

Effect of Blended Learning on Academic Achievement of Students in Maths.

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Abstract- Blended learning is a new technology-based teaching approach. Various attempts have been made to use this approach in maths education. The purpose of this study was to assess the effectiveness of blended learning approach on academic achievement in Maths of 6th class. The quantitative experimental study involved 100 students from two schools. The effect of blended learning was evaluated from students' performance in achievement test.

Keywords: Blended Learning, Traditional Learning, Achievement test.

INTRODUCTION:

In the 21st century, students grow up with new technologies. They spend maximum time surrounded by using computer, video games, digital music players, video camera, cell phones. They also learn and work with technology. Education is one of the sectors that can benefit most from the current technological advancement. Blended Learning is a method of learning that combines online and traditional learning. By using online learning platforms, schools can now substitute classroom instruction at home. Online learning is convenient as the teachers and students can access the material at any time, whereas traditional learning is set up in a classroom alone. Now a day's education is changing after COVID-19, which changed the traditional classroom to online learning. Students can learn at their own pace and get better education from an online mode and make benefit from that. Today, use of technology is common in Mathematics class, results in Blended Learning approach in teaching mathematics. When blended learning is used, self-motivated and collaborative contents, teaching and learning mathematics can be done anywhere and at any time. Several research studies have found that blended learning can improve learning outcomes equal to or higher than students who study fully online. Various colleges and schools have implemented a blended learning model. This is also supported by the opinion of Graham, who stated, we can be pretty certain the trend towards blended learning system will increase. The success of blended learning depends upon the instructional pedagogy and design related to the best way to utilize technological tools; how to facilitate interaction between students, how to arrange the material and how to motivate the students.

Review of Related Literature:

Kumar (2019) conducted a study on the impact of Blended Learning Environment on academic achievement. Quasi-experimental design research methodology was used to collect the data. The sample was drawn from Government diploma polytechnic college in Karaikodu, Tamil Nadu. Tools used for this research are Blended Learning Environment and Academic Achievement. Result of this study revealed that there was a statistically significant difference between the scores of two groups. The study concluded that blended learning improves student's academic achievement.

Baris (2020) explored the study on the effect of Blended Learning on academic achievement and attitudes at social study courses. The aim of this study is to search the achievement and persistency of blended learning method at social study lesson with the empirical method used at research, the impact of independent variables examined on experimental group is blended learning method. Total 52 students of 7th class group and 26 students for Experimental group and 26 students for control group were taken for this study. Result of this study revealed that blended learning is more effective than face-to-face learning.

Tong (2021) conducted a study on the effectiveness of blended learning on student's academic achievement, self-study skills and learning attitudes. A quasi-experimental study was conducted to compare the academic achievement, self-study skills and learning attitudes. Self-study skills and learning attitudes of 46 students in control group who used traditional methods to those of 44 students in the experimental group who used to compare the data which were then analysed quantitatively and qualitatively. Result of this study revealed that blended learning improved student's self-study skills and academic achievement.

Kaul (2022) investigated a study on the Impact of Blended Learning approach on the academic achievement in science. The study was conducted on 70 students from class 7th. The students were divided randomly into two groups. Result of this study revealed that blended learning is an effective method for teaching Science and may be applicable to other school subjects.

Objectives of the study:

1. To study the difference between the academic achievement of the experimental group and the control group before the treatment in Maths.

2. To study the significant difference between the academic achievement of the experimental and control group after the treatment in Maths.
3. To study the significant difference between academic achievement of the experimental group before and after the treatment in Maths.

Hypotheses:

1. There exists no significant difference between the academic achievement of the experimental group and the control group before the treatment in Maths.
2. There exists no significant difference between the academic achievement of the experimental group and control group after the treatment in Maths.
3. There exists no significant difference between the academic achievement of the experimental group before and after the treatment in Maths.

Tools of the study:

Achievement test were administered for pre test and post test. 25 objective type items had given to class 8th students for checking their achievement. The test was of 50 marks and duration of test is for 40 minutes.

Analysis of data:

The data was analysed by employing mean, S.D. and t test to find the difference in the mean of control group and experimental group.

Hypothesis-1. There exists no significant difference between the academic achievement of the experimental group and control group. The data was analyzed and is represented in Table-1.

Table: 1. Academic achievement (pre-test) of the Experimental and Control Group in Maths

S.No.	Variable (Achievement Test)	N	Mean	S.D.	S.ED.	df	t-value	Inference
1.	Experimental Group	50	22.56	6.31	2.93	88	0.63	Insignificant at 0.05 and at 0.01 level
2.	Control Group	40	24.43	5.47				

With reference to Table-1, the mean value and S.D. of achievement of experimental group is 22.56 and S.D. is 6.31 whereas mean value and S.D. of Control group is 24.43 and 5.47 respectively. The t value comes to be 0.63 which is insignificant at 0.05 and 0.01 level.

2. There exists no significant difference exists between the academic achievement of the Experimental group and Control group after the treatment in Maths.

Table:2 Academic achievement (Post -test) of the experimental and control group)

S. No.	Variable (Achievement)	N	Mean	S.D.	S.ED.	df	t-value	Inference
1.	Experimental Group	50	45.70	9.43	1.73	88	9.45	Significant at 0.05 and at 0.01 level
2.	Control Group	40	29.34	7.09				

With reference to Table-2. The mean value and S.D. of experimental group is 45.70 and 9.43 and for control group is 29.34 and 7.09 respectively. The t- value comes to be 9.45 which is significant at 0.05 and at 0.01 level. So, the hypothesis 2 “There exists no significant difference exists between the academic achievement of the Experimental group and Control group after the treatment in Maths is rejected.”

3. There exists no significant difference between the achievement of the experimental group before and after the treatment in maths.

Table-3 Academic achievement of the experimental group before and after the treatment in maths.

S. No.	Variable	N	Mean	S.D.	S.ED.	df	t-value	Inference
1.	Pre-test	50	22.46	4.34	1.21	98	19.23	Significant at 0.05 and at 0.01 level
2.	Post -test	50	45.73	7.42				

Table-3 reveals that mean and S.D. of Pre-test of Experimental group is 22.46 and 4.34 and mean and S.D. of post test group is 45.73 and 7.42. The t value comes out to be 19.23 which is significant at 0.05 level and at 0.01 level. So, the hypothesis-3. There

exists no significant difference between the achievement of the experimental group before and after the treatment in maths is rejected.

4. There exists no significant difference between the academic achievement of the control group before and after the treatment in maths.

Table -4 Academic achievement of the control group before and after treatment in maths.

S. No.	Variable	N	Mean	S.D.	S.ED.	df	t-value	Inference
1.	Pre-test	40	23.46	5.96	1.24	48	5.45	Significant at 0.05 and at 0.01 level
2.	Post -test	40	30.23	8.34				

With reference to Table-4, the mean value and S.D. of achievement of experimental group is 23.46 and S.D. is 5.96 whereas mean value and S.D. of Control group is 30.23 and 8.34 respectively. The t -value comes to be 5.45 which is significant at 0.05 and at 0.01 level. So, the hypothesis no. 4 “There exists no significant difference between the academic achievement of the control group before and after the treatment in maths” is rejected.

CONCLUSION:

1. Blended Learning approach in the 6th class has proved to be effective strategy in comparison to traditional method of teaching and learning.

2. It was found that to improve learning, communication and networking and to support learners in choosing the ideal content. Blended learning allows co-operative learning and transforms the role of teacher from the dissemination of knowledge to a facilitator. Therefore a combination of traditional learning and on-line learning in particular or Blended in general creates a more integrated approach for both instructors and learners.

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