

Attitude of University Students towards E-learning in West Bengal

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Received July 24, 2014; Revised August 03, 2014; Accepted August 06, 2014

Abstract E-learning is now emerging as the advance paradigm for higher education. The present study was conducted for measuring the attitude of university students towards e-learning in West Bengal by taking 308 University level students from four Universities namely Sidho-Kanho-Birsha University, Jadavpur University, Visva-Bharati and Gourbanga University. The survey method has been adopted for the present study and stratified random sampling technique has been used in selecting the samples. A well-designed questionnaire, developed by the Investigators has used to collect primary data. The result revealed that students' have high attitude towards e-learning and their attitude scores did not differ significantly with their personal variables such as, gender, stream of study and residence.

Keywords: e-learning, attitude, university students, gender, two-way ANOVA, 't' test

Cite This Article: Dhiman Kar, Birbal Saha, and Bhim Chandra Mondal, "Attitude of University Students towards E-learning in West Bengal." *American Journal of Educational Research*, vol. 2, no. 8 (2014): 669-673. doi: 10.12691/education-2-8-16.

1. Introduction

The term *e-learning* covers a broad spectrum of pedagogical tools and approaches that continues to evolve to meet the needs of students and educators. With the global communication and internet connection speed, web content has grown richer and more interactive for users [1]. E-learning systems provide an additional, more flexible means of communicating that enables students to interact easily with others [2]. Newton (2003) pointed out that e-learning system has three main areas: improving access to education and training; enhancing the quality of teaching and learning; and the need for higher education institutions to maintain competitive advantage in a changing market place for students [3]. In the long run, the acquired experience in e-learning will provide a strategic opportunity for the institution to enter the new field of education. Similarly, this system enabled students to access diverse contents any time and from any location. This gives students more control over their learning experience, enabling them to gather the materials they need and study when they have time to do so [4]. Moreover, e-learning platform based on network promote personal knowledge accumulation and group knowledge sharing, which can improve learning efficiency, facilitate the innovation of knowledge, and then enhance the core competitiveness of individual and group. As a result of this, e-learning platform appears as the efforts to make a step forward towards a more effective and quality education.

Research revealed that there are significant links between attitudes and beliefs and links between attitudes and behaviors, and that attitudes form the foundations of one's beliefs which influence one's behaviors [5]. Workman (2005) asserted that when people have favorable attitudes towards a particular technology, those people are more likely to use that technology [6]. He also argued that people are also influenced by subjective norms; that is, one's perception of significant others' like or dislike towards a particular technology which is likely to encourage or discourage one from using that technology.

Universities around the country are adding online learning programs to meet the needs of the growing number of students seeking the convenience of online courses and to remain competitive in the rapidly changing market for educational services. E-learning presents an opportunity to enhance learning as to create environments where students and teachers can share knowledge. So, it is very important to design an efficient e-learning platform for teaching, learning, resources, and administration for higher education [7,8,9]. But the question is that is our students ready to receive e-learning facility for their improvement? In order to find the answer the researchers investigated the attitude of the university students towards e-learning.

A long list of research studies are available wherein demographic impacts have been measured on the attitudes of users towards e-learning in different countries [10,11,12,13]. Similarly, research tells that major factors contributing to Internet use are social demographic factors such as age, race, and gender, rather than socio-economic factors such as income and education, or other

psychological factors [14]. The problems of demographic dimensions are universal but they are more implicative in the developing countries than the advanced states.

In the developing country like India, the state of affairs about demographic implications is alarming. Here the groups are not only highly dissimilar but also the number of groups is greater. Thus, knowledge about the user characteristics in the development and use of e-learning system of a developing country is the prerequisite to introduce successful e-learning systems [7].

1.1. Literature Review

Yacob (2012) et al. have examined the awareness of e-learning that involves student from TATI University College in Malaysia [15]. Multiple regression analysis was performed on the students' perceptions in relation to gender, year of study, faculty, technology usage and the awareness of e-learning implementation. The result shows that males and female have a significant awareness towards e-learning in education at TATIUC. Liaw and Huang (2011) explored individual's attitudes and behaviors in using e-learning with regard to gender difference, computer related experience, self-efficacy, and motivation aspects [16]. The results demonstrate male students have more positive e-learning attitudes than female students do, computer related experience is a significant predictor on learners' self-efficacy and motivation toward e-learning. Aixia and Wang (2011) conducted a study to investigate the critical factors affecting learners' satisfaction in e-learning environment [1]. The findings presented that the perception of e-learning is positively influenced by its flexibility in knowledge management, time management and widening access to information. Mehra and Omidian (2011) examined factors that predict students' attitude to adapt e-learning at the Khuzestan province, Iran [17]. The results show that there are five factors that can be used in modeling students' attitude to adapt e-learning. These factors are intention toward e-learning, perceived usefulness of e-learning, perceived ease of e-learning use, pressure to use e-learning and the availability of resources needed to use e-learning. Vrana et al. (2005) aimed at assessing the experience, skills and computer efficacy of students of Technical Vocational Schools, measuring their attitudes towards the use of education technology and distinguishing obstacles and drivers for the development of an e-learning environment [18]. Bhuvanewari and Padmanaban (2012) examined the attitude towards e-learning of secondary students of Delhi and found that demographic variables play a significant role for e-learning [19]. Mishra and Panda (2007) studied the development and factors of an instrument to measure students' attitude towards e-learning [20]. Elina and Erkki (2007) conducted a study on identifying students' attitudes on e-learning, the effects of students learning skills and institutional support at University of Joensuu, Finland [21]. The results revealed that the amount of students' training in e-learning is in correlations with their level of satisfaction towards the support by their institution; in universities where the amount and skills of students training was high, students' attitudes towards the support by their university were considerably more positive than in universities providing less training. Vrana et al. (2005)

