

ATTITUDE OF UNDERGRADUATE STUDENTS TOWARDS THE USE OF E-LEARNING

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Information technology plays a vital role in our lives. Everything is influenced by information technology today. The students of each and every stream are dependent upon e-learning through the use of computers and internet availability. This study attempts to assess the attitude of undergraduate students towards the use of e-learning. For this purpose, 300 undergraduate students of Kurukshetra district were randomly selected. Attitude Scale for e-learning was developed and administered on them. To find out the significance of difference between different groups, t-test was applied. The overall results indicate that maximum undergraduate students have a positive attitude towards e-learning. No significant difference was found in the attitude of Arts and Science, Arts and Commerce as well as Science and Commerce undergraduate students towards the use of e-learning. However, significant difference was seen in the attitude of Male and Female and Urban and Rural undergraduate students towards the use of e-learning.

KEYWORDS: E-learning, Attitude, Undergraduate Students

INTRODUCTION

Information technology is playing a vital role in the modern human lives. It is responsible for knowledge explosion in almost all areas. It not only facilitates quality education but also helps to satisfy the intellectual level of every student. Teaching through traditional methods cannot completely meet the demands of students and changes in the methods of teaching and learning are inevitable.

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Undoubtedly, with the introduction of audio-visual aids, computers and Internet etc. in the field of education many changes have been seen in the teaching learning process but, there is still need for more technology aided education.

The focus of all educational policies and reforms in recent years has been on technology and how it can transform the system of education in our country. There is a concern all around the educational fraternity on the introduction of technology, expansion of infrastructure, training of teachers as well as learners so that they are well equipped to retrieve the wealth of information, resource material, and connect to all corners of the world through world wide web and related technical devices. The inception of e-learning is a great leap towards teaching and learning activities of civilized society.

E-learning (Electronic Learning) is a new tool which has the potential to enhance and support the traditional learning system. It has become an integral part of the learning tools used by every educational organization. It has been widely used because of its flexibility and the ability to work at one's own pace. Its asynchronous nature does not compel the students to learn at the same time but it allows learner to participate and complete course work in accordance with their daily commitments. This makes e-learning as viable option for those who have other commitments such as family or work. Thus, it provides the accessibility for individuals who wish to learn at their own pace, place and time. It provides a platform for virtual and uninterrupted learning through distance mode but reduces the distance between the teacher and the taught.

REVIEW OF LITERATURE

In this age of knowledge explosion, lifelong learning is essential for everyone to update his/her knowledge and become relevant and productive in the new economy. Technological developments have their impact on education as well. The learning society demands transmission of knowledge across all sectors of the society by breaking the geographical barriers. It not only facilitates the promotion of quality education but also satisfies every learner intellectually. In the recent years, the use of computers as an educational tool has become more and more popular. There is hardly any area which has remained untouched by the Internet boom. In the past few years, a new wave of technologies, particularly the Internet has emerged with the potential to further enhance the teaching and learning environment in higher education. Many studies in the recent years have shown that the use of e-learning in classrooms has increased over the past years. Some of these are:

Kandies and Stern (1999) found in their study that web-enhanced learning improved instruction and course management and offered numerous pedagogical benefits for learners. They also explained that students in web-

enabled learning environment became more active and self-directed learners.

Warnet, Olliges and Delicath (2000) surveyed students who used Web CT in a social work course. They found that all of the respondents considered online course materials beneficial to their overall learning experiences.

Van Daal et. al (2000) reported dramatic increase in reading and spelling performance of kindergarten students (K2) who were exposed to a computer based reading and spelling performance compared to those who were not exposed to computerised programme.

Cin and Yuan (2000) described an attempt of using a World Wide Web based concept map testing system that was developed to access high school student's concepts in physics. Ninety Taiwanese eleventh grade students were tested through the online system and they found that the speed of information technology was more than the traditional method adopted by the teacher. Online test was a fair system to test the student's performance.

Siman (2001) studied the usage of technology as a replacement for rather than a supplement to a traditional textbook and found that the technology was more useful than traditional media.

