



# Assessing First Year Students' (Freshman) Attitude Towards eLearning--A Motivational Approach

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## Abstract

*The lack of similarity in the attitudes of learners and teachers with respect to using online or eLearning resources along with e-Methodologies persist, despite technical advances. The authors have developed and administered a questionnaire to assess pertinent attitudes and perceptions of learners (n=60) toward online instruction at a private Institution, namely, the Rajeev Gandhi Memorial College of Engineering and Technology (RGM CET) at India, an institution that is well-established in the country. Responses to twenty items were subjected to exploratory factor analysis with a few factors emerging labeled as technical resources, self-efficacy, strategic alignment, and contextual suitability. Differences were found between the programs of Computer Science and Engineering (CSE) and Electronic and Communication Engineering (ECE) with online eLearning and instruction and the duration of learning. Relationships among factors include Internet self-efficacy and practical implications which include Course design and Internet facilities.*

**Keywords:** Education, ICT, eLearning, Learners' attitude, structured interviews.

## 1. Introduction

Education in the global age primarily concerns the extent of using Information and Communication Technology (ICT) and its integration into the curriculum, whether formal or informal. Currently, innovations in global education are centered on structural shifts in the content of the curriculum and application of ICT in teaching and learning processes; in other words, to provide 'education for all' including all marginalized groups among others. The wave of globalization and the concept of Smart Cities by Indian Government emphasizes on the creation and transfer of knowledge, critical thinking, problem solving and creativity. With the advent of ICT, eLearning is at the centre of global

education which facilitates system awareness, involvement consciousness, attentiveness and process mindedness to the learners.

### 1.1 Motivation for the Study

The purpose of this study is to find out the learners' attitude toward eLearning and ICT; attitude has an important role to help or block students from gaining knowledge. Pursuing

Engineering Graduation, many of the students at Andhra Pradesh Engineering colleges are not adoptive in using technology in education. A group of students were asked to take up online courses like, Inside IELTS [9] and NPTEL Open Online Course (NOC) [11]. Out of 60 students who registered for the course only 5 students were able to finish. Therefore, the present study is certainly important under the Smart City concept, wherein there is a serious need of making our young would-be engineers more competent in ICT. The information obtained will provide useful information as sources or positive guides for teachers, Educational Institutions, Boards of Studies of International and National Educational Organizations towards improving the underlying ICT infrastructure and help increasing the number of students who turn up with good knowledge and quality education and become employable.

### 1.2 The scope of the study

The study was limited to finding the first year students' (Freshman) attitude towards the use of ICT at the Rajeev Gandhi Memorial College of Engineering and Technology (RGM CET), Nandyal, India ([www.rgmcet.edu.in](http://www.rgmcet.edu.in)), which is a premier institution in India. Therefore, the results of the study may be applicable only to comparable Institutions only.



### 1.3 Population and Subject

The population of the study is 60 students out of 1200, who are in the II semester of B.Tech, Computer Science and Engineering (CSE) and Electronic and Communication Engineering (ECE) of the Engineering. They are given online training in communication by using K-Van software solutions [Software for English language], ICT by using Pearson Digital sources [on Engineering subjects] and other eLearning sources as per the requirement of the subject.

### 1.4 Literature Review

Katz's (1960), [14] in his Functional Theory states that people hold attitudes that help them achieve their basic goals. Cotterall, S. (1995)[4] investigated on the readiness of learner toward learning autonomy in developed nations, we see well-established Universities and there the students becoming more dynamic to adopt e-learning courses (Volery & Lord, 2000) [24] which result in considerable demand for such courses. The increasing demand for ICT in education, e-learning is defined as, *Using ICT e.g., Internet, Computer, Video, Audio and others in teaching and learning* (Jenkins & Hanson 2003). Psychological tendencies, (Eagly & Chaiken, 1993)[6] Instructional methods (Kurniawati, F. 2014), [17] and teacher's knowledge in promoting e-learning also plays a vital role in learners' attitude (Souvignon 1976). Factors such as learning preferences, (Finch & Hyun, 2000) and Study styles, (Finch & Hyun, 2000) [7] [8] impact learners' attitude.

