Ilkogretim Online - Elementary Education Online, Year; Vol 20 (Issue 5): pp. 1223-1229
http://ilkogretim-online.org
doi: 10.17051/ilkonline.2021.05.136

E-learning Resources and Task Engagement of Students at University Level

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Abstract- Current study aimed at identification of the effect of e-learning on university students' task engagement. Sample of the study was selected randomly two universitiesof Lahore comprising total 344(181 Male and 163 Female) students. Aquestionnaire was developed indigenouslyand was validatedto use for data collection.It contained statements related to use of e-learning resources and task engagement of students. Factors in task engagement included: students' interest,attention, curiosity, interest, optimism, and passion to complete their tasks and effectiveness of e-learning resources for objective and subjective type assessment. The questionnaire was validated through a pilot study which showed the reliability index (cronbach alpha).79. SPSS version 20 (trail version) was used for data analysis. Differences in responses of male and female students was identified by running independent samplefor using e-learning resources and task engagement. One-way ANOVA was used to find out mean difference in the responses of students enrolled in different programs of studies and in various semesters regarding use of e-learning resources and task engagement. Results showed that male students are more inclined to use e-learning resources for task engagement than female students. Moreover, one-way ANOVA revealed that students of science (BS. Physics) department showed grater mean score for using e-learning resources for task engagement. Whereas, students in education program show lowest mean score for using e-learning resources for task engagement. Discussion was made on the basis of findings.

Key words: E-Learning, task engagement, students' assignments, presentation and assessment

I. INTRODUCTION

For the last two decades' information and communication technologies(ICTs) have become one of the basic component of contemporary society (Daniels, 2002), in general and in the wake of COVID-19 in particular (Dhawan, 2020). Major segment of the glob has now developedthe understanding thatknowing and mastering the basic skills of ICT is the core part of education, beside reading, writing and numeracy(Gul, R., Khan, S. S., Mazhar, S., & Tahir, T., 2020).Traditionally, in universities students just took notes of the lectures delivered by professors. Students were not allowed to ask critical questions and pose critical answers not accepted by their professors. With the passage of time emerging technologies brought a number of new features to make instruction more interesting to learners (Keller, & Suzuki, 2004; Gul, R., Kanwal, S., & Khan, S. S., 2020). Now e-learning resources have enhanced the student teacher communication (Yusuf, & Al-Banawi, 2013), by facilitating the distribution to the large number of learners at the same time and enhancing the control over content and time spent on learning (Suresh, Priya, & Gayathri, 2018). Majority of the experts believe that every individual should have basic knowledge of new technology, and must be able to utilize it as a mean for attaintheir educational goals (Harandi, 2015).

E-learning has affected the instruction specifically and the whole world general in a critical way and it also supports the conventional instructionalapproach because of being student centered and more flexible (Dhawan, 2020). It has advanced the traditional educational models like distance learning (Haverila&Barkhi, 2009). Conventionally in the higher education system E-learning has been involved to: (1) rise ranking ofuniversity, (2) draw out the educational implication, and (3) as learning "virtualization". Moreover,e-learning resources are the crucial maneuver that instructors can use to increase students' motivation and interest in education (Gul, R., & Rafique, M., 2017; Mateo, Pérez-del-Rey & Muñoz, 2010).

E-learning resources help individuals in fulfill their educational requirements through a variety of technology-supported facilities by asynchronous and synchronous tools such as e-mail, forums, chats, videoconferences (Anwar& Adnan, 2020; Marinoni, Van't Land, & Jensen, 2020; Gul, R., Khan, S. S., & Akhtar, S., 2020). Olaniran, Duma, and Nzima (2017) found high utilization of e-learning resources during study. These services offer communication opportunities, e-learners modify their learning styles according to their particularrequirements, building on their prior knowledge. Pattern of these interactive characteristics include "multi-blog learning applications, wiki spaces for collaborative project learning, software programs, hypermedia didactic materials, simulators, real-time communication and project video presentations"(Rodríguez-Ardura&Meseguer-Artola, 2016).

