The Effects of using Blended Instructions on Achievement of Indian Undergraduate Students in Psychology

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Abstract: This paper is a report on the effect of using blended instructions on Indian undergraduate students' achievement in psychology. Blended instruction has additional advantage over exclusive online learning instructions because class gives extra learning value and if an element of class is combined with technology then it provides more collaboration, interaction, engagement and holistic learning relatively provided by exclusive online learning. The experimental group of the study received blended instructions (online plus traditional instructions) in a psychology course while control group received traditional instructions in the same course. The students’ gain scores on achievement test in psychology was compared for both groups to find out any significant differences between the groups. Data was analyzed using t-test and significant differences were found in favor of blended instructions relatively traditional instructions on students’ achievement in psychology which signify that blended instructions have the potential to enhance achievement of students.

1. Introduction

A huge rise in the use of technology has led teachers to employ latest digital technologies in their classroom while teaching and learning. Teacher takes regular classes via lecture method where students listen to their teacher in a brick and mortar classroom and apply latest technology simultaneously along with lecture method which has formed a blend of digital technology with traditional classroom instructions. This blend is termed as blended learning where conventional way of teaching is amalgamated with computer based technology. It is not necessary to blend traditional instructions with the latest technology as blending of philosophies, theories of learning and methodologies of teaching and learning is also employed by teachers or researchers in blended learning. However, an advancement in technology has stimulated researchers to blend it with the methodologies of teaching-learning. The chief aim of blended learning is to provide productive experiences of learning to students through combining various learning environments such as virtual learning, course management software, e-learning, self-paced learning environment in the form of asynchronous online learning and real time learning which is either provided by synchronous online learning or traditional method of instructions. These learning environments are employed in conjunction with different pedagogy or models of learning.

1.1 Definitions of blended Learning

There is no precise definition of blended learning because it means different to different researchers or teachers as it is dependent on the specific method or technology they are mixing together for improving student outcomes or quality of teaching and learning. Blended learning derived many of its features from distance education course where instructions are delivered by an online mode or a part of it is delivered in a traditional classroom as per the flexible timings of students. It gives autonomy and freedom of expression to students. Some of the popular definitions of blended learning are:

It is a fusion of traditional F2F (face-to-face) learning systems and distributed learning systems where computer based technologies plays an important role [5]. It is a process of removing weakness and mixing strengths of various modes of learning where students attend face-to-face teaching sessions in a brick and mortar classroom and also instructions and content are delivered online. In addition, the three common meanings of blended learning proposed by Graham, Allen and Ure in 2003 (cited by [5]) are:

- Combining instructional modalities (or delivery media) (Bersin & Associates, 2003; Oray, 2002a, 2002b; Singh & Reed, 2001; Thomson, 2002)
- Combining instructional methods (Driscoll, 2002; House, 2002; Rossett, 2002)
- Combining online and face-to-face instruction (Reay, 2001; Rooney, 2003; Sands, 2002; Ward & LaBranche, 2003; Young, 2002. (p. 2)

Besides, Allen, Seaman and Garrett [1] defined three distinct models of online and blended learning: of seat time being replaced by online activity.
1. Online- Course where almost or all of the content delivered online. Defined as at least 80% of the seat time being replaced by online activity.

2. Blended/Hybrid- Course that blends online and face-to-face delivery. Substantial portion (30-79%) of the content is delivered online.

3. Web-Facilitated- Course that uses web-based technology (1-29% of the content is delivered online) to facilitate which is essentially a face-to-face course. (p. 5)

In all of the above definitions, researchers have highlighted blended learning as the combination of online component of online learning environment and real face-to-face component of traditional learning environment. Thus, blended learning is a good combination of technology and teachers which supports effective learning environment for the betterment of learners where strengths are mixed together and weaknesses are removed. Delialioglu and Yildirim [3] believe that blended learning environment aim to combine attributes of online learning, such as its efficiency and freedom to access information anytime with less efforts, with attributes of traditional classroom instruction, such as allowing students to work with the new information presented by their teachers as well as real face-to-face interaction with students and the teacher in the classroom. For the purpose of this research, blended learning is defined as a learning where online learning (asynchronous & synchronous) is combined with traditional learning (F2F lecture method in a traditional classroom) and this combination is dependent upon the proportion of online and traditional components as proposed by Allen, Seaman and Garrett [1].

