetic and Algebra; Evolution of a teaching sequence. International group of the psychologies of mathematics education: proceeding of the joint meeting of PME 32 and PME-NAXXX, (PME29), 2, 121-128, Morelia, Mexico, (2008)
5. Bevan R.M., Gender and Mathematics; what can research tell us about how we teach, Mathematics to boys and girls paper presented at *teacher research conference*, 19th March at the Birmingham, NEC, (2013)
6. Ghose J.B., Technology in mathematics education. Presentation made at the *National Institute on mathematics education- Northern Region conference*, Delhi, (2011)
7. Fennema E and Sherman J., Sex related differences in mathematics achieve and spatial, visualization and affecting factors, *American educational research journal*, 14, 51-71, (1997)
8. Kapur J.N., Mathematics Education in national council of educational research and training (Eds), *Proceeding of epi STEME -3 conference*, Mumbai: HBCSE, (2009)
9. Menon, The introduction of Angles. In K. Subramaniam and A. Mazunder (Eds), *Proceeding of epi STEME-3 conference*, Mumbai: HBCSE, (2009)