

**Students' Attitude towards E-learning**Samir Thakkar<sup>1</sup>, Hiren Joshi<sup>2</sup><sup>1</sup>Information Technology Branch, Government Polytechnic, Rajkot, India<sup>2</sup>Rollwala Computer Centre, Gujarat University, Ahmedabad, India

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**Abstract** —*Electronic learning is emerging as a prominent way to carry teaching-learning process. In countries like India, where population is large and the educational resources are limited to cope up with the increasing needs of providing education, E-learning can play a critical role to overcome this problem. One of the key factors in taking road of E-learning is learners' readiness. Despite of several advantages of E-learning, it would not be meaningful if learners don't adapt to it. This study tries to learn attitude of diploma engineering students towards adaptation of e-learning. The present study is based on a survey method. Fifty six students of information technology branch of diploma engineering programme were taken as sample for the population. An attitude scale was used to collect the data. The differences in students' attitude towards the use of E-learning were studied in terms of gender, locality (rural / urban) and cast category (General/ Reserved).*

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**Keywords**-Student attitude; e-learning; online learning; engineering students

**I. INTRODUCTION**

There are many definitions of e-learning across available literature. Wentling et al.[1] and Rosenberg [2] defined e-learning as utilization of Internet and related tools and technologies to provide a broad range of solutions that improves performance and knowledge. E-learning is the term widely used to refer to instructional material or learning practice disseminated or supported by electronic tools and technologies [3].

In general, E-learning can be considered as the process of learning formed by communication with contents delivered digitally with electronic services and support. It includes extensive use of information and communication related technologies to assist, enable, and reform the process of learning. E-learning can theoretically incorporate all the other types of learning.

Wide spread of Internet has encouraged universities and organizations to develop Learning Management Systems (LMS) based on Internet technologies to support teaching and learning process. Such LMSs provides various features like registration of courses, distribution of learning material, tracking learner's progress, conducting tests, interaction between teacher and learner and other educational needs. Such LMSs based on Internet technologies, which are a type of E-learning systems, can be used to provide hybrid learning experience that is a combination of face-to-face traditional classroom learning with Internet oriented learning [4]. In an E-learning environment, learners can learn at their own convenience of schedule and willingness. Ease of access to the learning material, time independence, repetitive learning and mobility are critical factors which drives the utilization of E-learning systems.

Along with the increasing inclination towards E-learning within academics, it is very necessary to identify perspectives of E-learning from the ultimate stakeholders, the students. This paper tries to examine diploma engineering students' perception about E-learning. Section II describes review of related literature. Objectives are stated in section III followed by Hypotheses in section IV. Section V describes the research method used in the study. Section VI discusses the results followed by Conclusion.

**II. REVIEW OF RELATED LITERATURE**

D.W. Sanders & A.I. Morrison-Shelter observed attitude of undergraduate students towards the web-enabled learning components in a biology course. The outcomes exhibited a constructive influence on critical thinking skills, problem-solving skills and student learning [5].

Patricia Berteau's observed that there is a connection between technical capabilities and students' attitude towards e-learning. Attitude is also impacted by time dedicated to computer use, showing computer experience. Attitude differences were found between hired students and the unemployed ones [6].

Naila et al. conducted a study on nursing students to learn their attitude towards E-learning. In this quantitative and cross sectional study, 120 nursing students participated. A questionnaire was distributed to all students to measure their attitudes towards E-learning. The result confirmed the readiness of students to adopt E-learning and recognized its use in education. Though, technical support and stress of using technology were noted to be discouraging factors to adopt E-learning [7].

Neelam Dhamija tried to evaluate undergraduate students' attitude towards the academic utilization of E-learning. An attitude scale was developed and the study was carried out on 300 students belonging to arts, commerce and science streams. Differences in attitude between different stream students were observed. The findings revealed that

overall it was affirmative approach towards E-learning among most of the students. There were no differences in attitude between arts and commerce students as well as arts and science students. Also no differences were reported between commerce and science students. Though, significant difference was reported among students with respect to gender and rural and urban residence [8].

Opposite to these results, no differences were found between rural and urban students or between male and female students in a study carried out by Avant on undergraduate students of Aligarh Muslim University. A computer attitude scale from previous study was used to measure attitude of students towards computer. All students demonstrated favorable attitude while rural girls showed less favorable attitude compared to urban girl students [9].

