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E-Learning: Students' Perspectives about Asynchronous and Synchronous Resources at Higher Education Level

Misbah Malik[*], Ghulam Fatima[**], Abid Hussain Ch.[***] and Ayesha Sarwar[****]

Abstract

The substantive purpose of this study was to identify the students' preferences to use asynchronous and synchronous e-learning resources. Asynchronous means that there is no set time for the learning to be occurring. Learners can learn anywhere and can consume their time to gain knowledge of what they want to know and when they need to know. Synchronous e-learning is related to structure and time bounded activities, which are offered through web conferencing and chatting options. E-learning resources give option to do one, or both. Population of the study comprised all the students of two public universities situated in Lahore. Subjects of the study comprised purposively selected 128 Male and 158 Female students. Data were collected only from those students who were having experience of synchronous along with asynchronous e-learning activities. A self-developed instrument was used to collect data. To validate the instrument a pilot study was done, which showed statistically significant reliability index (Cronbach Alpha) = .83. SPSS was used for data analysis. Independent sample t-test was used to find out difference in male and female students' opinions. Descriptive statistics were used to present students' responses related to different aspects of e-learning. Findings revealed statistically significant difference in students' responses regarding effectiveness of synchronous and asynchronous e-learning activities. Male students preferred synchronous as well as asynchronous e-learning activities more than female students at higher education level. Students' were found to have greater interest in synchronous activities when they had credit in terms of marks.

Keywords: E-Learning, students' perspective, asynchronous activities, synchronous activities

*Assistant Professor, University of Education, Township Campus, Lahore-Pakistan
**Assistant Professor, Department of Special Education, University of the Punjab, Lahore.
Email: fatima.dse@pu.edu.pk
*** Professor of Education, Institute of Education and Research, University of the Punjab, Lahore, Pakistan
**** Lecturer, University of Central Punjab, Johar Town, Lahore, Pakistan

Introduction

At present, online learning resources have become a focus of vital discussion in education and research literature especially at higher education level. Heads in various universities are giving immense attention on online education as an important source of teaching (Young, 2011). These online learning resources have been revealed to be a technique to make the educational opportunities accessible to maximum students at any time and location. Online resources are now being considered as a means for improving instruction, establishing flexibility in learners' reach to instruction, and reducing the costs of instruction (Taplin, Kerr, & Brown, 2013).

A large part of the current academic research has identified that web learning situations inside the instructional innovation engage students essentially through specific correspondence. The adequacy of video-conferencing contrasted with close up and personal interaction and capability of video-conferencing in training for geographically remote learners, who don't have access to traditional educational setup, has been proved of incredible benefit. As a result, these results have built up a discourse on video-conferencing apparatuses that how may be a true media could be used for instruction; however they don't give information on the most effective method that may be utilize to connect the learners in dynamic learning. One article by Bonk and Zhang (2006) gave pedagogical knowledge of both synchronous and asynchronous learning, in which they discuss about online methods of instruction and how learners can adjust their thoughts for online instruction.

In synchronous correspondence instructors called attention to and found that there was a minute variation regarding adequately reinforcing learners in synchronous learning situations (Asterhan & Schwarz, 2010). A study led by Asterhan and Schwarz (2010) with respect to online synchronous group discussion and effective control that depended on a specialized instrument, empowered participants to communicate through text content and pictorials. The study was conducted on ninth grade students. Members from both groups anticipated that an effective mediator must be active and he should keep the live discussions focused to help participants to remain on the topic. Participants also told that they did not essentially need the moderator to put in his or her scholarly opinion on the topic in the discussion.

The researchers concluded that the type of discussion that an instructor encouraged to use and the extent to which students were involved in synchronous discussion influenced the learning of students for both ninth grade and graduate level. They also found that the way of discussion was different in synchronous and asynchronous online conversation. Different studies have found that while engaged with synchronous learning as compared to asynchronous learning members (a) can find limited means of communication, (b) tend to be focused, (c) feel a greater sense of contribution, and (d) experience better assignment/course completion rates (Chen to You, 2007; Hrastinski, 2010).

Han (2013) found that regarding utilization of video conferencing at higher education level in synchronous instruction use of videos impacts the learners' feeling of association with their instructor. Han found that in courses that included teacher videos, as compared to the courses that did not utilize videos, students could overcome the feeling of being at distance from the instructor. Moore (1993, 2013) talked about transactional distance which Han suggested could be overcome through the utilization of video assisted instruction. He argued engaging in important collaborations with the instructor and peers may minimize transactional distance. As indicated by Moore (1993) transactional distance is a pedagogical phenomenon that learners experience while living apart from their instructors and fellows, collaborating with each other and the way of their relationship. Participants may feel different level of transactional distance in an online course mostly depending upon the level of shared discussion, the content that the instructor sets up for them, and the level of autonomy in a course (Moore, 2013).