## 2. Research Questions

To access the attitude and response of learners towards eLearning in Engineering Higher Education, (EHE) we have framed with a set of specific research questions to understand learners flexibility in terms of technological intervention in learning and also to explore the place of ICT in the core purposes of EHE. The research process was informed by the following research questions on eLearning:

- To what extent ICT be promoted in education?
- How does eLearning help in promoting quality and flexibility in education?
- How does eLearning promote flexibility in teaching and learning?

- How does eLearning improve technological requirements for teachers' betterment?
- How can flexible eLearning pathways support new forms of thinking, debate and action in Engineering Higher Education?

### 2.1 Underlying Hypotheses

The underlying hypotheses for this study can be grouped into the following five broad categories:

- Learners – computing attitude and anxiety as well as Internet self-efficacy. [4][19]
- Courses – flexibility and quality based on their formal education. [17][18][10]
- Technology – quality of the eLearning system and Internet access. [1][3]
- Course design – perceived usefulness and ease of use for ECE & CSE courses, [10] [21] [23]
- Environment – diversity in assessment and interaction. [17][20][22][5]

## 3. Methodology

A survey is the main data source for this pilot study, which was followed by structured interviews with 60 students who have been using internet, computer and audio-visual aids for learning for at least three months. The instrument used for the survey and the data collection mechanisms are described below:

### 3.1 Survey Instrument

A checklist to find students' attitude towards eLearning was used to gather the information from the learners. It consists of two parts, namely, gathering basic information about the students and seeking students' attitude on eLearning through 20 questions. In the checklist, the learners were required to rate each item according to the following five point Likert (1932)[18] scale:

- 5 means Completely Agree
- 4 means Agree
- 3 means Not Sure
- 2 means Disagree
- 1 means Strongly Disagree

**3.2 Data collection:** The checklist to find students' attitude was distributed at the end of the first semester of academic year 2016. The obtained data were analyzed for percentage (%) of an entity, their Mean ( $\mu$ ) and Standard Deviation ( $\sigma$ ), in addition to F-Test for evaluating e-Learners' attitude and the factors or challenges that are effecting e-learning.



**4. Results of the study: Table-1: Basic Information on Learners**

Gender	No. of eLearners	Percentage
Female	24	40
Male	36	60
<b>Total</b>	<b>60</b>	<b>100</b>
Course of study		
Computer Science Engineering	24	40
Electronic and Communication Engineering	36	60
<b>Total</b>	<b>60</b>	<b>100</b>

The basic information on the eLearners (from Table-1) indicates that female learners are 40% and male learners are 60%. These students are taught through ICT and e-learning modules for about three months in their respective Computer Science Engineering (CSE) and Electronic and Communication Engineering (ECE) programs.

Questions	$\mu$	$\sigma$	Level of Concern
1. Learning on computer is enjoyable and exciting.	2.73	0.697	Moderate
2. Self-learning can create self-confidence.	2.66	0.647	Moderate
3. E-learning tools are easy for practice.	3.46	0.764	Moderate
4. Digital courses are helpful in future career.	4.53	0.920	High
5. Feeling joy and excited when studying through K-VAN	3.65	0.019	Moderate
6. I wish to be competent in Learning online.	4.53	0.907	High
7. I feel eLearning is helpful.	4.77	0.902	High
8. I like to do my assignments on time.	4.10	0.670	Moderate
9. I read online sources before writing an exam.	2.57	0.760	Moderate
10. I always like to use digital resources before attending the class.	2.71	0.751	Moderate
11. I feel I can improve my ability in self-learning.	4.20	0.793	Moderate
12. If I get a low rank/grade, I will improve through online tools.	4.31	0.748	High
13. I prefer to learn through trial and error	3.04	0.779	Moderate
14. eLearning and internet access are important these days.	4.33	0.760	High
15. I strive to improve my knowledge using digital sources.	3.78	0.682	Moderate
16. E-Teaching aids and MOOCs help my understanding.	3.78	0.573	Moderate
17. I feel comforting and glad when I study online courses.	4.53	0.907	High
18. If I cannot understand, I will revise by the saved resources.	3.94	0.547	Moderate
19. eLearning helps in professional development & interaction	4.69	0.961	High
20. I can do other online courses along with my regular studies.	4.00	0.587	Moderate
<b>Total</b>	<b>4.05</b>	<b>0.497</b>	Moderate

