



Effectiveness of traditional method and ICT based method on the students of secondary school: A comparative study

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Abstract

To study the Academic Achievement in the subject of Mathematics of High School students both the methods traditional method and ICT based method were employed. The sample consisted of 200 students including male and female students. The investigator had used Achievement test called as Mathematical Interest Scale designed by Dr. Uman Tandon and Ashok Pai. Statistical calculations were made and it was found that there is significant difference in the Academic Achievement of the students if taught by employing both the methods and male and female students scored evenly.

Keywords: Traditional method, ICT based method

Introduction

In the development of any nation Education plays an important role. According to Kothari Commission "The destiny of India is being shaped in the classroom". The quality of Education also determines the quality of progress a nation wants to desire. Teaching methods, techniques, skills, tools should be dynamic in nature and should be adapted to time. The teacher should always be ready to accept the changes and implement the same in the teaching learning process. NPE 2019 made drastic changes in the structure of Education system and stressed more on technology-based teaching as now it has become accessible to each and every person of the country.

Computer technology is almost eight decades old and though primarily it was used in the Research and Development and complex mathematical calculation, but in the sixties itself it was started being used in the Universities of United States. Big computer companies of that time started collaborating with the Universities to develop self-learning materials which were called as Computer Assisted Instructions. CAI were mostly based on the principles of Programmed Learning. Today Computer is hugely popular and common and every school going child is acquainted with the basic functioning of computer. He is well versed with the use of internet and receives lessons online. Thus, the quality of teaching has immensely increased due to online lessons and self-learning materials. In the process the child is becoming less and less dependent on the teacher and more on technology.

ICT (Information and Communication Technology) as the name itself suggest is a technology which communicates to the

learner any information which he desires in any form. It uses combination of text, graphics, sound, animation and, video thus enhancing the learning process.

Objectives of the Study

1. To study the effect of ICT on the Achievement of the students in the subject of mathematics.
2. To study the effect of Instructions given with the help of Traditional method on the Achievement of the students in the subject of mathematics.
3. To compare the effectiveness of ICT and Traditional method on the Achievement of the students in the subject of mathematics.

Hypotheses: The following hypotheses are determined to find out the achievements-

1. ICT based teaching is an effective method of teaching as it gives better results in the achievement of students in the subject of mathematics.
2. The traditional method of teaching also gives good results in the achievement of students in the subject of mathematics.
3. There is a significant difference in ICT based method of teaching and traditional teaching in the results of achievement of mathematics
4. There is no significant difference in the interest of male and female students of secondary school in the subject of mathematics.

Delimitation

The research was delimited with respect to method, tools and sample, 200 students were selected as sample to study the problem. The study was confined to the achievement of students by using Traditional and ICT based methods.

Method

Investigator used experimental method to find the Academic Achievement of the students, he used pre-test as well as post-test to compare the results and find out which method is better or effective.

Tools

The investigator used Mathematical Interest Scale designed by Dr. Uman Tandon and Ashok Pai and self-designed pre-test and post-test tool.

Analysis of data

1. After the final results were obtained the researcher analysed and interpreted the data related to the hypotheses –
2. The researcher found that there is no significant difference between the Mean and S.D. of the students (both male and female students). The inventory of mathematical interest and gender of secondary schools’ students was discussed and the above inference was made.
3. Therefore, there is no significant difference between mathematical interest and gender of secondary school students.
4. The researcher found that there is improvement in the achievement of the students even though traditional method of teaching was employed, the researcher analysed all the questionnaires of mathematical interest drew the inference.
5. The researcher also found that ICT based teaching method was more effective compared to traditional method of teaching.

Hypothesis 1: ICT based teaching is an effective method of teaching as it gives better results in the achievement of students in the subject of mathematics.

Table 1: Table showing pre-test and Post test achievement in Mathematics in relation to ICT Based method

Pre-test		Post-test		‘t’ value
Mean	Std. Dev.	Mean	Std. Dev.	
11.88	2.2	9.01	2.5	2.1

Thus, the result indicates that there is no significant difference between the mean and SD of the students in pre-test and post-test.

