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E-LEARNING SYSTEM AND STUDENTS INTENTIONS: EVIDENCE FROM CHENNAI CITY

[1]Dr. A.Appu, Assistant Professor, MEASI Institute of Management, Chennai-14, Tamil Nadu, India, www.measimba.ac.in.
appumiracle@gmail.com
https://orcid.org/0000-0001-5384-415X
Mobile Number: 91 9500165949/9884437272

[2]Dr. A.P.Rekha, Librarian, MEASI Institute of Management, Chennai-14, Tamil Nadu, India, www.measimba.ac.in.
aprekhasuresh@gmail.com
https://orcid.org/0000-0001-6641-4263
Mobile Number: 91 9840450047

[3]Amjeth Hussain.S, First Year MBA Student, MEASI Institute of Management, Chennai-14, Tamil Nadu, India.
amjeth.22m015@measiim.edu.in
https://orcid.org/0009-0007-4676-1242

Abstract

In India, digital education is a method of learning and gaining knowledge via Technology and digital gadgets. E-learning is now widely used by students and instructors in higher education, schools, and enterprises, among other places. Several higher education institutions have responded to the new e-learning paradigm after the epidemic. As a result, E-learning is also becoming more popular in India. However, even though half of India's population is younger than 25, there appears to be a shortage of competent personnel by 2022. Due to this crisis, India has become the second most popular location for e-learning companies, behind only the United States. However, previous studies have tried to analyze a model and a procedure for evaluating students' proficiency in e-learning systems. Additionally, no research studies have evaluated how students behave toward e-learning systems. Hence the current study aims to investigate online learning systems, and chemistry students' Intention to use it in Chennai City. The Descriptive research surveys used convenience sampling to collect the data from 151 students of chemistry, biochemistry, analytical chemical, green chemistry, and chemical engineering courses studying at Universities and Colleges in Chennai City. A structured questionnaire was advanced based on the measures from the existing literature on online learning systems. Multiple regression results indicate that the Intention to use would increase by 0.199 for every unit in the increase in Quality, and this coefficient value is significant at a five percent level. The survey research offers

e-learning providers a paradigm and tools for identifying the primary challenges affecting the efficacy of their e-learning portals.

Keywords: Quality, Flexibility, Course features, Infrastructure, perceived satisfaction, and Intention to use

1.Introduction

Technology is an essential aspect that helps shape society and supply knowledge. Technology's effects have brought about numerous fundamental shifts in how we live. Today, Technology is developing at a faster rate. As a result of the extensive embracing of Technology, it is now easier to obtain knowledge, and remote learning is a frequent practice (Tuti Iriani, P. L. N, 2023). It boosts a person's capacity for learning and abilities in various aspects of novel subject matter. The finest thing is that it allowed people to learn without encountering the teacher. E-learning is one of the widely used forms of distance education. Online education has a long way to go in India, where Technology is developing rapidly (Alam, S et al., 2022,).In contrast to traditional learning systems, however, e-learning satisfies the desire for information. It delivers online content that can be given to the student anywhere, anytime, and any age through a wide choice of e-learning solutions(Ogemdi Uchenna, E., & Uzoma Oluchukwu, N. 2022).Additionally, it offers quick access to specialized expertise and data. The learning process has evolved due to the time crunch and the fast expansion of comprehensive knowledge sources. Instead of manual teaching and learning, learners get knowledge using e-Learning technologies(Ye, J.-H., Lee, Y.-S., & He, Z. 2022). As a result, the research paper aims to measure online learning systems and the Intention to use it among chemistry students in Chennai city. This study contributes to student support system research by showing novel correlations between latent constructs. Some constructs are from e-Learning literature. People in diverse industries are trained and developed in settings similar to their natural environments.

2.Review of Literature

Abdulaziz S. Alkabaa (2022) examines and analyses users' perspectives and experiences using Blackboard as an online platform for remote learning in Saudi Arabia. Survey-based research is created and delivered to 235 undergraduate students in an engineering college. The study reveals important findings about attitudes toward gender and engineering disciplines on Blackboard. The findings of this study can assist universities and the ministry of education in making decisions

about education that will raise the standard and sustainability of EL resources. Additionally, the results show differences in how men, women, and technical disciplines see virtual learning.

Prodanova. J et al. (2021) aim to analyze e-learning system quality and perceived institutional support to achieve users' desire to continue using e-learning among 270 users in Spanish. According to the study's findings, information, service, and educational Quality are the primary drivers of the ongoing use of e-learning platforms at public universities; however, perceived institutional support becomes a mediator between information and educational Quality and ongoing use at private institutions. Valuable recommendations for higher-education institution management emphasize the importance of innovative tools for interaction and organization, a collaboration between public and private universities, and investment in Technology and human resources for the long-term viability of e-learning systems.

Widjaja, A., & Ellynia. (2020) intends to ascertain and examine if perceived usability and perceived Quality directly or indirectly impact the continuing Intention sparked by satisfaction. Perceived utility and perceived usability are used in this study to describe perceived usability. In contrast, information and system quality variables describe perceived Quality. The study was conducted at an Indonesian health sciences college in Jakarta. The vocational D3 Nursing study program students provided the example data, as instruction and learning are typically accomplished through hands-on experience. Questionnaires were used as the study instrument in a survey method to gather data. Path analysis was employed, meanwhile, to analyze the research model. According to the findings, perceived utility and simplicity of use directly or indirectly impacted respondents' intentions to keep using the institution's e-learning system. Another conclusion is that while information quality appears to be the sole variable with no effect on satisfaction, system quality indirectly impacts continuance intention through the intermediary satisfaction variable.

