

# **A STUDY ON IMPACT OF E-LEARNING SYSTEMS OVER STUDENTS BELONGING TO ENGINEERING COLLEGES**

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## **ABSTRACT**

*Advanced technology can help students learn more effectively and can improve their efficiency. E- Learning is the best technology tool which can improve students in all spheres of their life. Many students are accessing information via mobile phones and the web for their studies. E-learning engages students and can help faculties meet the needs of students with various varied learning styles. E Learning is the need of the hour and by successfully completing online or computer based courses builds self-knowledge, self-confidence and encourages students to take responsibility for their learning. So sincere effort must be made to promote e-learning and thus try to simplify the process of e- learning as quickly and efficiently as possible. This study is to understand the impact of e-learning system over students belonging to tier 1 engineering colleges, Chennai.*

***Keywords: E-Learning, Knowledge Sharing, E Learning Support, Traditional Learning, Engineering Colleges.***

## **I. NEED OF THE STUDY**

With globalization, the whole world has become a smaller house. Today’s education needs to be more flexible and industry oriented. The latest tools like internet, audio– video equipments have reformulated whole education system. If student wants the competitive edge over his/her friends, he/she must be familiar with all the latest happening in his/her fields of education. With the help of e-learning, student’s particularly at college level can learn efficiently that too at cost effective rate. This study has made an attempt to know how tier1 engineering students are using e-learning systems and what impact it has on them.

- To understand how Students are engaged with e-learning modules to improve their knowledge.
- To know how accountable are the students with the services provided by the college.
- To know how student behaviour changes as a result of e-learning systems over traditional systems.

## II. SCOPE OF THE STUDY

- Understanding the growth of e-learning system in tier1 engineering colleges.
- Gap reduction between students and technology.
- Knowing the advantages and disadvantages of e-learning over students.
- Determining student satisfaction level with the e-learning systems.

## III. OBJECTIVES OF THE STUDY

### 3.1 Primary Objective

- To analyze about how e-learning systems impacts on the college students.

### 3.2 Secondary Objectives

- To know student’s behavioural change as a result of e learning resources with support of traditional educational system.
- To know how useful was the e learning support in helping students with their graduation plans
- To provide valuable suggestions to the colleges for further improvement.
- To study the students knowledge about e –learning systems in their college.
- To understand how easy is it to collect information from e learning support at their college.
- To find out whether the students are using e- journals and e-books.
- To study the various tools of e –learning available for tier1 Engineering students in selected study area.

## IV. RESEARCH METHODOLOGY

The tier 1 Engineering colleges (top 20 engineering colleges) Chennai is a group of colleges where the study been conducted. Sample refers to group of prospects within colleges especially students pursuing UG and PG courses. The sample of this study is 150 students.

The research type is descriptive and the sampling technique here used is non probability convenience sampling method. The statistical tool used to analyze the data is SPSS and data was collected by means of questionnaire.

## V. TOOLS USED FOR ANALYSIS

The data collected through questionnaire has been analyzed and interpreted by using percentage method, chi square analysis, one way ANOVA, correlation and Friedman test.

## VI. RESEARCH REVIEW

According to Sarachandran and Rajendra (2012) Sultanate of Oman is one of the great countries in the Middle East with rapid progress in education with advanced teaching and learning technologies. The University colleges in Oman have introduced the latest e-Learning Management Systems in order to keep the pace of the technological revolution in the field of higher education. However, it is very important and essential to find out

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the impact of e-Learning Management Systems in the University colleges. Since the researcher is associated with Muscat College, the study has been conducted at Muscat College to evaluate the impact of e-learning technology. The paper examines what impact LMS has made on students and how effectively LMS has influenced students on their academic activities. A questionnaire was prepared in the academic year 2008-09 and circulated to the students enrolled for various Bachelor (Honours) degree courses of affiliated partner, University of Stirling, UK. The result of the survey was a matter of concern. Hence, the researcher has decided to continue the research in the academic years 2009-10 and 2010- 11 in order to find out the real impact of the LMS on the students in the college.