Hypothesis 2: The traditional method of teaching also gives good results in the achievement of students in the subject of mathematics.

The following table indicate mean, SD, ‘t’ test aspect of interest in the subject of mathematics of secondary school students in relation to traditional method.

Table 2: Table showing the Interest in Mathematics in relation to Traditional method.

Pre-test		Post-test		‘t’ value
Mean	Std. Dev.	Mean	Std. Dev.	
9.18	2.5	10.88	2.61	1.70

Thus, the result indicates that there is a slight difference in the mean and SD or pre-test and post-test of the students when taught through traditional method.

Hypothesis 3: There is a significant difference in ICT based method of teaching and traditional teaching in the results of achievement of mathematics. The table given below indicates that the difference between mean, SD and ‘t’ test aspect of mathematical interest of secondary school students in relation to ICT based method and traditional method.

Table 3: Table showing pretest and post test scores with respect to Traditional and ICT based method

Test	Summary	Traditional group	ICT group
Pre-test	Mean	9.18	11.88
	SD	2.5	2.21
Post-test	Mean	10.88	9.01
	SD	2.61	5.4

It is quite clear from the above table that ICT group fared slightly better than the traditional group taught. Thus there is difference in the mean and SD of Traditional group and ICT group.

Hypothesis 4: There is no significant difference in the interest of male and female students of secondary school in the subject of mathematics. The table given below indicates that there is a difference in the interest on male and female students in mathematics.

Table 04: Table showing the interest of Male and Female students in Mathematics

Data	Male	Female
Mean	81	80
SD	6.3	5.4

From the above table it is clear that there is a slight difference in the mean of male and female students in interest in mathematics. The value is 1.98 and ‘t’ value is 0.88 which is not significant at the levels of 0.01 and 0.05. Therefore, male and female students are equally good in mathematics. There is also no significant difference between the gender and mathematical interest of the students. The ‘t’ value is 0.88 which is not significant at levels of 0.01 and 0.05. Therefore, male and female students are equal in mathematical interest.

Conclusion

From the research the investigator came to the conclusion that there is slight change in learning of mathematics through traditional method and ICT based method. It also became clear from MIS test the female students are not behind male students. Thus, the assumption that males are better than females in

accounting and mathematics also proves to be wrong, in this research it is proved that female students are equal in mathematical ability. In fact, female students sometimes fared better than male counterpart.

ICT based teaching should be extensively used in the teaching learning process as it easily clarifies those mathematical concepts which are very difficult for a teacher to clarify through traditional teaching. Female students benefit immensely because once there concepts on a particular topic becomes clear then there is no going back for them they will strive hard to progress as they had the inherent desire to prove to the society that they are also equal or even better than male students in studies.

References

1. Ayo CK. Information Technology Trends and Application in Science. African Journal of Library and Information Science, 2001, 93-98.
2. Benson L, Harkavy I. Saving the Soul of the University. The Virtual University, Oxford University Press, 2002.
3. Clark R, Mayer R. E-Learning and Science of Instruction, Proven corporation Journal of Geography in Higher Education, 2002.
4. Crooks S, Verdi M, White D. Effect of Contiguity and Feature Animation in Campus based Geography Instruction. Journal of International Research in Geographical Environmental Education. 2005; 17(2):114-130.
5. Dange JK, Wahab SA. Effectiveness of Computer Assisted Instruction on the Academic Achievement of Class IX Student's Physical Science, 2006;
6. Herselman MEd, Hay HR. Challenges posed by Information & Communication Technologies (ICT) for South African Higher Education Institutions. Information Science, 2003, 931-943.
7. Inyang NA. Utilization of Information and Communication Technology (ICT) Resources and Job Effectiveness among Library Staff in the University of Calabar and Cross river University of Technology, Nigeria. Journal of Education and Practice, 2015, 102-105.