Sandars and Shelter (2002) examined students' attitude with regard to the WEL (Web Enabled Learning) components in a general biology course for undergraduates. Their results showed a positive effect of WEL on students' learning, problem solving skills, and critical thinking skills. It was also found that females responded more positively than males towards the use of WEL.

Derouza and Fleming (2003) compared the undergraduates who completed quizzes online with those who took traditional paper based quizzes. The obtained marks revealed that students who took the quizzes online significantly outperformed students who took the pencil and paper quizzes.

Uma (2004) studied the role of computers and technology in classroom teaching and learning process in the subjects of science and mathematics. She proved that revision helps in improving scores. The performance of the students was better after computer based revision. Though revising with computers has increased their performance but the best scores were obtained when computers were not used.

Cheng (2006) studied the students' level of satisfaction in applying e-learning in Taiwan. He concluded that students' level of satisfaction in applying e-learning for business courses was pretty high. Further, he found that gender; school system and computer skills did not affect students' level of acceptance in applying e-learning courses.

Mitchell et. al. (2007) conducted another exploratory study on web-

enhanced learning in undergraduate nurse education. They found that students held favourable attitude towards Web-enhanced learning in undergraduate nurse education, but some students experienced difficulties.

Almobarraz and Farag (2009) studied the undergraduate students' attitude towards e-learning. This research was initiated to track the perceptions of the students in the Kingdom of Saudi Arabia towards e-learning. The results indicated an overall positive attitude towards e-learning based education.

Kumar and Kumar (2011) carried out a study to know the attitude of teachers of Higher Education towards e-learning. The findings of this study revealed that the teachers had a favourable attitude towards e-learning. The teachers who were familiar with computers and information and communication technology differ in their attitude towards e-learning when compared to the teachers who were not familiar with technology.

However, the process of e-learning and its applications are limited in a developing country like India. In order to establish deep roots of e-learning in India, some changes are required to be brought in the current educational setup. The mind set of teaching and learning community must change. For the purpose of bringing a reform in the field of education, it is advisable to have a considerable knowledge about the attitude towards new ways of teaching and learning. This study was conducted to find out the attitude of undergraduate students of different streams regarding the use of e-learning. Moreover, review of the related literature shows that in India very few studies on this issue have been undertaken. Hence, this investigation was conducted

OBJECTIVES OF THE STUDY

Following are the objectives of the study:

1. To study the attitude of undergraduate students towards the use of e-learning.
2. To find out the difference in the attitude of Arts and Science undergraduate students towards the use of e-learning.
3. To find out the difference in the attitude of Arts and Commerce undergraduate students towards the use of e-learning.
4. To find out the difference in the attitude of Science and Commerce undergraduate students towards the use of e-learning.
5. To find out the difference in the attitude of male and female undergraduate students towards the use of e-learning.
6. To find out the difference in the attitude of Urban and Rural undergraduate students towards the use of e-learning.

HYPOTHESES

Keeping in the view the objectives of the study and review of literature, following hypotheses were framed for this research study:

1. There exists significant difference in the attitude of undergraduate students belonging to Arts and Science streams towards e-learning.
2. There exists significant difference in the attitude of undergraduate students belonging to Arts and Commerce streams towards e-learning.
3. There exists significant difference in the attitude of undergraduate students belonging to Science and Commerce streams towards e-learning.
4. There exists significant difference in the attitude of undergraduate Male and Female students towards the use of e-learning.
5. There exists significant difference in the attitude of undergraduate Urban and Rural students towards the use of e-learning.

RESEARCH METHODOLOGY

In this study, the researcher was intended to investigate the attitude of undergraduate students towards the use of e-learning. Thus descriptive method was used in this study. It is also known as normative survey method. It is related to gathering of evidences in the existing situations.

SAMPLE

In the study, stratified random sampling was used. In stratified random sampling, the whole population is, at first, stratified or divided into different strata, as needed on the basis of some characteristics and then from these different stratified group sample is selected randomly. The population of the study consisted of undergraduate students of different streams studying in various college under Kurukshetra University. The population was divided into three strata viz. Arts, Science and Commerce. Finally, 300 undergraduate students were taken as sample for this study. The distribution of the sample is shown in the Table 1.