According to Tushar (2012) with the help of e-learning students can update their knowledge with all the latest happening of their subject. E learning avails students the option of selecting learning materials that meets their level of knowledge and interest also students can study wherever they have access to a computer and Internet. With so many advantage of e- learning it is in demand. But not many students are aware of this technology tool which has hampered their academic growth. The paper has tried to study the concept of e-learning, knowledge of studied students about e learning. What kinds of facilities are available to university students for e- learning at their college campus? Further the attempt has been made whether E – learning depends on branch of study of students and their career plans. Nagpur is one of the developing cities of India. Being situated in central portion of India this city has emerged as new educational hub of Maharashtra after Pune and Mumbai. The city is mushroomed with all kinds of colleges and deemed universities which are trying their level best to give quality education to the students. For providing quality education to the students all the colleges are trying to adopt e learning tools. This has given them competitive edge over their competitors. The arts, commerce science colleges are seem to more reluctant in using e learning. Engineering colleges comes under technical based education. These colleges because of AICTE rules and regulations are keener to adopt e-learning tools. So similar efforts must be made by UGC also to promote e learning. Also all e learning tools are in English many students were found wanted in e learning. So effort must be made to improve English of students through e learning so that it will create interest among students and will promote e-learning. The faculties on the same side must be aware of e-learning tools. So the training workshop must be held at university level to get faculties familiar with e-learning. Lastly, some assignments based on e learning should be included in university curriculum.

According to Welsh et al (2003)The use of network technology to deliver training is the latest trend in the training and development industry and has been heralded as the „e-learning revolution.“ In an effort to separate hype from reality, this paper reviews practitioner and research literature on elearning, incorporating unpublished information from interviews with managers and consultants directly involved in e-learning initiatives. Specific attention is given to why organizations use e-learning, what the potential drawbacks to e-learning are, what we know from research about e-learning and what the future of e-learning may hold.

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According to Abdullah (2015) Due to growing popularity of E-Learning, personalization has emerged as important need. Differences of learners' abilities and their learning styles have affected the learning outcomes significantly. Meanwhile, with the development of E-Learning technologies, learners can be provided more effective learning environment to optimize their performance. The purpose of the study is to determine the impact of learning styles on learner's performance in e-learning environment, and use this learning style data to make recommendations for learners, instructors, and contents of online courses. Data analysis in this research represented by user performance gathered from an E-learning platform (Blackboard), where this user performance data is represented by actions performed by platform's users. A 10-fold cross validation was used to create and test the model, and the data was analyzed by the WEKA software. Classification accuracy, MAE, and the ROC area have been observed. The results show that the accuracy of classification by means of NBTree technique had the highest correct value at 69.697% and it could be applied to develop Felder Silverman's learning style while taking into consideration students' preference. Moreover, students' performance increased by more than 12%. This paper introduced the effect of Learning Styles LS on learners in E-Learning environment based on proposed model created from FSLSM and the preferred learning style question to detect more accurate result than using only Felder-Silverman learning style model. Experimental results showed that when taking into consideration the student's choice and including students' preferred learning style to the learning style detection method, students'. Future work will extend this work by developing and providing adaptive modules for the online learning system. Modifying courses automatically, adding some learning objects, and/or some learning activities are some features which can be added in order to make system fits to students' learning styles. Furthermore, researchers would plan using advanced methods of student's pattern collection, such as students' navigation behaviour in a learning system, patterns related to some other types of learning objects/activities, and so on. Also, apply the research model and architecture to other LMS is planned.

According to Ketema and Nirmala (2015) E-learning is the use of Internet technologies as well the pedagogical approach of advancing the scalability of knowledge and performance. Due to the fastest growth of Information Communication Technology, the impact of E-learning for the contribution of quality education become vital, leading to a great paradigm shift for Ethiopian higher educational institution in general and Adama Science and Technology University in particular. This study examines the impact of e-learning to enhance quality of education through implementing it as a blended learning approach for boosting the learning teaching process within the academic settings. This study also confirms that the application of e-learning in ASTU extensively facilitates e-learning as a tangible asset to build up the students' intension and perception to technology as well as fostering the quality of education via assisting them to improve their learning knowledge and skills by accessing their particular courses' materials online 24//7. By using the secondary data a source of information to conduct the analysis, the study verified that, the application of e-learning trainings for Instructors and delivering their own courses on the e-learning platform have contributed a lot for positively influencing both stakeholders achieving the prospective successes and significant effects on improving the momentum of providing greater access to the students, enhance an institution's reputation and enrich the teaching and learning experiences. The