With increased demand of e-learning resources, higher education institutions confront increased pressure to comprehend the systemfundamentalto the interactive features of e-learning. Because at higher education level students need to be able to getbenefit of the interactive nature of novel education systems which aimto provide students with credible learning experiences and tohold up e-learner continuation As a result, interactive characteristics of e-learning resources has become an important feature to be considered carefully in practical perspective(Instructional Technology Council, 2012).
In past years, numbers of studies have been conducted to examine the use of e-learning resources in education, even though many important aspects need to be investigating yet. First, the outcomes of using e-learning resources have been studying were mostly relevant to the attitude or performance of individuals. In number of studiesauthors have examined the relations among use of e-learning resources, positive/negative attitudes and level of satisfaction (Grigorovici, Nam, &Russill, 2003).Similarly, other researchers have evaluated the impact of using e-learning resources on the effectiveness and quality of learning (MacCallum, Browne & Sugawara, 1996).Uses of e-learning resources provide students with greater opportunities for "communication, collaboration, thinking and creativity". It also provides learners with challenges in terms of valid assessment of the content they find on e-learning resources. Use of e-learning resources in these ways leads to change the learning structures, which guarantee that learning is important for students, so it must belinked to their interests and perceptive about the world, and accommodates to a variety of learning styles and intensity of intelligence.

Assessments of student awareness of learning and commitment have conventionally been used for measuring the effectiveness of new instructional technologies(Alavi, 1994, Gul, R., & Reba, A., 2017). These assessments must berealisticif the depth of the impact of new technologies coversvariousdisciplines and a single tool cannot be utilized to straightforwardlyassess learning outcomes. While it is usually believed that learners would choose classroom sessions that use e-learning resources (Wieder, 2011), to date no study has been explored that investigated the factors that may contribute to student perceptions of e-learning resources and task engagement.In education, student task engagement refers to "the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught, which extends to the level of motivation they have to learn and progress in their education" (Jimerson, Campos & Greif, 2003).

Keeping in view the increased need and use of e-learning resources in education, this study was designed to discover the effect of using e-learning resources on task engagement of university students. Moreover, the study will identify the impact of using e-learning resources respect to gender and programs of study. The study will also explore the students' perceptions regarding effectiveness of using e-learning resources for objective and subjective type assessment.

Objectives of the Study

Objectivesof this study were:

- To discover the use of e-learning resources among university student on the basis of gender.
- To explore the usage of e-learning resources by the students enrolled in different programs.
- To distinguish the use of e-learning resources among students enrolled in different semesters
- To highlight the use of e-learning resources among students of public and private institutions
- To know students' perceptions to identify the effectiveness of e-learning resources for objective and subjective type assessment.

Hypothesis

Following hypotheses were verified in the study:

H_{01}: "There is significant difference in mean scores of male and female students' responses for task engagement due to using e-learning resource".

H_{02}: "There is significant difference in mean scores of students in Public and Private Institutions for their task engagement using e-learning resources".

H_{03}: "There is significant mean difference in scores of students in different semesters for their task engagement".

H_{04}: "There is significant mean difference in scores of students in different programs for their task engagement".

II. METHODOLOGY

Subsequent section discusses the processes of the study.

Population

All the students enrolled in two universities(one Public and one private sector)of Lahore were the population of the study.

Sample and Sampling Technique

Sample comprised 344 (181 Male and 163 Female)randomly selected students. Sample was selected through multi stage sampling techniques. First one public and one private university were selected conveniently. Only those Programs were selected which were being run in both universities. Data were collected from all the available semesters of the selected programs. In order to collect data from up to 400 subjects, 25 questionnaires were distributed among randomly selected students of each semester of each program, 12-13 to each semester of selected programs in each university. Due to either non-returning or wrong filling of questionnaires 56 questionnaires were excluded.

Instrument

An indigenously developed and validated questionnaire was used to elicit students' responses. The questionnaire comprised two parts,1). demographic variables and information for using e-learning resources and 2). statements related to task engagement of students. The factors included to measure task engagement of students were semester assignments,presentations, course projects and type of assessment. The questionnaire was validated through a pilot study which showed the statistically acceptable value of reliability index (cronbach alpha = .79).