Table 1
Stream-Wise Distribution of the Sample.

Sr. No.	Educational Stream	Boys (Male)	Girls (Female)	Total
1	Arts	37	63	100
2	Science	46	54	100
3	Commerce	39	61	100
	Total	122	178	300

TOOL USED

In order to know the direction and intensity of the attitude of the undergraduate students towards e-learning, an attitude scale was developed by the investigator.

Development and Standardization of the Attitude Scale

The procedure of development and standardization of the scale followed by investigator is explained below:

1. Preparation of the First Draft

The first draft of the attitude scale was prepared after passing through various stages and is described below:

a. Item Formulation

The researcher framed the opinion statements. These items were formulated from different sources viz. relevant literature, discussion with students and teachers for attitude scale construction. On the basis of discussion, preliminary draft was prepared which consisted of seventy five items.

b. Editing of the Scale

The list of items so prepared was reviewed by the experts. First of all, these items were checked by the language experts. The items having ambiguous language were either modified or dropped. These items were then submitted to a group of subject experts for their criticism and suggestions. On the basis of their opinions, modifications were made.

2. Try Out

Try out was done to evaluate the effectiveness of the scale. Modifications were done in attitude scale on the basis of suggestions and comments of the students during the try out.

a. Individual Try Out

The attitude scale was tried on three students to know the difficulty faced by them.

b. Group Try Out

Then scale was tried out on a small group of 8 students of different streams. On the basis of this try out, minor modifications were made and in this way 25 items were retained for the final draft.

3. Final Draft

At this stage, final draft of 25 items was prepared. The attitude scale developed

at this stage comprised of both positive and negative items.

4. Reliability

The final scale was administered on a sample of 60 students from different streams in order to find the reliability coefficient. The coefficient of reliability was found by finding the correlation between two sets of scores with the help of split-half method. These students were not included in the actual sample i.e. 300 undergraduate students for the study. The reliability values were 0.76 and 0.86.

5. Validity of the Scale

In this research study, content validity was determined. The content validity is concerned with the relevance of the contents of the items, individually and as a whole.

ADMINISTRATION OF THE SCALE

In order to assess the attitude of the undergraduate students towards e-learning, the attitude scale was administered to students belonging to different streams (Arts, Science, and Commerce) of various colleges of Kurukshetra. They were explained the purpose and significance of collecting required information from them. It was also made clear to them that the information collected would be kept confidential and utilized for only research purpose. It was ensured that no item was left un-attempted by any student. It was further explained that there was no right or wrong answer to any of the items of the attitude scale.

SCORING

Data collected from the attitude scale was of no value unless it was given some numerical value for statically computation. For this purpose, a particular scoring procedure was applied. In the scoring procedure, Likert's method of scoring the attitude scale was adopted. In the attitude scale, there were some positive and negative statements which needed to be stated differently. Statements no. 22,23,24,25 were negative in nature and rest of the statements of the scale were positive in nature. The procedure followed for scoring of the positive and the negative statements is given Table 2 and 3.

Table 2
Procedure for Scoring Positive Statements.

Options	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Points	5	4	3	2	1

Table 3**Procedure for Scoring Negative Statements.**

Options	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Points	1	2	3	4	5

The total score of students on the attitude scale were thus calculated by adding the individual points got by the students for each statement of the scale.

ANALYSIS AND INTERPRETATION

First objective of the study was to assess the attitude of undergraduate students towards the use of e-learning. For this, frequency distribution table was prepared and percentage of the total undergraduate students was calculated for each class interval of the attitude scores.

Table 4**Frequency Distribution and Percentage of Attitude Score of Total Students.**

Class-Interval on Attitude Scores	Frequency	% of the Students
115-111	04	1.30
110-106	14	4.7
105-101	32	10.7
100-96	38	12.7
95-91	54	18
90-86	40	13.33
85-81	42	14
80-76	16	5.3
75-71	24	8
70-66	32	10.67
65-61	04	1.30
Total	300	100

From Table 4, it can be seen that 1.30 % students scored highest on attitude scale. 4.7% of the undergraduate students responded between 110-106 and 10.7% students scored between 105-101 out of 115. Table 4 also shows that 12.7 % students scored between 100-96 and 18% students responded between 95-91 on the attitude scale. 13.33 % students scored between 90-86, 14% of undergraduate students scored between 85-81, 5.3% students scored between 80-76 and 8% students scored between 75-71. It can also be seen that very less number of students i.e. 8% scored between 70-66. Only 1.3% students

scored lowest i.e. between 65-61 on the attitude scale. So results in Table 4 indicate that about 90% students scored more than 60 points on the attitude scale. So it can be concluded that maximum undergraduate students have positive attitude towards e-learning.