Through a multi-case evaluation of asynchronous courses Garrison and Cleveland-Innes (2005) found that alone participant interaction does not inculcate a feeling of mutual social existence or involvement in online education. They found that participants of asynchronous online study seek the content uploaded by their instructor or they try to engage themselves in meaningful learning tasks. According to Lehman and Conceição (2011) the designers of online learning sources have become able to understand and incorporate the latent nature of social interaction that must be considered while creating asynchronous learning situation by understanding existence of different factors i.e., physical, social, emotional, and psychological etc., and their relation to learners’ involvement in an online course.

In a study Arbaugh (2004) found that many individuals who participated in asynchronous online courses, the experience involved in developmental process for understanding and becoming an active learner was totally new for them. Most of the individuals need to modify their role as online learner and their assumption regarding the role of their instructor. Motteram and Forrester (2005) determine online learning as specific individualized process but in order to become an active and effective online learner, students need some pre-requisite skills i.e. know the use of technology being used for the course, ability to search the course material, understanding how to communicate with other participants. Eventually, in order to be successful in online learning, learners need time to learn how to formulate online activities related to their course that may adjust into their routine while performing all other family and work responsibilities (Muilenburg & Berge, 2005).

Graham (2006) presented the concept of blended learning. He defined blended learning that does not depend on the mode of presenting something but what is being presented. According to him instructional media, methods being utilized and the combination of face to face and online instruction are the elements of online blended learning. Moskal, Dzinban and Hartmen (2013) referred the blended learning as changes in institutions of higher education due to mixing old and new methods, but they suggested that there must be better definition so that institutions of higher education may align their goals to be successful to initiate blended learning. In this manner, blended learning has been found to develop adaptability into individuals' learning, as well as to help organizations for productive utilization of time and workforce.

This study aimed to identify students' perceptions regarding synchronous and asynchronous e-learning resources at higher education level. It also focused to recognize the difference in the use of online resources by male and female students at higher education level, difference in perceptions of students in different programs about the use of synchronous and asynchronous e-learning resources at higher education level. It also highlighted the students' perception about need of teachers' presence during the use of e-learning recourses. Researchers also identified the students' opinions about the placement of e-learning resources in educational setting. Students' views about the effectiveness of instruction by teacher as compared to e-learning resources were also examined. Students' perceptions regarding effectiveness of books and library resources and e-learning resources for learning were also identified.

Objectives of the Study

The study was conducted to achieve the following objectives:

1. To identify the students' perceptions about the use of synchronous e-learning activities at higher education level.
2. To see the students' perceptions about the use of asynchronous e-learning activities at higher education level.
3. To recognize the difference in male and female students' perceptions about the use of synchronous and asynchronous e-learning activities at higher education level.
4. Recognize the difference in the use of internet by male and female students at higher education level.
5. To discover the difference in perceptions of students in different programs about the use of synchronous and asynchronous e-learning activities at higher education level.
6. Highlight the students' perception about teachers' presence during the use of e-learning recourses.
7. Identify the students' opinions about the placement of e-learning resources in educational setting.
8. To examine students' views about the effectiveness of instruction by teachers as compared to e-learning resources.
9. To know the students' perceptions regarding effectiveness of books and library resources as compared to e-learning resources for learning.

Hypotheses of the Study

The study was intended to verify the subsequent hypotheses:

1. There is major difference in mean scores of male and female students for the effectiveness of synchronous e-learning activities at higher education level.
2. There is considerable difference in mean scores of male and female students for the effectiveness of asynchronous e-learning activities at higher education level.
3. There is significant mean difference in the use of internet by male and female students at higher education level
4. There is noteworthy mean difference in students' responses, enrolled in different programs, for the effectiveness of synchronous e-learning resources at higher education level.
5. There is considerable mean difference in students' responses, enrolled in different programs, for the effectiveness of synchronous e-learning resources at higher education level.

Methodology

Subsequent section is presenting the procedures of the study.

Population of the study

Population of the study comprised all the students of one private and one public university in city Lahore Pakistan.