Data Analysis

SPSS 20 (trial version) was used for data analysis. Independent samplet- test was used to recognize mean difference students' responses for the use of e-learning resources and thier task engagement with respect to gender and type of institution (public or Private). ANOVA tests wereused to identify mean difference in students' responses for the use of e-learning resources and their task engagementon the basis of various programs and semesters.

III. RESULTS OF THE STUDY

This section is presents the results of data analysis.

Table 1
Descriptive Statistics

Variable	Factors	Frequency	Total
Gender	Male	181	344
	Female	163	
	Education	103	344
	BS (Physics)	110	

Program	BBA (honors)	61	
	Language	70	
Semester	Two	82	344
	Four	97	
	Six	98	
	Eight	61	
Institute	Public	204	344
	Private	140	

Table 1 is showing number of female and male respondents, programs of study, semester wise number of students and number of students in sample of the study from each institution.

Table 2
Difference in the use of E- Learning Resources and Task Engagement Among both Genders

Variable	gender	*N*	*M*	*SD.*	*df.*	*t-value*	*sig.*
Task Engagement	Male	181	83.82	10.05	324	4.48	.000
	Female	163	78.39	12.4			

Table 2 shows the results of independent sample t-test for mean difference in task engagement of students on the basis of using e-learning resources on with respect to gender. Value of the table shows that there was significant mean difference in female (*M* = 78.39, *SD* = 12.4) and male (*M* = 83.82, *SD* = 10.05) students' task engagement *t* (324) = 4.48, alpha value p<.05. So, the research hypothesis that "there is significant difference in mean scores of male and female students' task engagement using e-learning resources" is accepted and it is inferred that male students use more e-learning resources than female students for the completion of their tasks and they are more engaged in their tasks.

Table 3
Difference in the use of E-learning Resources and Task Engagement of Public and Private University Students

Variable	Institute	*N*	*M*	*SD.*	*df.*	*t-value*	*sig.*
Task engagement	Public	204	75.50	9.29	342	13.97	.000
	Private	140	89.63	9.11			

Table 3 is presents the results of *t*-test which show mean difference in task engagement of students using e-learning resources in public and private institutes. Table values also showa statistically significant mean difference in responses of students of Public (*M* = 75.50, *SD* = 9.29) and Private (*M* = 78.39, *SD* = 12.4) university for their task engagement t (324) = 13.97, p<.05. So, the research hypothesis that "there is significant difference in mean scores of students in Public and Private Institutions for their task engagement using e-learning resources" is accepted and it is determined that the students of private institute were using more e-learning resources than students in public institute for the completion of their tasks.

Table 4
Result of ANOVA to Identify Difference in Task Engagement with Respect to Semester

	Sum of Squares	*df.*	*Mean Square*	*F*	*Sig.*
Between Groups	2386.41	3	795.471	6.23	.000
Within Groups	42628.55	334	127.630		
Total	45014.96	337			

Table 4 shows mean difference in students' responses for use of e-learning resources and task engagement studying in different semester. Table values are evident that there was statistically significant mean differencein task engagement of students studying in various semesters *F* (3) = 6.23, p < .05. So, research hypothesis that "there is significant mean difference in scores of students in different semesters for their task engagement" is accepted and it is decided that students studying in different semesters are using e-resources differently and have significant difference in the task completion using e-learning resources.

Table 5
Mean Difference in Task Engagement of Students Using E-Learning Resources with Respect to Semester

Semester	*N*	*M*	*SD.*
Two	82	81.0366	10.05472
Four	97	79.8866	12.24904
Six	98	79.4082	11.56767

Eight	61	86.7869	10.84453
Total	338	81.2722	11.55749

Table 5 is depicting the difference in students' responses for using e-learning resources for task engagement in various semesters. *M* shows that responses of students in semester revealed to be greater than responses of students in semesters four and six. Whereas, mean scores of students in semester eight was greatest for task engagement.