conducted a study on analyzing academic staff and students' attitudes towards the adoption of e-learning [18]. The study reveals the skills in e-learning and the attitude of faculty and students for e-learning and educational technologies. He found that the general positive opinion of e-learning and educational technologies, the recognition of difficulties by both groups in the use of e-learning and educational technologies and the expression of the need to be supported by the institution in their effort, the positive disposition of faculty to use educational technologies and the relatively good level of their aptitude in e-learning, the fact the students appear more conservative towards e-learning and educational technologies.

1.2. Objectives

The study was conducted with the following objectives:

- To study the difference in attitude of University students towards e-learning with regard to gender
- To study the difference in attitude of University students towards e-learning with regard to residence
- To study the difference in attitude of University students towards e-learning with regard to their stream of study
- To study the primary interaction effect between gender and residence
- To study the primary interaction effect between gender and stream of study
- To study the primary interaction effect between stream of study and residence
- To study the secondary interaction effect between gender, residence and stream of study

1.3. Hypotheses

The null hypotheses for the present study are as follows:

- H₁: There is no significant difference in attitude towards e-learning between male and female University students
- H₂: There is no significant difference in attitude towards e-learning between urban and rural University students
- H₃: There is no significant difference in attitude towards e-learning between Arts and Science University students
- H₄: There is no significant interaction effect between gender and residence
- H₅: There is no significant interaction effect between gender and stream of study
- H₆: There is no significant interaction effect between stream of study and residence
- H₇: There is no significant secondary interaction effect between gender, residence and stream of study

1.4. Population

All the university students of West Bengal (India) are the population of this study.

1.5. Sample

Sample of 308 University students were randomly selected from four Universities namely Sidho-Kanho-Birsha University, Jadavpur University, Visva-Bharati and

Gourbanga University, West Bengal. The sample distribution is given in Table 1:

Table 1. Sample Profile

	Arts	Science	Total
Male	129	32	161
Female	120	27	147
Total	249	59	308

2. Methodology

Quantitative research technique has been used in this study. Survey was conducted to collect primary data and to prove the hypotheses. Participants were invited to complete the questionnaire with a schedule to collect personal information. All subjects were asked to respond

to the questionnaire and their responses were guaranteed to be confidential.

2.1. Tools

E-learning attitude scale, as developed by the Investigators is used for the present study. This is a five point Likert type scale consists of 55 items whose sample items are given in Table 2. The reliability of the scale was 0.78 by split half method (Guttman) and internal consistency was 0.88 as measured by Cronchbach method. A reliability coefficient greater than 0.70 confirms that the scale used in the study is reliable [22]. The questionnaire forms also include questions covering demographic characteristics of students such as age, stream of study and residential background. In this study, face validity and content validity of the scale was ensured through consultation with faculty members from Visva-Bharati, Kalyani and Calcutta University.

Table 2. Sample items for measuring attitude towards e-learning

Sl. No.	Statement	Strongly Agree	Agree	Undecided	disagree	Strongly disagree
1	I use Internet for self study					
2	I download learning content from Internet					
3	I prefer to read e-book					
4	I download picture, diagram for my projects					
5	I face many problems while using internet					
6	I use online library for self study					
7	I prefer to transfer material through e-mail to my friends, teachers					
8	I feel satisfied when material is collected from Internet					
9	I learn many things from Internet through trial-error method					
10	Online learning is much more comfortable					
11	I use different educational blogs for interaction					

2.2. Procedure

As indicated earlier, students were randomly sampled from Sidho-Kanho-Birsha University, Jadavpur University, Visva-Bharati and Gourbanga University of West Bengal. It is always important to establish good rapport with the subjects, whether tested individually or in groups. 308 subjects comprising of 59 Science and 249 Arts students were given the attitude scale with a request to complete the questionnaire without leaving blank to any item. The answering time took approximately 30 minutes to 40 for each subject. After the collection of data the responses of the participants were scored and after the final scoring the scores were analyzed in form of appropriate statistical tests.