Sample and Sampling Procedure

Sample of the study consisted of 288 (128 male and 158 Female, two missing) randomly selected students from both universities. A multi-stage sampling technique was followed for the selection of the sample. Firstly one public and one private university were chosen by the investigators. Then researchers selected two departments from each university. One program area from each department was selected randomly to complete the questionnaire and 300 questionnaires were distributed among randomly selected students of senior semesters of the programs. However 12 questionnaires were cancelled due to inappropriate filling.

Instrument

A self-developed and validated instrument was used for data collection. There were two sections of the instrument: one for demographic information and use of e-learning resources in hours per day and other section pertaining to synchronous and e-learning activities. Statements related to synchronous e-learning activities were related to effectiveness of online question and answer sessions, online lectures and video conferences. Whereas statements related to asynchronous e-learning activities were about open access websites, journals, articles, news, recorded lectures and every material related to the topic of their interest. The instrument was validated through a pilot study which revealed statistically significant reliability index (Cronbach Alpha) = 0.83.

Data analysis

Statistical Package for Social Sciences version 20 (SPSS) known as IBM 20, was used for data analysis. Mean difference in the perceptions of male and female students' regarding synchronous and asynchronous e-learning activities and use of e-learning resources in hours per day was identified through independent sample *t*-test. ANOVA was used to observe mean difference in the responses of students regarding synchronous and asynchronous e-learning activities and use of e-learning resources in hours per day in various programs. Descriptive statistics were used to identify students' responses regarding students' perception about teachers' presence during the use of e-learning recourses; placement of e-learning resources in educational setting; effectiveness of instruction by teacher as compared to e-learning resources and greater effectiveness of books and library resources than e-learning resources for learning.

Results

This section will present the descriptive statistics and results of the data analysis.

Table 1
Descriptive statistics of the variables of the study

Variable	Factors	Frequency	Total
Gender	Male	128	288
	Female	158	
	Missing	2	
Program	BBA	97	288
	BS (Hon) Chemistry	66	
	Law	55	
	M.A. Sociology	70	
Age	18-35		288

Table 1 is showing descriptive statistics of the study.

Table 2

t-test to Identify mean difference in male and female students' responses to prefer synchronous and asynchronous e-learning resources and use of internet in hours per day

Variables	Gender	*N*	*M*	Std. Deviation	*df.*	*t*-value	Sig.
Synchronous	1	128	15.84	4.48	283	3.98	.000
	2	158	13.52	5.21			
Asynchronous	1	128	15.50	3.25	283	3.45	.001
	2	158	14.04	3.77			
Use of internet in Hours per day	1	120	3.79	4.29	258	0.37	.373
	2	140	3.39	2.85			

Table 2 illustrates the result of "One Sample *t*-tests" to identify mean difference in male and female students' responses for the effectiveness of synchronous and asynchronous e-learning recourses; and the internet usage of male and female students. Results show that there was a significant difference in mean scores of students for the effectiveness of synchronous e-learning resources. Mean score of male students (M = 15.84, SD = 4.48) was greater than female students (M = 13.52, SD = 5.21), t (283) = 3.98, $p < .05$. It is also evident that there was a significant difference in mean scores of students for the effectiveness of asynchronous e-learning resources. Mean score of male students (M = 15.50, SD = 3.24) was greater than female students (M = 14.04, SD = 3.77), t (283) = 3.45, $p < .05$. Whereas there was no significant difference in mean scores of students' responses in using internet in hours per day. Mean score of male students (M = 3.79, SD = 2.85) was slightly greater than female students (M =3.71, SD = 4.29), t (283) = .37, p = .373. so, on the basis of these findings the research hypotheses that there is significant difference in mean scores of male and female students for the effectiveness of synchronous e-learning activities at higher education level and the hypothesis that there is significant difference in mean scores of male and female students for the effectiveness of asynchronous e-learning activities at higher education level are accepted. And the research hypothesis that there is significant mean difference in the use of internet by male and female students at higher education level is rejected. All these findings leaded to the conclusion that male students responses show that they found both synchronous as well as asynchronous e-learning resources more effective than female students in spite of the fact that both (male and female) equally use internet in hours per day.

