



Effect of Blended E-Learning on Behavioural Intention of Senior Secondary School Students

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Abstract: *The present research used experimental method to study the effect of blended e-learning on behavioural intention of senior secondary school students. The pre-test post-test control group design has been used in the study. The sample of the study included 60 students of class XI Commerce stream from two private co-educational CBSE affiliated schools of Nangal City, District Ropar in Punjab. The experimental group was exposed to Blended e-learning and the control group was instructed through traditional teaching. The findings showed that the mean gain scores on behavioural intention of students in the blended e-learning were found significantly higher than the mean gain score of students taught through the traditional teaching.*

Key Words: *Blended E-Learning, Behavioural Intention, Senior Secondary School Students.*

1. INTRODUCTION:

While the developments monitored in science and technology in the 21st century have enlarged the responsibilities of an education system and also brought new opportunities. Recent, Internet-based education technologies have eliminated conventional place and time obstructions and offered students an access to information whenever and wherever they want. Many users prefer the e-learning platform as there is easiness in learning new things from experts while being at home. Sahan (2005) asserted that web-based education/e-learning is an innovative education form that can be used to support the acquisition of new information skills and the enrichment of students learning habits and experiences.

The implementation of e-learning systems in the school education demands the requisite knowledge of innovative technologies and certain skills on the part of teachers and students. Moreover, it will create a meaningful and conducive learning environment. E-learning is widely recognized in Malaysian Higher Learning Institutions, its usage is still having resistance among users that has become a major factor to integrate information and communication technologies in educational activities (Hani & Mahadi, 2014).

Therefore, for the E-learning to be successfully accepted and adopted by students, there is a need to identify the factors that influence their behavioural intention to use e-learning. The success of e-learning program depends not only on student's satisfaction but also their intent to using it (Brahmasrene & Lee, 2012). The students at school level should be able to learn effectively either in classroom or at home when learning in a blended environment that integrates the e-learning systems. For this reason, it is important to study the behavioural intention of students to use e-learning systems in blended mode.

1.1. BLENDED E-LEARNING:

Blended e-learning is an instructional arrangement that unites online digital media with traditional teaching-learning ways. It requires the physical existence of both teacher and student. In this instructional array, the students have control over time, place and pace. Blended instruction is apparently more efficient than merely face-to-face or solely online classes. Therefore, the solution is to provide and design such a system that is based on an integrated approach. The today's demand is to follow an approach that blends the advantages of both the modes i.e. face-to-face and online learning for the student's learning and that why it is known as 'Blended E-learning'.

Blended E-Learning refers to an instructional system that brings together manifold learning deliverance methods, embracing most often face-to-face classroom with asynchronous and/or synchronous online learning. It is described as capitalizing the paramount benefits of conventional face-to-face and online education. Graham (2006) characterized the



term blended e-learning as an integration of instruction from two historically distant learning environments i.e. classroom teaching and full e-learning.

The term highlights the central role of computer-based technologies (e-learning systems) in blended learning, focusing on access and flexibility, enhancing classroom teaching and learning activities and changing the manner in which individuals learn. Kavitha and Jaisingh (2018), Singh (2003) stated that blended learning is one of the type of e-learning in which e-learning is incorporated into traditional classroom learning via the computer, intranet or smart classroom, where the teacher and students gathers face-to-face and network is put up in the course design. It occurred as an ordinary advancement of programmed and electronic learning.

1.2. BEHAVIOURAL INTENTION:

Behavioural intention is an individual's drive or readiness to put an effort to perform the intentional behaviour which is controlled by its dimensions that are as follows.

Performance Expectancy is a belief that the use of a particular technology will be beneficial to an individual or his/her performance will increase and bring benefits in performing activities. It is a very strong predictor of behavioural intention to employ numerous technologies in both voluntary and involuntary settings (Venkatesh et al., 2003).

Effort Expectancy can be described as the degree of ease connected with the use of the system perceived by the users (Venkatesh et al., 2003). It is recognized as the level of ease linked with using of innovation (Venkatesh et al., 2012). In this research, effort expectancy construct shows the level of expediency and ease that the students experience while using new technology.

Social Influence is described as the level to which an individual perceives that others (such as peers and faculty members) believe he or she should use a modern system or a new approach in learning (Venkatesh, et al., 2003).

Facilitating Conditions refers to the extent to which people believe that an organizational and technical infrastructure exists to carry out the system. (Venkatesh et al, 2003). In the present study, the facilitating conditions include the computer/laptop/mobile, internet and projector.