2. Objective of the study

This study was conducted to investigate the effect of blended instructions in psychology on undergraduate students’ achievement. It seeks to answer the following objective:

- To study the effect of blended instruction on achievement of undergraduate students in psychology.

3. Review of the related literature

The review of the previous literature was done in terms of blended mode of instructions compared with traditional instructions and its influence on achievement of students.

Morris [8] compared learning outcomes in a traditional and blended learning modes of instructions by utilizing business simulation with high cognitive load on ninety-four sample of business undergraduate students. The blended learning mode of instructions did not yield positive learning outcomes when compared to traditional mode of instructions.

Besides, Al-Saei, Al-Kaabi and Al-Mufthah [2] scrutinized the effect of blended e-learning environment on students' achievement and no significant differences between blended e-learning and traditional group in the achievement gain scores were found.

Vernadakis, Giannousi, Derri, Michalpoulos and Kiomourtzoglou [10] evaluated the impact of blended and traditional instruction on students' performance in the subject of Physical Education. The sample consisted of 53 undergraduate students and results proved that there were significant differences between the blended instruction and traditional instruction groups in terms of students' performance. The students who participated in blended instruction had higher performance scores than those students who participated in traditional instruction.

On the other hand, Owston, York and Murtha [9] examined the relationship between student perceptions in blended learning course and their achievement. A sample of 577 students participated in the study and findings showed a strong relationship between perceptions and achievement. Students having high achievement were more satisfied with the course taught by a blended learning mode and preferred blended learning more over completely traditional or online comparatively students who had low achievement. Blended learning was considered as more convenient and more engaging than traditional face-to-face learning by students who had high achievement.

Furthermore, Kiviniemi [6] scrutinized the effects of blended learning on student outcomes in a public health course. The quasi-experimental nonequivalent control group design was used where in experimental group consisted of 38 students while control group consisted of 28 students. There was a statistical significant increase in student performance in a public health course taught by blended learning.

Likewise, Melaughlin, Gharkholonarehe, Khanova, Deyo and Rodgers [7] proved that students who accessed online part in a blended learning participated more in class clicker questions and performed better on the examination in a cardiovascular pharmacotherapy course.
The scrutiny of the studies associated with blended and traditional learning and its impact shows that blended learning group was more successful than traditional group in terms of student performance in most of the studies [10], [6], [7]. However, few of the previous studies showed antagonistic results as they did not find significant differences between blended learning and traditional learning on students’ achievement [8], [2]. These combination of findings pertaining to blended and traditional modes of learning warrants further investigation into it. It triggers enough to investigate the influence of blended learning on achievement of students afresh.

4. Hypothesis

The following hypothesis of the study was framed with respect to the objective of the study:

- There will be no significant difference in the mean gain scores on achievement in psychology among students taught through blended learning or traditional learning.

5. Methods and Procedures

The method and procedure of the study has been discussed under the subsequent sub-headings:

5.1 Research design

An experimental method was employed to study the problem where students were randomly distributed to experimental and control group. The design employed for the study was pre-test/post-test experimental control group research design where independent variable such as method of instructions was studied at two levels: blended and traditional instructions, while dependent variable of the study was achievement of students in the psychology course.

5.2 Sample

The sample of the study (n=50) consisted of regular first semester undergraduate students who were studying psychology at D.A.V College, sector-10 of Chandigarh. The total sample (n=50) was distributed randomly where experimental group constituted 25 and control group consisted of 25 students respectively.

5.3 Instruments

An achievement in psychology test developed by an investigator was employed for the present study. The reliability coefficient of the achievement test is 0.83 which confirms it to be a reliable tool.