Table 3

ANOVA to identify mean difference in students' responses for effectiveness of synchronous or asynchronous e-learning resources enrolled in different programs of study

		Sum of Squares	df	Mean Square	F	Sig.
Synchronous	Between Groups	2966.04	3	988.68	65.75	.000
	Within Groups	4255.27	283	15.04		
	Total	7221.30	286			
Asynchronous	Between Groups	971.12	3	323.71	32.97	.000
	Within Groups	2778.58	283	9.82		
	Total	3749.70	286			

Table 3 represents the results of ANOVA test to identify mean difference in students' responses for the effectiveness of synchronous or asynchronous e-learning resources enrolled in different programs of study. The data illustrates that there was a significant difference in mean score of students' responses enrolled in different programs of study, for effectiveness of synchronous e-learning resources $F(3) = 65.75$, $p < .05$. Similarly, there was a significant difference in mean score of students' responses enrolled in different programs of study, for effectiveness of asynchronous e-learning resources $F(3) = 32.97$, $p < .05$. Therefore, on the basis the findings research hypothesis that there is significant mean difference in students' responses, enrolled in different programs, for the effectiveness of synchronous e-learning resources at higher education level and other research hypothesis there is significant mean difference in students' responses, enrolled in different programs, for the effectiveness of synchronous e-learning resources at higher education level are accepted. It can be concluded that students enrolled in different programs found difference in the effectiveness of synchronous and asynchronous e-learning resources.

Table 4

Descriptive statistics of students' responses to prefer synchronous or asynchronous e-learning resources enrolled in different programs of study

Variable	Program of Study	N	Mean	Std. Deviation
Synchronous	BBA	96	17.45	4.11
	BS (Hon) Chemistry	66	17.33	3.58
	Law	55	11.82	3.92
	M.A. Sociology	70	10.31	3.78
	Total	287	14.59	5.02
Asynchronous	BBA	96	16.33	2.94
	BS (Hon) Chemistry	66	16.33	3.38
	Law	55	12.42	2.64
	M.A. Sociology	70	12.80	3.48
	Total	287	14.72	3.62

Table 4 is presenting the descriptive statistics of students' responses, enrolled in different programs of study, for the effectiveness of synchronous and asynchronous e-learning resources. Figures in the foremost section of the table show that mean score (M = 17.42, SD = 4.11) of students' responses, enrolled in BBA, for the effectiveness of synchronous e-learning resources was greater than other programs of study, mean score of students' responses in BS (Hon) Chemistry was slightly less than mean score of BBA and BS Honors Chemistry, while mean scores of students' responses (M = 11.82, SD = 3.92) studying law was far less than these two programs. The responses of students in the program MA sociology showed lowest mean score (M = 10. 31, SD = 3.78) for the effectiveness of synchronous e-learning resources. The subsequent section shows that mean score (M = 16.33, SD = 2.94) for the effectiveness of asynchronous e-learning resources was greater for the students enrolled in the BBA and BS (Hon) Chemistry as compare to other programs of study, while mean of students' responses studying law (M = 12.42, SD = 3.47) and MA sociology (M = 12.80, SD = 3.47) was very low for the effectiveness of asynchronous e-learning resources

Table 5
Descriptive statistics of students' responses

	Statement	Mean	SD.
1	Instructors' presence is essential while using e-learning resources.	3.45	1.63
2	Learning from a teacher is more effective than learning through e-learning resources.	3.79	1.88
3	E-learning resources should be placed in classrooms rather than labs.	3.82	1.79
4	Learning through e-learning resources is more difficult than learning through books and other library resources.	3.51	1.76

Table 5 presents the descriptive statistics of students' responses for the statements given in questionnaire, to get students' responses for the effectiveness of instructor's presence in the classroom as compared to self-use of e-learning resources. Mean score (M = 3.45, SD = 1.63) for students' responses to the statement that instructors' presence is essential while using e-learning resources, was slightly greater than average score (M = 3). Mean score (M = 3.79, SD = 1.88) for students' responses to the statement that learning from a teacher is more effective than learning through e-learning resources which, shows that students learn more from teachers than e-learning resources. Higher mean score (M = 3.82, SD = 1.79) for the statement that e-learning resources should be placed in classrooms rather than labs" showed that e-learning resources must be placed in classrooms than labs. Additionally, the mean score (M = 3.51, SD = 1.76) for the statement " Learning through e-learning resources is more difficult than learning through books and other library resources" showed that many students found it more effective to learn through books and other library resources than from e-learning resources.

Recommendations

On the basis of these finding following recommendations are made:

1. Advanced education establishments must give serious attention to learning experiences contained adaptable online learning opportunities.
2. Workforce and faculty of universities should cooperate to change personnel to create online courses and carve up their practical experiences academically.
3. Course and program both must be designed on the basis of developmental research in the field of online learning.

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