



EFFECT OF BLENDED LEARNING APPROACH ON ACHIEVEMENT IN GEOGRAPHY AT SECONDARY SCHOOL STAGE

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Introduction

The educational world predominant today is one which both teachers and learners continually employ various modes of technology for communication and interactive engagement. Such diversity for both delivering and understanding content has provided educators and digital native generation of students a unique approach. It could be argued that as a result of the increasing prevalence of computers and with internet in particular online learning-teaching environments are rapidly becoming more widespread. However, online teaching-learning environments lack many advantages that face-to-face environments have, which led to the notion of blended learning approach.

Blended learning is the integration of classroom face-to-face learning experiences with online learning experiences.

There is considerable intuitive appeal to the concept of integrating the strengths of synchronous (face-to-face) and asynchronous (text-based Internet) learning activities. Sikora and Carroll (2002) reported that online higher education students are less satisfied with totally online courses when compared to traditional courses. Therefore, a combination of e-learning and conventional learning could be much more beneficial for better learning outcomes. Furthermore, Graham et al (2003) argued that blended learning was developed for its potential advantages in offering a more effective education, convenience, and access to teaching-learning environments.

Blended Learning Approach

According to Clark and Mayer (2007), there is a range of definitions of blended learning. For example, Thorne (2003) and Gutierrez (2006) suggest that blended learning is the integration between e-learning and face-to-face instruction. Mayadas and Picciano (2007) on the other hand define blended learning as simply a combination of online learning and face-to-face instruction. Garnham and Kaleta (2002) defined blended learning as 'hybrid' courses with a more sequential perspective as conventional courses with parts of their instructional activities running online, so that such an arrangement considerably cuts down the time students spend in face-to-face classrooms.

In the current study blended learning took in the form of a combination of face-to-face classroom teaching with lecture and class formats and the use of an asynchronous online classroom. The students had to attend classes in person, but also had access to asynchronous online classroom to undertake a range of learning activities based on subject. These included enhancing their knowledge through additional reading and through browsing relevant linked websites, with other activities such as self-assessments, exercises and group tasks and structured discussions.

A number of aims are associated with the design of blended learning environments. Osguthorpe and Graham (2003, p. 231) emphasize six aims of designing blended learning, which include 'pedagogical richness, access to knowledge, social interaction, personal agency, cost effectiveness, and ease of revision'; factors all supported by Bernard et al.'s (2009) meta-analysis. Some researchers (e.g., Akkoyunlu and Soylu, 2006; Gould, 2003) argue that by using blended learning students will be able to benefit from the combined merits of both e-learning and face-to-face learning. Thus, in the current study, the asynchronous online classroom provided accessibility and flexibility in terms of time and place, with the opportunities of more interaction (connectivity) through online discussion, efficiency, taking in to account the individual differences between learners in terms of where they chose to focus their time and effort. These activities were structured to fit with the curriculum goals and specific learning outcomes of the module, and to take advantage of the facilities within the online classroom environment. In the meantime the face-to-face classroom retained the usual approach to teaching and learning adopted in the University, relying mainly on lecture presentation, question and answer, and with assigned readings for each session.

Several researches have been carried to test the effectiveness of blended learning method over conventional learning. Sandhu (2002) in his study concluded the effect of computer

assisted learning as effective learning method in geography subject. Further the results revealed that students were actively participating in the classroom as they were getting concrete examples on monitors. Blended learning approach yielded effective learning outcomes comparatively to traditional learning approach (Dziuban, 2005; Reasons et al., 2005; Akkoyuklu and Soylu, 2006; Scida and Saury, 2006; Pereira et al, 2007; Sadaghiani, 2011).

The study

This study was carried out using pre-/post-test design with a control group. The current study involved two groups, one experimental groups and one control group. Both the groups were given an achievement pretest of their baseline knowledge and understanding of the module content then the two experimental groups had varied teaching experience; the first group was taught by e-learning, the second group by blended learning (a combination of the face-to-face classes, with access to the e-learning environment as a distinct group), while the control group received the usual teaching, which was a face-to-face approach. Differences between the two groups were then identified in terms of achievement.

Table 1 Topic Wise Objectives

S.No.	Topics	Objectives
1	Agriculture	1) Able the students to understand the role and importance of Agriculture. 2) Differentiate between Subsistence and Commercial agriculture. 3) Able to identify different crops.
2	Industries	1) Elaborate the term 'Industry'. 2) Able to define the factors which influence the location of an industry. 3) Able to identify the similarities between different industries.
3	Modes of Transportation System	1) Able to know the importance of transportation system. 2) Able to understand the role of transportation system in our day to day life. 3) Able to differentiate different mode of transportation system.

Study sample

Initially purposive sampling was employed to select those schools which have facilities of internet on each system and English and Hindi as the medium of instruction. For this investigation, 100 students of class VIII were randomly taken from one school of Amritsar city i.e. Bright Land senior study school.

TABLE 2.1 Sex Wise Distribution of the Sample

School	Boys	Girls	N
Bright Land senior study school	50	50	100

TABLE 2.2 Group Wise Distribution of the Sample

Group	No. of students
Experimental	50
controlled	50

Variables in the study

Independent Variable

Blended Learning and Traditional instructional strategies were independent or treatment variables.

Dependent Variable

Achievement in geography was a dependent variable.

Controlled Variable

Control is the essential ingredient of an experiment study. In a well-designed experiment, the various factors that influence the outcome of experiment must be controlled.