findings of this research paper summarizes the significance of the application of elearning as a supporting technology tool has already become granted and emphasized for the right implementation upon the next five consecutive years anticipating the attainment of quality education in the learning environment of ASTU. And as a result of this ASTU will become the first university in the country using high quality educational contents to deliver online courses to students for their academic performance and achievements in the Science and Technology fields. Lastly the study does not mention about the details of the courses” which are already uploaded on the e-learning portal, annual budget issues, comparative discussion about the students achievements, the performance report about the instructors up on implementing their courses and the implementation of the five year strategic plan of the KOICA project and other information which would be kindly granted for the next researcher.

According to Arman (2009) E-learning is widely used in universities and other organizations all over the world, either to support classroom learning or on its own. The Palestine Polytechnic University (PPU) is no exception. Usually, a special kind of web-based content management system is used for running e- learning courses. These systems hold all the course content and information of the students and also provide the interactive tools to support learning process. While using such systems makes the e- learning experience much easier, it also induces some problems like the heterogeneous previous knowledge of the students. The attitude of students towards e-learning or learning content management systems is also an important factor in e-learning. There have not been any major surveys in the PPU in that regard. With newly developing multimedia technologies, incorporating simultaneous presentations of narration, images, and text, the possibilities for instruction are vast. Yet, how and when should educators use these technologies in the most effective ways to enhance learning? This is the driving question behind this research: What is the effectiveness and usefulness of using multimedia in e-learning approach in teaching the Biomedical Instrumentation course for students of Biomedical Engineering Program in the Palestine Polytechnic University.

## VII. DATA ANALYSIS

### 7.1 Descriptive statistics

**Table 1: Demographic profile of students**

		<b>No.of respondents</b>	<b>Percentage</b>
<b>Gender</b>	<b>Male</b>	<b>83</b>	<b>55</b>
	<b>Female</b>	<b>67</b>	<b>45</b>
	<b>Total</b>	<b>150</b>	<b>100</b>
<b>Age group</b>	<b>17-21 years</b>	<b>59</b>	<b>39</b>
	<b>Above 21 years</b>	<b>91</b>	<b>61</b>
	<b>Total</b>	<b>150</b>	<b>100</b>

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From the above table it is inferred that 55% of the target respondents belongs to males, 45% are from female. From the above it is inferred that out of 150 students, 61% belong to age of 21-25 years(PG Degree) and the remaining 39% belongs to the age of 17 -21years(UG Degree).

**Table no 2: Effectiveness was the e-learning systems within the college**

highly satisfied	7
satisfied	61
Neutral	52
Unsatisfied	27
highly unsatisfied	3

From the above table it is inferred that 61 students are satisfied with effectiveness of e-learning systems in their campus, 52 students felt neutral of the service provided, 7 students are highly satisfied with the service they received and 27 students are dissatisfied because there were not able to meet their needs and 3 students felt highly unsatisfied.

**Table no 3: Chi Square Test**

	N	Mean	Std. Deviation	Minimum	Maximum
How useful was the e-learning support in helping you with your graduation plans	150	2.64	.957	1	5
How easy is it to collect information from e-learning support at this college	150	2.77	.921	1	5

**Table no:4 Test Statistics**

	How useful was the e-learning support in helping you with your graduation plans	How easy is it to collect information from e-learning support at this college
Chi-Square	89.667 <sup>a</sup>	89.933 <sup>a</sup>
Df	4	4
Asymp. Sig.	.000	.000

**a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 30.0.**

Since the significant value is 0.000 which is lesser than the level of significance 0.05 the null hypothesis is rejected. Thus there is association between the usefulness of e-learning system and their information gathering.