Supporting the similar results a study was conducted by Suri and Sharma to assess attitude towards E-learning with respect to gender. This study comprising of 477 students concluded that there is no substantial connection between gender and students' attitude towards E-learning [10].

Rhema et al. discussed perception and experiences of students from two Lybian universities on technology enabled learning. The impact of demographic features, technology access, technology utilization in learning, technological skills and technology satisfaction on students attitude were studied. The results stated that demographic features such as gender differences locality of student, current enrollment year and age have no effect on students' attitude towards E-learning. Students having access to technology were more favorable towards E-learning. A substantial factor of attitudes toward e-learning is student skills in technologies [11].

Teachers are playing key role in educational settings and their perception about E-learning affects students' attitude towards E-learning. Kisanga surveyed various factors determining teachers' attitude towards E-learning. The well-known technology acceptance model was modified to include factors like gender, qualification, teaching experience and computer exposure as independent variables. It was found that teachers have positive attitude towards E-learning with computer exposure as key contributing element towards their attitude. The other factors gender, qualification and teaching experience were found to be insignificant in determining attitude towards E-learning [12].

In another similar study carried out by Krishnakumar and Rajesh, higher education teachers' attitude towards E-learning was measured. Favorable attitude was revealed as the study outcome. There were differences in approach towards using E-learning between the teachers familiar with computers and technology compared to technologically novice teachers [13].

Individual innovativeness also affects attitude towards online learning. Özcan et al. examined the effect of individual's creativeness level on change in approach towards E-learning of prior-service teachers. To determine level of creativeness, a scale was used from prior studies whose result puts an individual into one of the profiles from Innovators, Early Adopters, Early Majority and Laggards. Attitude of these teachers was measured using another scale and it was found that there is substantial variance in their attitude towards online learning in regards with individual's level in creativeness [14].

### **III. OBJECTIVES**

The following objectives are defined for the study:

1. To investigate diploma engineering students' attitude towards the usage of E-learning
2. To investigate differences in attitude towards the use of E-learning between male and female students
3. To investigate differences in attitude towards the use of E-learning between rural and urban students
4. To investigate differences in attitude towards the use of E-learning between general category and reserved category students

### **IV. HYPOTHESES**

To achieve the above mentioned objectives, the following hypotheses are formed:

1. There is a significant difference in attitude towards the use of E-learning between male and female students
2. There is a significant difference in attitude towards the use of E-learning between rural and urban students
3. There is a significant difference in attitude towards the use of E-learning between general category and reserved category students

### **V. RESEARCH METHOD**

#### **5.1. Participants**

The participants of this investigation include final year diploma engineering students from information technology branch of Government Polytechnic under Gujarat Technological University at Rajkot. From 80 final year students 56 participated in the study. Table 1 highlights the demographic information of the participating students.

### 5.2. Instrument

A survey was designed by from prior studies carried out by Abdelrahim M. Zabadi and Amr Hussein Al-Alawi [15], Laura Briz-Ponce et al. [16] and Amal Rhema et al. [11]. Few items were found to be duplicating and they were removed. The final version of the survey consisted of two sections. The first section collects demographic information which includes gender, locality and category. The other section includes 13 items to measure students' approach towards the usage of E-learning. Each item in this section is measured on five-point likert scale ranging from minimum value 1 (Strongly disagree) to maximum value 5 (Strongly agree). Other scale values are 2 (Disagree), 3 (Neutral) and 4 (Agree). Experts were consulted to ensure validity of the survey items.

**Table 1. Student demographic information**

Var	Description	No of students	Frequency (%)
Gender	Male	33	58.9%
	Female	23	41.1%
Locality	Rural	13	23.2%
	Urban	43	76.8%
Category	General	31	55.4%
	Reserved (ST/SC/OBC/PH)	25	44.6%

### 5.3. Method

The survey was prepared online and hyperlink to the survey was distributed to students using mobile group messaging application. It was made sure in a class that most of the students are having smart mobile devices and sufficient Internet connectivity to fill up the form online. Students who were not using Internet were encouraged to take help from their friends having Internet enabled device. Prior to the distribution, students were made clear about the objectives of this study and were also demonstrated an online learning system they expected to enroll in during the semester. It is to be noted that student participation was voluntarily and they could opted not to fill up the survey. The data collected anonymously from May to June 2017.