Hedonic Motivation is stated as the related fun or pleasure experienced in using a technology. Venkatesh et al. (2012) affirmed that the entertainment obtained from the technology usage is called hedonic motivation.

Utilitarian Motivation refers to the degree to which a user performs task with encouraged efficiency. Thus, the system developers tactically design the system in such a way that would yield productive results in terms of user's performance.

Learning Value is connected with the learning achieved from technology (the achieved benefit) usage. The student's positive perceptions about learning from technology usage persuade their intention to dedicate more time and effort to find and acquire the needed knowledge from technology usage.

2. REVIEW OF RELATED LITERATURE:

Liaw (2008) examined student's perceived satisfaction, behavioural intentions and the effectiveness of Blackboard e-learning system. The study used survey method to understand learner attitude towards e-learning. The sample of the study comprised 424 university students. The data was collected through survey questionnaire. The data was analysed by calculating mean and standard deviation and regression analysis was also done. It was ascertained that the learner's behavioural intention to use the e-learning system was influenced by perceived usefulness and perceived satisfaction. Besides this, the multimedia instruction, interactive learning activities and e-learning system quality could also have their impact on e-learning effectiveness.

Cigdem and Ozturk (2016) evaluated the factors affecting student's behavioural intention to use learning management system. The study was conducted at two-year post-secondary military school in Turkey. A three-tier use model was executed to investigate the predictors of student's behavioural intention to use LMS. The sample of the study was 155 male students of first semester studying Computer literacy. An online questionnaire was used to collect the data. The data were analyzed through Pearson correlation coefficients and linear regression analysis. The results revealed a direct effect of multimedia instruction on perceived usefulness and perceived ease of use direct effect of interactivity only on perceived satisfaction. Furthermore, perceived usefulness had an immense effect on the behavioural intention to use LMS.

Mandal, Singh, Satyapriya, Paul and Barua (2020) investigated behavioural intention of student towards ICT base learning Interactions. The study was carried out in Delhi, Odisha and Uttar Pradesh states. The sample of the study included 30 students from each university. The sample of the study comprised 90 students of Agriculture courses. The theory of planned behaviour (TPB) was employed to determine the behavioural intention of students. The result revealed that attitudes towards and perceived behavioural control for ICT based learning interactions of the students has significance impact on the behavioural intention of students.



Saidu and Al Mamun (2022) investigated the factors affecting behavioural intention to use Google Classroom. The study was conducted at University level in Bangladesh and Nigeria. The sample of the study was 54 teachers who were using Google Classroom from all disciplines at the two Universities. The survey instrument prepared in Google Form was used to collect data. The data was analyzed by calculating mean, standard deviation, skewness and kurtosis. ANOVA was conducted for each dependent variable. MANOVA was also conducted to find the significant difference between the teachers of Bangladesh and Nigeria. The results showed a more positive behavioural intention of Bangladesh teachers towards Google Classroom than the Nigeria teachers.

3. OBJECTIVES OF THE STUDY:

The study was carried out to attain the following objectives:

1. To study the effect of blended e-learning on behavioural intention of students.
2. To study the effect of blended e-learning on dimensions of behavioural intention (i.e. performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, utilitarian motivation and learning value) of students.
3. To study the effect of blended e-learning on behavioural intention of students with respect to gender.
4. To study the effect of blended e-learning on dimensions of behavioural intention (i.e. performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, utilitarian motivation and learning value) of students with respect to gender.

3.1 HYPOTHESES OF THE STUDY:

The present study was intended to test the following hypothesis –

H₀₁: There exists no significant effect of blended e-learning on behavioural intention of students.

H₀₂: There exists no significant effect of blended e-learning on the dimensions of behavioural intention (i.e. performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, utilitarian motivation and learning value) of students.

H₀₃: There exists no significant effect of blended e-learning on behavioural intention of students with respect to gender.

H₀₄: There exists no significant effect of blended e-learning on the dimensions of behavioural intention (i.e. performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation utilitarian motivation and learning value) with respect to gender.

3.2 SAMPLE:

The sample of the present study was 60 students of class XI Commerce Stream from two private co-educational CBSE affiliated schools of Nangal Township, District Ropar (PB). The whole sample consisted of 36 boys and 24 girls' students.

3.3 TOOLS USED:

In the present study, the following tools were used to collect the data:

- A class website on Google Sites was prepared and validated by the investigator.
- The behavioural intention scale developed and validated by the investigator.

4. RESULTS AND DISCUSSION:

Following hypotheses have been tested by using different statistical techniques.