**Table-2: The attitude of the Learner toward e-learning:**



**4.1 Level of Attitude**

Table 2 shows that the attitude of the learners toward eLearning using both college resources and online resources, wherein the mean ( $\mu$ ) value is 4.05 and  $\sigma = 0.497$ ). Concerning e Learners’ attitude, the following observations can be made: 13 issues are at moderate level of concern, while 7 issues are at high level of concern. The first three high-rated issues are: i) *Digital courses are helpful in future career*, ii) *I wish to be competent in Learning online* and iii) *I feel eLearning is helpful*. The first three low-rated issues of a moderate level are: i) *I read online sources before writing an exam*, ii) *I always like to use digital resources before attending the class* and iii) *I prefer to learn through trial and error*. The results show that the students are not self-regulated, though they have identified the importance of eLearning and that there seems to be a lack of motivation to build the ability for self-study.

**4.2 Table-3: Factors that are influencing eLearners’ attitude:**

Factor	Computing attitude	Internet self-efficacy	Flexibility and quality of course	Quality of the e-learning system	Technology	Ease of use	Instructor attitude	Training	Total
Learners response	3.6%	16.5%	13.5%	22.3	18.9%	4.6%	11.2%	11.9%	100%

The results from the survey are summarized in Table: 3. The percentages of responses under 9 factors were calculated. All the participants (60) responded to the questionnaire. Each On the basis of the results from data collected, the factors and challenges that are involved in deciding the attitude of the e-learners, the EHE is facing the challenges regarding the above 9 issues, *Quality of e-learning system*, *perceived usefulness*, and *internet self-efficacy* stand in 1,2 & 3 positions.

Questions	F-Test Sig.
1. Learning on computer is enjoyable and exciting.	21.801 0.000*
2. Self-learning can create self-confidence.	23.054 0.000*
3. eLearning tools are easy for practice.	13.853 0.000*
4. Digital courses are helpful in future career.	13.098 0.000*
5. Feeling joy and excited when studying through KVAN	34.877 0.000*
6. I wish to be competent in Learning online.	7.516 0.000*
7. I feel eLearning is helpful.	20.818 0.000*
8. I like to do my assignments on time.	16.337 0.000*
9. I read online sources before writing an exam.	4.232 0.006*
10. I always like to use digital resources before attending the class.	1.824 0.126
11. I feel I can improve my ability in self-learning.	2.203 0.013*
12. If I get a low rank/grade, I will improve through online tools.	5.992 0.001*
13. I prefer to learn through trial and error	2.632 0.088
14. eLearning and internet access are important these days.	3.125 0.026*
15. I strive to improve my knowledge using digital sources.	3.627 0.013*
16. E-Teaching aids and MOOCs help my understanding.	18.840 0.000*
17. I feel comforting and glad when I study online courses.	29.742 0.000*
18. If I cannot understand, I will revise by the saved resources.	2.307 0.077
19. eLearning helps in professional development & interaction	5.812 0.001*
20. I can do other online courses along with my regular studies.	2.341 0.073



<b>Total</b>	<b>31.801 0.000*</b>
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**Table 4:F-test of Attitude of e-Learners in Terms of Course of Study**

It can be observed from Table-4 that the learners from different courses, viz., Computer Science and Engineering (CSE) and Electronic and Communication Engineering (ECE), almost had different attitude toward the eLearning and online resources with a Significance=0.05. However, there were only 4 items that the learners from ECE and CSE did not exhibit different attitude. That is for the questions: i) *I feel I can improve my ability in self- learning*, ii) *I prefer to learn through trial and error*, iii) *if I cannot understand, I will revise by the saved resources* and iv) *I can do other online courses along with my regular studies*.

### 5. Summary

From the basic information section of the survey, Table: 1, it is found that most of the learners are from ECE. From the attitude section, Table: 2, it is found that the students' attitude towards eLearning using K-VAN, Pearson, other digital and online courses is at moderate level; 13 issues are at moderate level of concern, while 7 issues are at high level of concern. From the first three high-rated issues namely ,i) *Digital courses are helpful in future career*, ii) *I wish to be competent in Learning online* and iii) *I feel e-learning is helpful*), the analysis shows that in most cases the e-Learners attitude significantly depend on the course they are studying. From the Table: 3, when we take a look at the factors that influence e-learners, 'quality of the e-learning system' show high percentage. In terms of the course, in Table: 4, only in 4 issues out of 20, students shown difference in their attitude and for the remaining 16 issues both ECE & CSE students responded similarly.

