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Effectiveness of blended learning approach on academic achievement in mathematics among class viii in Kohima

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Abstract

The object of this experimental study is to determine the effectiveness of Blended Learning Approach in Nagaland. The applicability and effectiveness of this approach have been made by comparing Conventional Approach and Blended Learning Approach by using the Academic Achievement Scores of the students.

Keywords: Blended learning approach, traditional approach, technology, teacher and students

Introduction

Blended means “mixed together” and learning means “knowledge acquired through study, experience, or being taught”. Therefore, blended learning is a hybrid learning method which combines the advantages of online and traditional face-to-face learning, which gives a balance between classroom and online learning environment. It requires the physical presence of both teacher and student, with some elements of student to control over time, place or pace. The term design “21st century literacies” was coined by The National Council of Teacher education to describe the social nature of learning that is supported by the ability to collaborate using digital technologies in learning. These ‘new literacies’ includes strong communication and communication skills, expertise in technology, innovative and creative thinking skills and an ability to solve requires the physical presence of both teacher and student, with some elements of student problems.

Though Nagaland is the first in the country to install ICT infrastructure yet providing online classes in all the school is lacking behind. Nagaland is struggling to compete with other states of the country in the field of implementing technologies in all educational institutions. Most of the schools use traditional learning approach or face-to-face education which is teacher-centred whereas some of the schools use behaviorist learning approach. Only few schools have started to implement smart classrooms. Various schools have computer laboratories but it is only used to practice basics about computer like on how to operate a computer and to know the purpose of MSWORD and MSEXCEL.

Based on the availability of the materials, the researcher blended traditional learning approach along with some modern technologies and software to know whether blended learning approach can improve the learning environment or whether learning remains unchanged. For this, the researcher used True Experimental Design or Post-Test Design. The students were divided into two groups CONTROL GROUP and EXPERIMENTAL GROUP respectively. Control group was tested using traditional or conventional learning approach and experimental group was tested using a blended learning approach. Later, a test was conducted for both the groups so as to know the learning outcome of the methods being used.

Objectives

1. To investigate the influence of gender on the effectiveness of conventional learning approach on academic achievement in mathematics among class VIII in Kohima.
2. To investigate the influence of gender on the effectiveness of blended learning approach on academic achievement in mathematics among class VIII in Kohima.

- To compare the influence of mean achievement scores on the effectiveness of the blended learning approach on academic achievement in mathematics among class VIII in Kohima.

Methodology

The study is true experimental in nature wherein post-test is employed. It consisted of two groups control group and experimental group where both the groups belonged to same age and class levels. In control group, the students are given treatment using a conventional learning approach. In experimental group, the students are given treatment using blended learning approach. After the treatment, a test is conducted and the result is assumed as the academic achievement of the students.

The chosen variables were classified into two viz, dependent and independent variables. The dependent variable is the academic achievement in mathematics and the independent variables are conventional method, blended learning method and gender. Kohima District was used as a sample by using Purposive Sampling Method. From the population of 104 schools in Kohima (both private and government), Class VIII of two (2) schools namely Modern Academy School and Holy Family Higher Secondary School were taken as sample using Simple Random Sampling Method. Total of 80 samples, 40 each from both the schools were used.

For collecting the necessary data, traditional lesson plan for conventional method and 5E Lesson plan for blended learning method and a well-structured questionnaire were used as the main tools. Simple statistical analysis used are frequency, mean, standard deviation and T- Test to show the effectiveness of teaching and performance of the students.

Result

The description of result obtained throughout the study are presented below:

The above table shows the scores of the students and frequency distribution for Conventional Group. Where, the values of mean= 18.35, median= 19.00 and mode= 14. The standard deviation= 2.992, Skewness= -.133, kurtosis= -1.335, range=9. The maximum mark scored is 23 and the minimum mark scored is 14.

The standard deviation= 3.330, Skewness=. 912, kurtosis=. 021, range=13. The maximum mark scored is 24 and the minimum mark scored is 11.

Table 1: Frequency Distribution for CGAS and EGA

Statistics	CG Achievement Score	EG Achievement Score
N(Sample)	40	40
Mean	18.35	15.80
Median	19.00	14.50
Mode	14a	14
Std. Deviation	2.992	3.330
Skewness	-.133	.374
Std. Error of Skewness	.374	.374
Kurtosis	-1.335	.021
Std. Error of Kurtosis	.733	.733
Range	9	13
Minimum	14	11
Maximum	23	24

Multiple modes exist. The smallest value is shown.