H₀₁: THERE EXISTS NO SIGNIFICANT EFFECT OF BLENDED E-LEARNING ON BEHAVIOURAL INTENTION OF STUDENTS

Table 1: Significance of Difference in Mean Gain Scores on Behavioural Intention of Experimental Group and Control Group

Variable	Group	N	Mean	SD	SEM	df	t-value	p-value
Behavioural Intention	Experimental	30	13.90	2.187	.399	58	13.495	.000
	Control	30	8.07	0.907	.166			

Here, N=Number of Observations, SD=Standard Deviation, SEM=Standard Error of Mean, DF=Degree of Freedom



The table 1 shows that the mean gain on behavioural intention at the pre-test and post-test of experimental group was found higher (13.90) than the mean gain score of control group (8.07). The calculated t-value was high (13.495) that also confirm a significant difference between two groups at the post test of behavioural intention. The calculated p-value which was less (.000) than the alpha level i.e. 0.05; represents the significant difference in the behavioural intention of two groups. Thus, the treatment given to the experimental group in the form of blended e-learning was found significant in enhancing the behavioural intention of students. Therefore, the hypothesis: There exists no significant effect of blended e-learning on behavioural intention of students got rejected. The difference between the mean gain scores of two groups at the pre-test and post-test of behavioural intention has been represented through the figure 1.

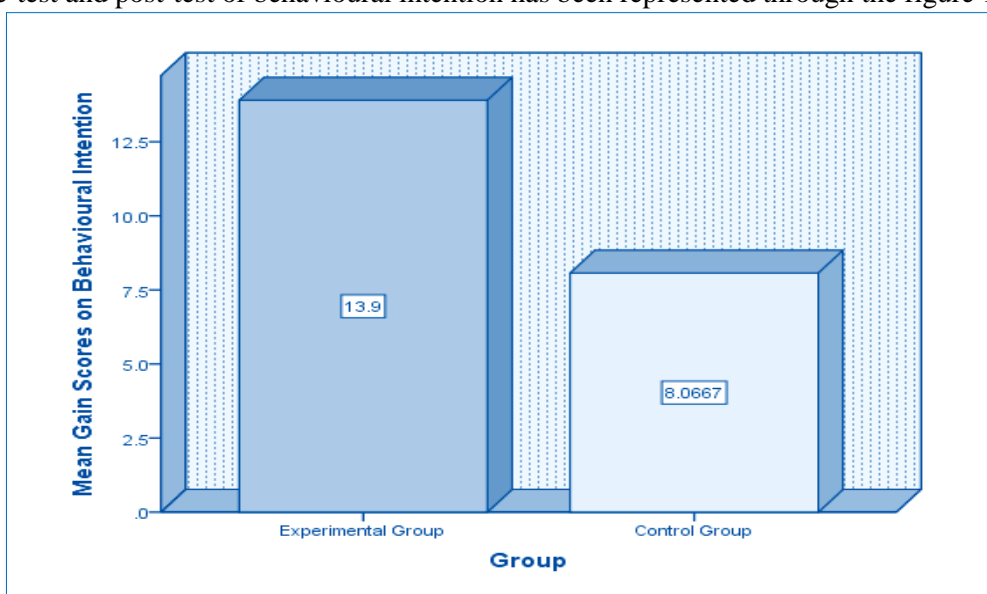


Figure 1: Mean Gain Scores on Pre-test and Post-test of Behavioural Intention of Experimental and Control Group

Figure 1 shows the mean gain score of experimental group (13.90) is double than the mean gain score of control group (8.07). Thus, the blended e-learning treatment proved useful in enhancing the behavioural intention of students.

H₀₂: THERE EXISTS NO SIGNIFICANT EFFECT OF BLENDED E-LEARNING ON THE DIMENSIONS OF BEHAVIOURAL INTENTION (PERFORMANCE EXPECTANCY, EFFORT EXPECTANCY, SOCIAL INFLUENCE, FACILITATING CONDITIONS, HEDONIC MOTIVATION, UTILITARIAN MOTIVATION AND LEARNING VALUE) OF STUDENTS

Table 2: Significance of Difference in Mean Gain Scores on Dimensions of Behavioural Intention (i.e. Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Utilitarian Motivation and Learning Value) of Experimental Group and Control Group