2.3. Analysis

Descriptive statistics

Descriptive statistics help us to simply large amounts of data in a sensible way. Each descriptive statistic reduces lots of data into a simpler summary. Here we present our descriptive data (Table 3) in the form of Mean and standard deviation (SD) along with 't' critical ratio.

Table 3. Determination of t-values

Pair of comparison	N	Mean	SD	Mean Difference	t-value
Male	161	190.81	24.02	1.66	0.62*
Female	147	192.47	23.11		
Science	59	194.40	24.07	3.46	1.01*
Arts	249	190.94	23.45		
Rural	205	192.10	23.45	1.47	0.52*
Urban	103	190.63	23.89		

* Not significant

Inferential statistics

Inferential statistics plays a pivotal role in hypothesis testing where it is used to determine if a null hypothesis can be rejected or retained. For the present study we have constructed a two way ($2 \times 2 \times 2$) factorial design for the analysis of different variables (Table 4). Table 3 presents the t critical ratio which is also used to test different null hypotheses.

Table 4. Summary of Multi ways ANOVA results

Source of variation	SS	Df	MS	F ratio
A (Gender)	0.573	1	0.573	0.001*
B (Stream of study)	1437.49	1	1437.49	2.57*
C (Residence)	33.87	1	33.87	0.061*
A × B	801.13	1	801.13	1.435*
A × C	404.76	1	404.76	0.725*
B × C	195.35	1	195.35	0.350*
A × B × C	1537.73	1	1537.73	2.754*
Within group	167521.14	300	558.40	

* Not significant

3. Results and discussion

3.1. Testing of H₁

The mean of attitude scores for male and female University is found to be 190.81 (SD =24.02) and 192.47 (SD = 23.11) respectively. This indicate that both male and female student posses high attitude towards e-learning although female students have slightly higher attitude towards e-learning than their male counterpart. This finding corroborates the work of Mehra and Omnidan [17] and Adewole-Odeshi [23] who found that Indian postgraduate students have high positive attitude towards

e-learning. F- value (Table 4) for gender is found to be 0.01 which is not significant at 0.01 level. Moreover, 't' value (Table 3) between male and female students is found to be 0.62 which is also not significant even at 0.05 level. In view of the above H_1 is accepted. This result supported by the work of Paris [24], Colley [25], Fan & Li [26] and Liaw [27] but not support the work of Bhubneswari et al [19] who found that male and female secondary students possess different attitude towards e-learning.

3.2. Testing of H_2

The ANOVA analysis revealed that there is no statistically significant ($p < 0.01$) differences in attitude towards e-learning of University students according to the places they are born and brought up (Table 4). Furthermore, 't' value ($t = 0.52$) also supports this findings. Thus, H_2 is also accepted.

3.3. Testing of H_3

From Table 4, it is found that F- value [2.57 at df (1, 300)] is insignificant with respect to the stream they studied. Moreover, 't' value ($t = 1.01$) shows that the stream of study did not influence the attitude of the university students towards e-learning. Hence, H_3 is also accepted. The result is contradicted with Bhubneswari et al [19].

3.4. Testing of H_4

Two independent variables interact if the effect of one of the variables differs depending on the level of the other variable. In this we consider three independent variables namely gender, residence and stream of study. So we have to examine whether there is any interaction is present or not. From Table 4 it is notice that gender and residential background does not interact ($F = 0.061$) with each other at 0.01 level of significance. Hence, H_4 is accepted.

3.5. Testing of H_5

The interaction between gender and Stream of study of university students on the attitude towards e-learning is not significant as revealed by F- value which is 1.435 (Table 4). So H_5 is accepted.

3.6. Testing of H_6

The interaction between residence and stream of study of university students on the attitude towards e-learning is found to be insignificant as indicated in Table 4 [$F = 0.350$ at df (1, 300)]. So H_6 is accepted.

3.7. Testing of H_7

Table 3 indicate that there is no interaction between different independent variable viz. gender, resident and stream of study of the attitude towards e-learning university students ($F = 2.754$). So H_7 is accepted.

4. Conclusion

From the above findings and discussion, it can be deduced that university students' attitude towards e-

learning is independent with regard to gender, residence and stream of study. Generally speaking, attitude indicates in a certain degree the possibility of adopting certain behaviors [28]. Talking about an e-learning system, a favorable and positive attitude of students towards it suggests a greater probability that they will accept it. As the attitude towards e-learning has been found to be very high for all groups, it is expected that university student will use e-learning strategy for their work like creating visual presentations, presenting written work and researching topics. They are more effective at working independently as a result of e-learning, and a similar proportion said that learners were better able to work at their own pace. From this we can conclude with confidence that university students are ready to take various courses conducted through online mode.

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