Table 2: Frequency Distribution for CGAS

Achievement Score	Frequency	Cumulative Frequency
14	6	6
15	5	6+5=11
16	2	11+2=13
17	3	13+3=16
18	2	16+2=18
19	5	18+5=23
20	5	23+5=28
21	6	28+6=34
22	3	34+3=37
23	3	37+3=40
Total	40	

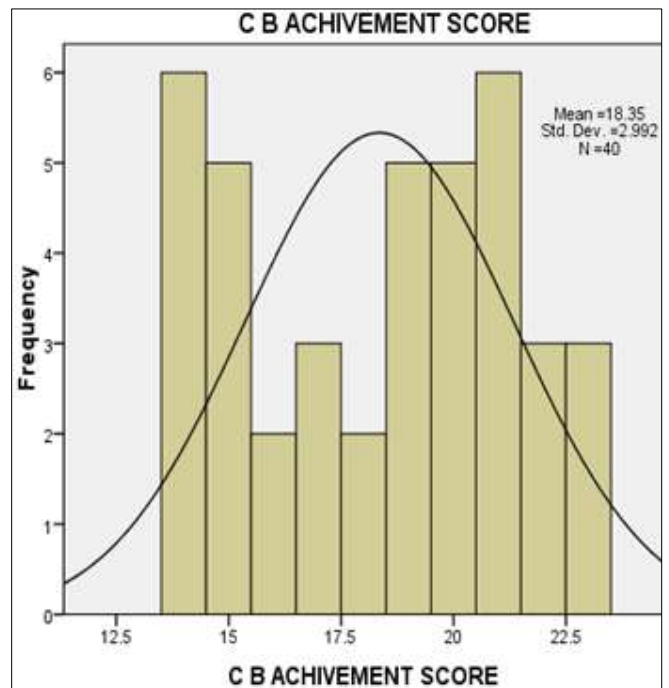


Fig 1: Histogram of control group achievement score

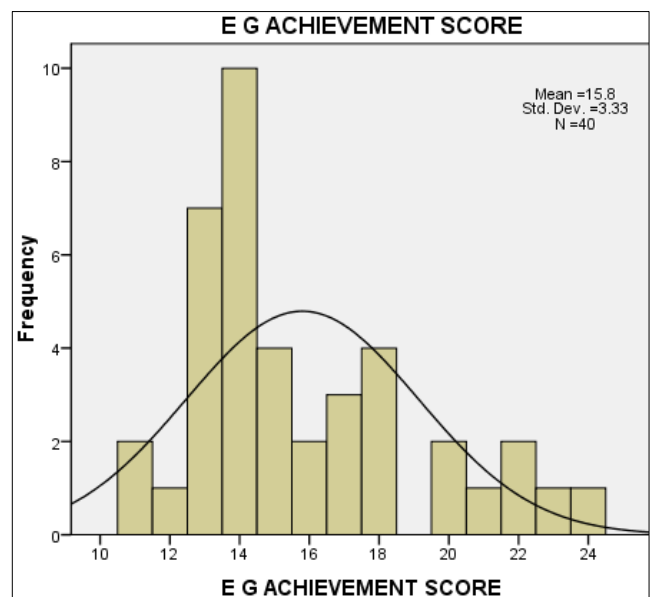


Fig 2: Histogram of experimental group achievement score

Level of significant difference between conventional learning approach and blended learning approach.

Table 3: Frequency Distribution for Experimental Group Achievement Score

Achievement Score	Frequency	Cumulative Frequency
11	2	2
12	1	2+1=3
13	7	3+7=10
14	10	10+10=20
15	4	20+4=24
16	2	24+2=26
17	3	26+3=29
18	4	29+4=33
20	2	33+2=35
21	1	35+1=36
22	2	36+2=38
23	1	38+1=39
24	1	39+1=40
Total	40	

Table 4: Significance of difference in the Mean Score of Conventional learning approach and blended learning approach. (N=80)

Variable	Mean	N	Std. Deviation	Std. Error Mean	t-value
CGAS	18.35	40	2.992	.473	4.065**
EGAS	15.80	40	3.330	.526	

The above table shows the scores of the students and frequency distribution for Experimental Group. Where, the values of mean= 15.80, median= 14.50 and mode= 14.

Note: “***”: Indicates significant at 0.05 level.

Table 4 shows the T-Test value between CGAS and EGAS. The computed value of ‘t’ is 4.065 and the critical value of ‘t’ is 2.021 and 38 degree of difference at 0.05 level of significant. It can be concluded that there is a significant difference between conventional learning approach and blended learning approach on academic achievement in Mathematics among Class VIII students in Kohima District.

Note

- CG: Conventional Group
- EG: Experimental Group
- CGAS: CG Achievement Score
- EGAS: EG Achievement Score

Conclusion

Blended Learning Approach is an innovative way to gain knowledge and better understanding not only with the contents of textbooks but beyond that. It is a practical way of learning. Though the result of Conventional Learning Approach is better than Blended Learning Approach, it can be said that it is because of lack of proper infrastructure, lack of usage and practice of different technologies and software. In the recent years to come, Blended Learning Approach can be used widely and effectively to improve the learning outcome. By implementing this approach, it will motivate the learners to focus, explore and research and learning by doing at their own pace anywhere and anytime. Thus, making the learning more dynamic, interesting, motivating and easy to understand.

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