**Table no: 5 ONE WAY ANOVA TEST- Descriptive**

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
MALE	83	2.83	.908	.100	2.63	3.03	1	5
FEMALE	67	2.58	.838	.102	2.38	2.79	1	5
Total	150	2.72	.883	.072	2.58	2.86	1	5

**Table no: 6 ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.303	1	2.303	2.991	.086
Within Groups	113.937	148	.770		
Total	116.240	149			

The calculated value of p(0.86) is greater than the  $\alpha$  value 0.05. Hence, we Reject the null hypothesis and conclude that there is significance difference between sex of the student and the effectiveness of e-learning systems.

**Table no:7 KARL PEARSON’S CORRELATION**

		How well do the e-learning module teach at this college	Does student behaviour changed as a result of e-learning resources with support of tradition education system
How well do the e-learning module teach at this college	Pearson Correlation	1	.363**
	Sig. (2-tailed)		.000
	N	150	150
Does student behaviour changed as a result of e-learning resources with support of tradition education system	Pearson Correlation	.363**	1
	Sig. (2-tailed)	.000	
	N	150	150

**\*\* . Correlation is significant at the 0.01 level (2-tailed).**

Since correlation is positive. There is positive relationship between the teaching through e-learning system and students behavioral change.

**Table no: 8 FRIEDMAN’ S TEST**

Descriptive Statistics			
	How useful was the e-learning support in helping you with your graduation plans	How well do the e-learning module teach at this college	How likely are you to recommend this college to others because of this e-learning support
N	150	150	150
Mean	2.64	2.79	2.61
Std. Deviation	.957	1.040	.897
Minimum	1	1	1
Maximum	5	5	5

**Table no: 9 Ranks**

	Mean Rank
How useful was the e-learning support in helping you with your graduation plans	1.95
How well do the e-learning module teach at this college	2.10
How likely are you to recommend this college to others because of this e-learning support	1.95

**Table no: 10 test statistics**

N	150
Chi-Square	3.439
Df	2
Asymp. Sig.	.179

a. Friedman Test: The calculated value of p (0.179) is greater than  $\alpha$  value 0.05. Hence, we Reject the null hypothesis and conclude that there is a association between the usefulness, teaching and the recommendations of these colleges.

## VIII. SUMMARY OF FINDINGS

55% of the target respondents belongs to males, 45% are from female. Out of 150 students, 91nos belong to age of 21-25 years (PG Degree) and the remaining belong to 59nos belongs to the age of 17 -21years (UG Degree). There is association between the usefulness of e-learning system and their information gathering according to chi Square test. There is significance difference between sex of the student and the effectiveness of e-learning systems according to ANOVA test. There is positive relationship between the teaching through e-learning system and student's behavioral change according to Pearson correlation. There is a association between the usefulness, teaching and the recommendations of these colleges according to Friedman's Test.

## IX. SUGGESTIONS

- From the research it shows only 45 – 50% of people knew about e-learning services. This rate has to be increased to keep updated with the syllabus and to explore with foreign authors.
- Enhance different platforms for e-learning, so its reputations will recommend this college for the future benefits of the students.
- As from the analysis, there exists a positive correlation between e-learning systems and student's behavioral change, suggesting that there is a impact on students.
- Information retrieval from the e-learning systems should be more flexible and accessible anywhere in and off the campus through student's login.
- Try helping students to join a live class session with professional lecturers who give seminars away from their campus through live relay.
- Provide Nptel videos to all departments in the college for more information share.
- Provide useful PowerPoint presentation to students which help them to securitize the main points in theory subjects.
- Give more awareness to students regarding the online journals provided by the colleges.

## X. CONCLUSION

E-learning is now the technology widely spreading across various countries but still in India its expansion has not reached marginally because of the cost involved and the traditional setbacks. From the study, it is clear that the future learning goes through E-learning to M-learning. Thus learning is made easier, faster and reliable.

Both the institutions and the students should make use of this technology for the betterment of learning and educating people such that the time they leave the campus, they should be qualified to work anywhere with confidence. Students will avail this opportunity to maximize the usage of e-learning rather the same lecture classes. This in turns helps the institutions to avail more e-learning modules that reduce the cost of the packages.

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