The samples used in the study were tested for normality and found to be non-normal. Thus, samples violate one of the necessary conditions for conducting parametric tests like ANOVA, t test, etc. Therefore, Mann Whitney U test was carried out to test significant difference between groups, which is a most commonly used non-parametric test. The Mann-Whitney U test is a non-parametric test, ideally used to assess variance between two independent sets. It used in situations where the dependent variable is either ordinal or continuous and non-normal. It is one of the alternative methods available to test significant differences when independent sample t-test is not applicable due to normality assumption violation.

## VI. DATA INTERPRETATION AND RESULTS

To investigate the overall attitude of students towards the usage of E-learning, a frequency distribution table as given below is prepared. Each item comprises maximum score of 5 and minimum score of 1. Thus, minimum score for second part of survey measuring the attitude is 13 (13 items  $\times$  1) and maximum score is 65 (13 items  $\times$  5).

**Table 2. Frequency distribution of attitude score**

Attitude Score	Frequency	Percentage of the Students
11 – 20	1	1.79%
21 – 30	0	0.00%
31 – 40	6	10.71%
41 – 50	13	23.22%
51 – 60	30	53.57%
61 – 70	6	10.71%
<b>Total</b>	<b>56</b>	<b>100.00%</b>

Table 2 shows that more than 64% students scored greater than 50 and 23.22% students scored in range 41-50. Only 1.79% of students scored between the minimum range of values that is 11-20. Thus, it shows that high number of students have positive inclination towards E-learning.

**Hypothesis 1:** There is a significant difference in attitude towards the use of E-learning between male and female students

Mann-Whitney U test was conducted on male and female attitude scores as their normal distribution shapes were different. Table 3 shows the results.

**Table 3. Ranks and Mann-Whitney U Test statistics (Gender-wise)**

	Gender	N	Mean Rank	Mann-Whitney U	Z	p
Attitude Score	Female	23	24.70			
	Male	33	31.15	292.000	-1.461	.144
	<b>Total</b>	<b>56</b>				

It can be seen from the above results that the value of  $p = 0.144 > 0.05$  level of significance. It shows that there exists no significant difference in attitude towards the use of E-learning between male and female students. Thus Hypothesis 1 is rejected.

**Hypothesis 2:** There is a significant difference in attitude towards the use of E-learning between rural and urban students.

Since the data divided by locality groups are non-normal, this hypothesis is tested using Mann-Whitney U test. Table 4 shows the relative results.

**Table 4. Ranks and Mann-Whitney U Test statistics (Locality-wise)**

	Locality	N	Mean Rank	Mann-Whitney U	Z	p
Attitude Score	Rural	13	29.38			
	Urban	43	28.23	268.000	-.224	.823
	<b>Total</b>	<b>56</b>				

Since the value of  $p$  in the result is .823 which is greater than significance level 0.05 ( $p = .823 > 0.05$ ), this hypothesis 2 is rejected. Thus, no statistically significant difference was found in attitude for E-learning between rural and urban students.

**Hypothesis 3:** There is a significant difference in attitude towards the use of E-learning between general category and reserved category students.

Following non-normal distribution, General and Reserved category students score was tested using Mann-Whitney U test. Table 5 shows the relative results.

**Table 5. Ranks and Mann-Whitney U Test statistics (Category-wise)**

	Category	N	Mean Rank	Mann-Whitney U	Z	p
Attitude Score	General	31	31.03			
	Reserved	25	25.36	309.000	-1.297	.195
	<b>Total</b>	<b>56</b>				

From Table 5, it can be seen that the significance value  $p = 0.195 > 0.05$  significance level. Thus, this hypothesis 3 is also rejected. Hence, there is no significant difference in attitude towards the use of E-learning between general category and reserved category students.

## VII. CONCLUSION

The main aim of the study was to gauge students' attitude towards the use of E-learning systems. We analyzed their attitude with respect to gender, locality and social category. Results show that there is a highly positive incline of diploma engineering students towards the usage of E-learning. Also this attitude is not affected by differences in gender, locality or social category of students.

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