***Hypothesis 1:** There exists significant difference in the attitude of undergraduate students belonging to Arts and Science streams towards e-learning.*

Mean Scores, S.D. and t-ratio of Arts and Science Students towards the use of e-learning were calculated for testing this hypothesis. The results are as given in Table 5.

Table 5
Mean Scores, SD and t-ratio of Arts and Science Students.

Stream	N	Mean	SD	t	Level of Significance
Arts	100	98.3	6.98	0.098	Not Significant at 0.01 level of Significance
Science	100	98.4	7.88		

It can be observed from Table 5 that the mean score and standard deviation of arts students is 98.3 and 6.98 respectively whereas the mean and SD of science students is 98.4 and 7.88 respectively. The t-ratio between these two groups is 0.098 which is not significant at any level. It indicates that there is no significant difference in the attitude of Arts and Science students towards the use of e-learning. Thus, the first hypothesis that there exists significant difference in the attitude of Arts and Science undergraduate students towards the use of e-learning is rejected.

***Hypothesis 2:** There exists significant difference in the attitude of undergraduate students belonging to Arts & Commerce streams towards e-learning*

The second objective of the study was to study if any difference exists in the attitude of Arts and Commerce Graduate students towards the use of e-learning. The results are shown in Table 6.

Table 6
Mean Scores, SD and t-ratio of Arts and Commerce Students.

Stream	N	Mean	SD	t	Level of Significance
Arts	100	98.3	6.98	1.86	Not Significant at 0.01 level of significance
Commerce	100	96.5	7.53		

It can be observed from Table 6 that the mean and standard deviation of Arts students is 98.3 and 6.98 respectively whereas the mean and SD of Commerce students is 96.5 and 7.53 respectively. The t-ratio between these two groups is 1.86, which is not significant at any level. It indicates that there is no

significant difference in the attitude of Arts and Commerce Graduate students towards the use of e-learning. Thus, the second hypothesis of this study that there is significant difference in the attitude of Arts and Commerce undergraduate students towards the use of e-learning is also rejected.

Hypothesis 3: *There exists significant difference in the attitude of undergraduate students belonging to Science and commerce streams towards e-learning.*

The third objective of the study was to compare the difference of attitude between the Science and Commerce graduate students towards the use of e-learning. The results are given in Table 7.

Table 7

Mean Scores, SD and t-ratio of Science and Commerce Students.

Stream	N	Mean	SD	<i>t</i>	Level of Significance
Science	100	98.4	7.88	1.77	Not Significant at 0.01 level of significance
Commerce	100	96.5	7.53		

Table 7 shows that the mean scores and standard deviation of Science students is 98.4 and 7.88 respectively whereas the mean and SD of Commerce students is 96.5 and 7.53 respectively. The t-ratio between these two groups is 1.77 which is not significant at any level. It indicates that there is no significant difference in the attitude of Science and commerce students towards the use of e-learning. Thus the third hypothesis that there exists significant difference in the attitude of Science and Commerce students at undergraduate level towards the use of e-learning is also rejected.

Hypothesis 4: *There exists significant difference in the attitude of undergraduate Male and Female students towards the use of e-learning.*

The fourth objective of the study was to compare the difference in attitude of the male and female undergraduate students towards the use of e-learning. The results are given in Table 8.

Table 8

Mean Scores, SD and t-ratio of Male and Female Students.

Stream	N	Mean	SD	<i>t</i>	Level of Significance
Male	122	96.03	8.40	3.26	Significant Difference at 0.01 level of significance
Female	178	98.87	6.52		

Table 8 shows that the mean score and standard deviation of male

exists significant difference in the attitude of undergraduate Male and Female students towards the use of e-learning is accepted.