### 6. Findings and recommendations

The result of the study shows that the Learners of ECE program had a positive attitude towards the eLearning courses at a moderate level. The first three high score are: i) *Digital courses are helpful in future career*, ii) *I wish to be competent in Learning online* and iii) *I feel e-learning is helpful*. That implies that the learner needs to be good at eLearning and thought that eLearning is flexible, so it is highly to acquire knowledge of eLearning resources. In contrast, the learners had low attitude with the e-resources in term of their answer to the questions: i) *I read online sources before writing an exam*, ii) *I always like to use digital resources before attending the class* and iii) *I prefer to learn through trial and error*; better answers to these questions show self-confidence and ability to self-learn. From these issues, it can be seen that: i) the learner is of the opinion that eLearning is hard for them to practice, ii) the learner did not prepare for non-conventional ways of learning and iii) that learners are of the opinion that eLearning is not easy and does not seed confidence and creativity for them. But the study also shows that learners are so cautious and recognized the importance of eLearning for effective self-paced learning, an important factor in favour of eLearning (as illustrated by Chen 2009) [2].

Thus, recommendations for further study from the findings (from the survey, literature review and structural interviews data) are, to study factors affecting the development of an attitude toward eLearning in Engineering programs and seed responsible behavior toward eLearning in Andhra Pradesh (and Indian) Engineering Colleges. As the e-learning of EHE at Andhra Pradesh is facing the challenges regarding a few issues which can be categorized under five dimensions, viz. Learners, Courses, Technology, Course Design and Environment which influence the implementation and promotion of e-learning at institutions. Each dimension is discussed separately below.

#### a) Learners

The attitude of learners is deemed as a prime factor in the success of teaching and learning process and importantly for e-learning. The lack of self-motivation, knowledge of ICT and shifting from conventional method of learning to modern methods is difficult for both teachers and learners. The issues associated with learners were studied under this dimension. Most of the students who participated in the survey are from corporate collegiate education system, where they were not trained using ICT. So the learners' response is at moderate level which shows that learners are positive towards e-learning though they need to



improve a lot.

#### b) Courses

Based on the information gained from the literature review, the software used for one particular course (CSE & ECE) should fulfill the learning purposes such as, power point slides, static html pages or online courses all these challenges in EHE should be grouped in this dimension. Students from two different courses responded (to the survey and structural interviews) at moderate level and for some issues near to high level which shows that both CSE & ECE are positive with their core subjects and should be implemented to all other engineering courses.

#### c) Technology

Access to technology is also one of the main challenges in EHE at Andhra Pradesh. It needs sufficient high speed internet, uninterrupted power supplies and the cost involved in accessing these technologies. The success of e-learning depends mainly on the challenges related to ICT like internet broadband, latest computers, mobile internet and the cost of accessing these technologies are grouped under this. Learners' responses (18.9% in Table:3) show that it's at moderate level requires attention.

#### d) Environment

It's crucial to consider the importance of socio-cultural issues before integrating ICT in education and in EHE. People from Rayalaseema areas particularly from Kurnool dist. keen on girls moving to urban areas for the sake of education. The literacy rate and the language barrier can also be reported under this dimension. The learners' response is at moderate level.

### 7. Conclusion

As teachers play an important role to help students change their attitudes from negative to positive by providing them modern eLearning teaching/learning resources, useful ICT sources, interesting and interactive tools, such as, Ted talks, Moodle courses, BBC Learn English Courses, e-Teaching methodology, etc. *The Department of Higher Education*, under the Indian Ministry of Human Resources and Development, [10] strongly emphasizes on the use of ICT in education, and its quality, equality and access mechanisms. As attitudes change, they can be directed in several

ways such as, online communication techniques, Netiquette, and socio-cultural influences. It is also noted that an individual's motivation and (positive) emotional status can lead to attitudinal change. Any achievement through eLearning will enhance the confidence and disposition of students towards using online resources effectively for their career development and advancement

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