In present study the investigator tried to control all the possible extraneous variables that were likely to affect the outcome (achievement of the pupils) of the experiment as follows:

- **Intelligence**

Intelligence was controlled by equating experimental and controlled group by using Srivastava's General Mental Ability Test prepared by Dr. R.P. Srivastava and Dr.KirenSaxena.

- **Content Variable**

Present study was carried out by using Blended learning and traditional method. A list of topics was selected for teaching of geography. The content was discussed with the experts and school teachers. Selected topics are mentioned below in table 1

Equating the Groups

An intelligence test was administered to equate the group of students of VIII standard on the basis of intelligence test scores. The student sample of 125 was administered the intelligence test. On the basis of the scores of intelligence test, the students were distributed in three groups i.e. High Intelligence, Average Intelligence and Low Intelligence. High, Average and Low groups on intelligence were formed by using the cut points on means and S.D. Further

Average Intelligence students were divided into two groups, namely Conventional Teaching Group and Blended Learning Group i.e. Control Group and Experimental Group respectively.

The table showing distribution of sample is presented below in Table 2.1 and 2.2

3.2 DESIGN OF THE STUDY

The present study is a field experiment in order to investigate the effect of Blended Learning Approach on achievement in geography at secondary stage. The study followed pre-test and post-test design. Blended learning approach studied as treatment variable and achievement gain scores are studied as development variable.

3.3 PROCEDURE

Geography Achievement test is administered to all the students of two groups namely Experimental and Control. Experimental group was taught through Blended Learning Approach whereas control group was taught through traditional learning approach. After completion of teaching through both the methods of teaching, post geography achievement test was administered. Gain scores are computed for experimental and control group.

TOOLS

The following tools have been framed for the present investigation:

1. General Mental Ability Test by Srivastava and Saxena, 2005
2. Lesson Plans based on specific objectives (prepared by investigator)
3. Achievement Test (prepared by investigator)

Statistical Techniques

After administration of Achievement test, following statistical techniques are employed to analyze the collected data:-

- 1) Mean and Standard Deviation are computed to understand the nature of data.
- 2) Significance of difference statistics is employed on the achievement gain scores and attitude gain score to analyze the data.

Analysis and Interpretation

Hypotheses I:

“There exists no significant difference in the achievement of the students taught through Blended learning approach and conventional method”.

TABLE 3.1 ‘t’ Ratio of Gain Score For achievement Test in Geography

Group	N	Mean	S.D.	t-value
Experimental	50	24.5	3.55	
Controlled	50	14.2	4.91	3.53*

***significant at 0.01 level**

The close examination of table 3.1 reveals that the mean score of achievement in geography of the students taught by blended learning are 24.5 and mean score of achievement test of student taught by conventional learning came out to be 14.2. The mean scores of experimental group is higher than the mean scores of controlled group. The obtained t-ratio is 3.55 which is significant at 0.01 level. This implies that there is a significant difference in the achievement of students who have learnt with the help of blended learning. It indicates that the difference between the means is due to the difference in mode of instruction. Experimental group performed better, it means blended learning instruction is better than the conventional method.

Hypotheses II:

The second hypotheses stated “There exists no significant gender difference in achievement in geography with blended learning approach”

TABLE 3.2 ‘t’ Ratio of Gain Score For achievement of Boys and Girls in Geography of Experimental Group

Group	N	Mean	S.D.	t-value
Boys	25	25.84	3.47	
Girls	25	24.5	3.55	0.56*

***significant at 0.01 level**

The close examination of table 3.2 reveals that the mean score of achievement of the boy students taught by blended learning method was 25.84 and mean score of achievement test of girl students taught by blended learning came out to be 24.5. The difference of mean is (25.84-24.5) i.e. 1.34. The t-value calculated is 0.56 which is insignificant at 0.01 level. So there exists no significant gender difference in achievement in geography with blended learning approach. It means that experimental group is found to be nearly equally superior for both boys as well as girls for learning geography.

Discussion

At general level, it was hypothesised that students will score high on achievement score when taught by blended learning approach as compared to conventional learning approach. Consistent with the results of previous studies (Dziuban, 2005; Reasons et al., 2005; Akkoyuklu and Soylu, 2006; Scida and Saury, 2006; Pereira et al, 2007; Sadaghiani, 2011)

This study revealed that students in experimental group i.e. student taught by the investigator through Blended learning approach have yielded higher gain scores in achievement in geography concepts than students in control group i.e. student taught by the investigator through conventional method of teaching. The second major finding of this study states that gender differences does not exist in achievement scores in geography when taught by blended

learning approach. Graff (2003) also found few differences among the performance of students on the basis of gender. It is evident that blended learning approach plays an important role in the improvement of achievement level. This approach supplement the achievement of students in geography by letting students interact within the classroom as well as by providing concrete examples on monitors to understand the content more easily. So teachers should use blended learning technique in teaching geography in the classroom which can make task easy and students can achieve better in geography.

Conclusions

The blended learning approach undertaken in this study provided a clear advantage in terms of students' achievement in geography subject in comparison to conventional learning approach. Particularly combination of face-to-face teaching and e-learning in the presence of instructor improve the learning outcomes. It suggests that the physical absence of a teacher may be a disadvantage in the context of the study. As far as the strengths of the study are concerned, in the current study all two groups were similar in terms of curriculum, course materials and chosen subject. The participants of the study were well matched in terms of technological skills. On the other hand, one of the limitations of the present study was the relatively small sample and only one subject was taken up. Overall, this study adds to the existing knowledge that blended learning contribute positively in academic achievement of students. However, further researches should be carried out in other subjects to test the effectiveness of blended learning approach.

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