Hypothesis 5: *There exists significant difference in the attitude of undergraduate urban and rural students towards the use of e-learning.*

The last hypothesis deals with the comparison between the attitude of urban and rural undergraduate students towards e-learning.

Table 9

Mean Scores, SD and t-ratio of Urban and Rural Students.

Locality	N	Mean	SD	t	Significance
Urban	140	93.36	9.61	2.65	Significant Difference at 0.05 and 0.01 level
Rural	160	89	11.33		

It can be observed from Table 9 that the mean scores of the urban and rural undergraduate students are 93.36 and 89 respectively. The standard deviations of urban and rural undergraduate students are 9.61 and 11.33 respectively. The t-ratio between these two groups comes out to be 2.65 which is significant at both levels i.e. 0.05 level and 0.01 level of significance. It indicates that urban and rural students have different attitudes towards e-learning. Hence, Hypothesis 5 that there exists significant difference between the attitude of urban and rural undergraduate students towards e-learning is accepted. The difference between the two means is found to be significant.

MAIN FINDINGS AND DISCUSSION

1. As Table 4 indicates that about 90% students scored more than 60 points on the attitude scale. So, it can be concluded that maximum undergraduate students have positive attitude towards e-learning. It may be due to the fact that they understand the utility of technology for self-learning.
2. There are no significant differences in the attitudes of Arts and Science undergraduate students towards the use of e-learning. The results indicate that in today's environment there is no difference in the attitude of Arts and Science Students towards the use of sophisticated devices. The reason may be that outlook of Arts students has broadened and they have learned to compete with science students. They are also exposed to all those sophisticated devices that were earlier in the use of Science students only.
3. There exists no significant difference in the attitude of Arts and Commerce Undergraduate students towards the use of e-learning. The reason may be that even parents of students provide equal opportunities to them irrespective of stream.

4. There exists no significant difference in the attitude of Science and Commerce undergraduate students towards the use of e-learning. It is generally seen that science as well as commerce students have such subject matter for which they have to frequently make use of e-learning devices and tools such as computers and Internet. Students of both these streams have a favourable attitude towards e-learning and it may be possible because the students of both the streams are availing facilities for the use of e-learning.
5. There exists significant difference in the attitude of Male and Female undergraduate students towards the use of e-learning. The above results show that interest of Male and Female undergraduate students varies with regard to the use of new technological tools and advancements. Generally male students get more time to explore the Internet. They take more interest in the use of devices like computer etc. Due to this, male students may have better attitude than the female students towards the use of e-learning.
6. There exists significant difference in the attitude of Urban and Rural undergraduate students towards the use of e-learning. The reason may be that urban students have more exposure to technology as compared to rural students.

EDUCATIONAL IMPLICATIONS

This study was an effort to find out the attitude of undergraduate students belonging to different streams, areas and gender towards the use of e-learning. This study has its implications for teachers, students, planners and administrators in the field of education.

Most of the teachers and teacher educators do not have open mindedness towards the use of e-learning in general as well as for teaching learning process. The results of the study show that students of different streams have more or less positive attitude towards the use of e-learning. The attitude of teachers and students can be elevated by the interaction between the teachers and students in their institution. The administrators should be motivated to send teachers for getting training for the appropriate use of e-learning as well as for applying it in day to day activities. It can be done with the help of various types of workshops and summer schools, which will provide them training for proper usage of e-learning.

Teachers of Science and Management who are already using e-learning in teaching can use e-learning in arranging different educational activities with the help of students in classroom situations. Moreover, teachers should also motivate students, especially of Arts stream to utilize e-learning frequently for leaning new concepts.

This study has its implications for educational planners who are framing the curriculum. They should introduce few units in the curriculum, which should be prepared with the help of e-learning. Along with it, educational administrators should be trained in the use of e-learning. It will certainly prove helpful in framing time-table, locating teacher's positions, managing library, assessing students' progress and maintaining official record. It can therefore be concluded that e-learning is at its infancy stage in Indian classrooms but it is going to play an important role for educational scenario in near future.

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