Dimension	Group	N	Mean	SD	SEM	df	t-value	p-value
Performance Expectancy	Experimental	30	2.27	.640	.117	58	6.690	.000
	Control	30	1.30	.466	.085			
Effort Expectancy	Experimental	30	2.40	1.070	.195	58	5.924	.000
	Control	30	1.10	.548	.100			
Social Influence	Experimental	30	1.80	.714	.130	58	4.368	.000
	Control	30	1.13	.434	.079			
Facilitating Conditions	Experimental	30	2.37	.765	.140	58	7.376	.000
	Control	30	1.20	.407	.074			
Hedonic Motivation	Experimental	30	1.83	.791	.145	58	3.898	.000
	Control	30	1.20	.407	.074			
Utilitarian Motivation	Experimental	30	1.63	.765	.140	58	4.199	.000
	Control	30	0.97	.414	.076			



Learning Value	Experimental	30	1.60	.621	.113	58	3.067	.003
	Control	30	1.17	.461	.084			

Here, N=Number of Observations, SD=Standard Deviation, SEM=Standard Error of Mean, DF=Degree of Freedom
 The table 2 shows that the mean gain on all the dimensions of behavioural intention at the pre-test and post-test of experimental group was found higher than the mean gain score of control group. Further, it shows that the calculated t-value is higher and the p-value is lesser than the 0.05 level of significance, which also confirms a significant difference between two groups at the post-test as represented in figure 2 below.

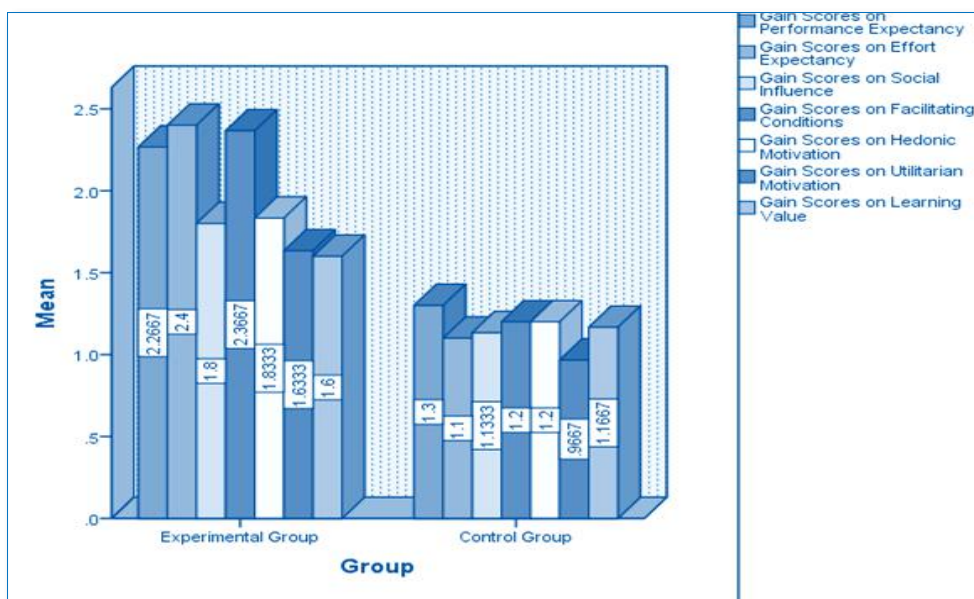


Figure 2: Mean Gain Scores on Dimensions of Behavioural Intention (i.e. Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Utilitarian Motivation and Learning Value) of Experimental Group and Control Group

Figure 2 showing that the mean gain scores on dimensions of behavioural intention of experimental group are higher than the mean gain scores of control group.

H₀₃: THERE EXISTS NO SIGNIFICANT EFFECT OF BLENDED E-LEARNING ON BEHAVIOURAL INTENTION OF STUDENTS WITH RESPECT TO GENDER

Table 3: Effect on Behavioural Intention among Students of Experimental Group and Control Group with respect to Gender

Tests of Between-Subjects Effects						
Dependent Variable: Behavioural Intention						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	517.372a	3	172.457	62.063	.000	.769
Intercept	6952.011	1	6952.011	2501.830	.000	.978
Gender	.011	1	.011	.004	.950	.000
Group	513.611	1	513.611	184.834	.000	.767
Gender * Group	6.944	1	6.944	2.499	.120	.043
Error	155.611	56	2.779			
Total	7911.000	60				
Corrected Total	672.983	59				

a. R Squared = .769 (Adjusted R Squared = .756)
 *Significant F-value at 0.05 level of significance = 4.01



The table 3 represents an interactional effect of gender and group (i.e. Gender*Group) on behavioural intention of students. The calculated F- ratio for behavioural intention among students due to interaction between gender and group (Gender*Group) is 2.499, which is insignificant as its p-value is .120 (greater than 0.05 level). The effect size (η^2) = .043 is also insignificant as per the guidelines (Cohen, 2013). It confirmed that, there exists no significant interactional effect of gender and group on behavioural intention of student as represented in figure 3 below.