TABLE 6
Difference in Mean Score for Task Engagement of Students Using E-Learning Resources in Various Programs of Study

	Sum of Squares	*df.*	*Mean Square*	*F*	*Sig.*
Between Groups	18630.62	3	6210.21	78.22	.000
Within Groups	26993.88	340	79.40		
Total	45624.50	343			

Table 6 presents the results of ANOVA to identify mean difference in students' task engagement in different programs e.g. Education, Science, BBA and Language. Table values are evident that there was significant mean differencein task engagement of students in various programs F (3) = 78.22, $p < .05$. So, research hypothesis that "there is significant mean difference in scores of students in different programs for their task engagement" is accepted and it is concluded that students in different programs have significant difference for the completion of task using e-learning resources.

Table 7
Results of ANOVA to Identify Mean Difference in Students Responses for Using E-Learning Resources and Task Engagement of Students enrolled in Different Programs

Program	*N*	*M*	*SD.*
BBA (honors)	103	86.7476	9.53396
BS (Physics)	110	87.2455	9.10810
Education	61	70.9836	9.30679
Language	70	72.6857	7.10489
Total	344	81.2500	11.53326

Table 7 is showing the mean scores of students' responses for using e-resources and their task engagement in various programs of study. *M* shows that responses of students in programs, it is evident that mean score for responses of students enrolled in BS (Physics) were greater than responses of students in other programs. Whereas, mean scores of students in education was lowest for task engagement using e-learning resources.

Table 8
Descriptive Statistics of Students Responses for the Effectiveness of E-Learning Resources with Respect to Type of Assessment

Variables	Type	*M*	*SD.*
Assessment	Objective	4.11	1.78
	Subjective	3.80	1.51

Table 8 is showing mean and standard deviation of students' responses for the effectiveness of e-learning resources to attempt objective type and subjective type assessment. Table is showing that mean score for students' responses was greater for objective type assessment than subjective type assessment.

IV. Conclusion and Discussion

Objectives of this study were to discover the use of e-learning resources among university student on the basis of gender, different programs, semesters, and institutions moreover to know students' perceptions to identify the effectiveness of e-learning resources for objective and subjective type assessment. On the basis of the results it is concluded that male students use more e-learning resources than female students for the completion of their tasks and they are more engaged in their tasks. It may be due to Pakistani contextual factor that being a developing country many students are deprived of latest technology at their homes. Most of the female students are not allowed to stay outside after university timing, so they do not have full time access to e-learning resources. On the other hand, male students have liberty to stay out till

late hours after university time. They may stay in the institutions to use e-learning resources which help them to complete their tasks in time and they get more engaged in their tasks.

The students of private institute were using more e-learning resources than students in public institutions for the completion of their tasks. It is a major feature of private sector institutions that they have more advance set up than public sector. In order to enhance their reputation and attract more students' latest technologies are provided to students, so that students have extra access to e-learning resources and are able to be more engaged in their tasks. Nature of courses and assignment may be a contributing factor for the students studying in different semesters for using e-resources differently and having significant difference in the task completion while using e-learning resources, responses of students in two and five semester revealed to be greater than responses of students in semesters four and six. Whereas, mean scores of students in semester eight was greatest for task engagement which may be result of research work projects which are usually offered in this semester. Similarly, the students in different programs have significant difference for the completion of task using e-learning resources because subject nature demands use of various resources. The mean score for responses of students enrolled in BS (Physics) were greater than responses of students in other programs. Whereas, mean scores of students in education was lowest for task engagement using e-learning resources. One of the major reason for the greater mean score of students' responses showing their preference for objective type online assessment than subjective type online assessment is the need of typing skill that is required for subjective answers.

V. RECOMMENDATIONS

Following recommendations were made on the basis of findings of the study:

- Government must allocate adequate budget to enhance the use of e-learning resources in public sector universities.
- In order to get full learning benefits of e-learning resources there must be workshops and seminars to train students for effective and productive use of these resources.
- As female students can't assess e-learning resources outside their places and institutions due to local context, institutions must focus on female students' facilitation to access e-learning resources.
- Education is a critical discipline of study as prospective teachers have to lead future generation, but students in this discipline showed least use of e-learning resources for task engagement, there must be special arrangements to make these students more e- learning oriented.

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