A blended course in selected topics of the psychology was developed to teach both experimental group and control group. A course management system software (asynchronous & synchronous modes) was employed to teach online part of the course in psychology. Both the groups were controlled on same course in psychology, same number of students, taught by same teacher who was an investigator of the present study, but, differed in terms of methods of instruction.

5.4 Procedure

The study consisted of two groups where one group was experimental group and another was a control group. 50 students were randomly distributed to both the groups. The experimental group consisted of 25 students who underwent treatment in which they were taught a course developed in psychology by blended method of instructions for 15 days whereas control group which constituted 25 students was taught by traditional method of instructions for 15 days. The dependent variable was computed on the basis of gain scores achieved by each student on achievement in psychology.

6. Discussion of Results

For accomplishing the objective and testing hypothesis of the study, the significance level (alpha=.05) was chosen for interpreting the results of the study. t-test was applied and calculations were done by utilizing SPSS. Before applying t-test, it was ensured if the data has met all assumptions of normality and homogeneity. For checking it, descriptive statistics was utilized and it was observed that mean of pre-test scores of both experimental (17.56) and control (14.84) were approximately close to each other while the values of skewness and kurtosis also existed in the normal or acceptable range of normal distribution. The skewness and kurtosis of the experimental group (skewness: -0.114, Kurtosis: -1.168) and for control group (skewness: -0.124, kurtosis: -0.394) on pre-test scores was within the acceptable limits of normality distribution. In other words, data was normal for both experimental and control groups.

For testing the variances of the total sample, Levene's test was applied and it has showed that pre-test scores had equality of variances for both the groups (Levene’s statistic: 1.122, p=0.295 > .05 alpha level of significance).

The experimental and control group were matched on pre-test of achievement in psychology scores and t-test was conducted for matching the group. The result of the t-test indicated no significant differences.
employing traditional instructions. comparatively students who were taught by blended instructions achieved more in psychology. After collating means of both the groups, it was differed on achievement in psychology between students taught through blended learning or traditional learning, t (48) = 1.623, p = 0.111 > 0.05 alpha level of significance. Besides, descriptive statistics was also utilized to study the nature of distribution of gain scores on achievement test in psychology and the results showed that mean gain score of experimental and control groups were different from each other (mean of blended learning group = 28, mean of traditional learning group = 21.4) and the values of skewness and kurtosis lied within the acceptable limits of normality distribution (skewness and kurtosis of blended learning group = -1.207, 0.905, skewness and kurtosis of traditional learning group = -0.219, -0.615). Furthermore, both the groups had homogeneity of variances on gain scores (Levene’s statistic: 0.228, p = 0.635 > 0.05 alpha level of significance). For testing the hypothesis of the study (there will be no significant difference in the mean gain scores on achievement in psychology among students taught through blended learning or traditional learning), t-ratio was computed to study the significance of differences between mean gain of two groups. The results indicated that group means differ significantly because p value is .000 which is less than 0.05 alpha level of significance. It indicates that both the groups such as experimental and control group were differed on gain scores at .05 alpha level of significance. In other words, blended and traditional groups were differed on gain scores of achievement in psychology; t (48) = 7.704, p = .000. Therefore, null hypothesis which states that there will be no significant difference in the mean gain scores on achievement in psychology between students taught through blended instructions or traditional instructions is rejected as both of the groups achieved different on achievement in psychology gain means. After collating means of both the groups, it was found that students who were taught by using blended instructions achieved more in psychology comparatively students who were taught by employing traditional instructions.

7. Conclusion

In scrutinizing the effect of blended instructions on Indian undergraduates’ achievement in psychology, this study found that achievement of students in both experimental (blended learning) and control (traditional learning) group was improved as all subjects gained from pre-test of achievement to its post-test which was assessed by computing gain score of each student. Both the groups were controlled on same course in psychology for both blended and traditional groups. It was found that students of experimental group who were taught by blended method of instructions scored significantly better on the achievement in psychology than the students of control group who were taught by traditional method of instructions. It suggests that using blended instructions rather than traditional instructions in teaching psychology improves achievement of undergraduate students. This research supports the findings by [10], [6], [7].

8. References