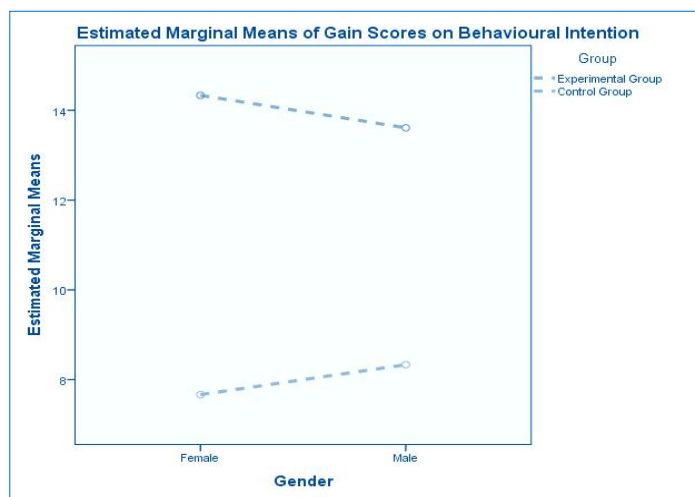


Figure 3: Showing Interaction Effect (Gender*Group) on Behavioural Intention Mean Gain Scores of Male and Female Students in Experimental Group and Control Group

In figure 3 the lines are found to be not intersecting with each other stating that there is no significant interaction effect on behavioural intention with respect to gender. In case of insignificant interaction effect, the main effects are required to be further tested. Hence, it was ascertained that the main effects (i.e. ‘Gender’ and ‘Group’) are also showing no significant interaction between female and male students.

H₀₄: THERE EXISTS NO SIGNIFICANT EFFECT OF BLENDED E-LEARNING ON THE DIMENSIONS OF BEHAVIOURAL INTENTION (PERFORMANCE EXPECTANCY, EFFORT EXPECTANCY, SOCIAL INFLUENCE, FACILITATING CONDITIONS, HEDONIC MOTIVATION UTILITARIAN MOTIVATION AND LEARNING VALUE) WITH RESPECT TO GENDER

Figure 4: Gender-wise Mean Gain Score on Dimensions of Behavioural Intention of Students in the Experimental and Control Group

Figure 4 represents the gender-wise mean gain scores on all the dimensions of behavioural intention between female and male students in the experimental group and control group. It was inferred that the total mean gain score on all the dimensions of behavioural intention among female students was more than the male students.

Table 4: General Linear Model for Multivariate Tests (2x2 MANOVA)

Effect	Value	F	df1	df2	Sig.	Partial Eta Squared	Observed Power	
Gender * Group	Pillai's Trace	.109	.875b	7.000	50.000	.533	.109	.337
	Wilks' Lambda	.891	.875b	7.000	50.000	.533	.109	.337
	Hotelling's Trace	.123	.875b	7.000	50.000	.533	.109	.337
	Roy's Largest Root	.123	.875b	7.000	50.000	.533	.109	.337

Table 4 shows that Wilks' = .891, F (7, 50) = .875, p > .533, partial η^2 = .109, observed power = .337. The results of 2x2 MANOVA revealed that there is no statistical significant interaction effect between gender and group (i.e. experimental group exposed to blended e-learning and control group exposed to traditional teaching) on the combined dependent variables (i.e. dimensions of behavioural intention). It means that the effect of the group (i.e. experimental group exposed to blended e-learning and control group exposed to traditional teaching) on the combined dimensions of behavioural intention is same for male and female students and there is no difference between them. The computed p-value (.533) is greater than the 0.05 level of significance and it is insignificant.



5. FINDINGS:

In the present study, it was found that blended e-learning proved effective in enhancing the behavioural intention of students. It is because the students perceive that learning through blended e-learning mode would enhance their performance without putting much effort in the process. They found that the web in blended e-learning is easy to use for the learning purposes.

6. CONCLUSION:

It was concluded that the blended e-learning has significant impact on behavioural intention of students. Further the blended e-learning has significant effect on the dimensions of behavioural intention (performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, utilitarian motivation and learning value) of students. It was concluded that there exists no significant effect of blended e-learning on the behavioural intention and its dimensions (performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation utilitarian motivation and learning value) with respect to gender.

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