Kisanjara, S. B et al. (2019) were to determine how widely e-learning is currently being used in Tanzanian universities. To collect data, a quantitative strategy involving survey design was used. A survey of 400 respondents was used to gather the data, and the response rate was 85,5 percent. Using Cronbach's Alpha, the average dependability of the variables was found to be 0.949. The t-test and fuzzy logic model were used to analyze the data. The research showed that less than half of students and academics were now using e-learning on average, equal to less than 50 percent. As seen by the result of a critical value greater than 0.05, there was no statistically

significant difference in the use of e-learning by academics and students. The study's findings provided a foundation and principles to help stakeholders in e-learning, and policymakers locate and create appropriate policies and mechanisms to adopt and promote the sustainable use of e-learning systems for lifelong teaching and learning. The addition of new variables and approaches used as empirical evidence based on the level of e-learning adoption in Tanzanian universities gives this study its novelty.

3.Statement of the Problem

The knowledge of society and skilled manpower of any country are the two most essential factors in determining the level of development and progress of its citizens. An educational system must acclimate to technological advancement's vagaries to keep up with the times and be one step ahead of the competition. The most recent technological advances have improved today's educational system standard(Halim, et al 2022).The education structure is on the verge of completely transforming due to recent advances in information and communication technology, the increasing globalization of education, and an intensifying competitive environment. Access to higher education in India significantly expands, driving the country's current educational revolution. Rapid material and communiqué technology progress significantly impacts this transition (ICTs). In the 21st era, there has been a rapid rise in the adoption of blended learning environments in higher education (Gupta, M., & Thammi, S. K. 2021). The online tools and methods utilized in an experimental mode for distance education are now an essential part of mainstream education, with blended learning as a continuum between traditional face-to-face and purely online courses(Prodanova, J., San-Martín, S., & Sánchez-Beato, E. J. 2021).There are examples of low pass rates and poor learning outcomes, in addition to the success stories that have been shared. The availability of something does not automatically equate to its best possible utilization. This study investigates the efficiency of all online learning and testing options provided by e-learning providers

4.Objective of the study

- To examine the chemistry student's response toward the Quality of online learning methods.
- To evaluate the consequence of the difference between course features and e-infrastructure of the online learning system.

- To investigate the dominant factors influencing online learning methods and their impact on learner intention to use.

5.Scope of the study

This cross-sectional study aims to explore the efficacy of the online learning methods utilized by Chemistry Students in the Chennai region and to identify the factors that impact the degree to which the learners feel their needs have been met. The findings of this study provide scientific evidence that there is a conventional of factors that affect the effectiveness of online learning. These factors include Course Aspects, Design features, Technology, Learner, and Environmental characteristics. As a result of the conceptual framework and the research findings assisting in decision-making in various educational settings can contribute to the development of acquaintance in education, which is an important area of study. The findings can assist decision-makers in formulating sound policies and choices to increase online learning efficiency.

6.Research Methodology

The current research adopted a descriptive methodology to assess online learning systems and chemistry students' Intention to use them in Chennai city. The data was acquired by a structured questionnaire from 151 respondents using a five-point Likert scale through a convenience sampling technique.The population selected for this study was restricted to students of chemistry, bio chemistry, analytical chemical, green chemistry and chemical engineering courses studying at Universities and Colleges in Chennai City. In addition, a preliminary survey of 15 respondents was conducted to assess the research instrument's reliability. The outcome of Cronbach's Alpha analysis showed that (Quality=0.964), (Flexibility=0.808), (Course Features=0.826), (Infrastructure=0.965), (Effectivness=0.885), (Perceived Satisfaction=0.993), and (Intention to Use=0.9442) were all above average. As a result, the instrument's internal consistency reliability appears sufficient for gathering the final data, and the overall e-learning dimensions dimension was calculated to be 0.927. Finally, Mann-Whitney analysis, paired t-test, and multiple regression analysis were used to test the exogenous and endogenous variable hypotheses.

7.Data Analysis and Results

Mann Whitney Test

H_o: There is no significant variance between the mean and rank of married and unmarried respondents concerning the Quality of the online method of the learning system.

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Table 1. Mean ranks of Quality of Online Methods Factors along with U test result

Particulars	Martial status	Mean Ranks	P value
I am pleased with the technical stability and dependability.	Married	90.81	0.543
	Unmarried	72.92	
I have access to the learning site at all times.	Married	65.23	0.786
	Unmarried	78.24	
I am pleased with the quantity and Quality of instructional materials.	Married	88.60	0.667
	Unmarried	73.38	
Optimal instructions are given to the examinee in online tests	Married	65.50	0.891
	Unmarried	78.18	
I feel the communication quality of the Internet is good	Married	61.96	0.766
	Unmarried	78.92	

Since the p-value is greater than 0.05, the null hypothesis is accepted at a five percent significance level, as shown in Table 1. Hence, there is no significant difference between the mean and rank of married and unmarried respondents regarding the Quality of the online method of the learning system.

Paired t-test

H_o: There is no significant difference between course features and the e-infrastructure of the online learning system.

Table 2. course features and the e-infrastructure dimensions of the e-learning system

Particular	Mean	S. D	Correlation	T value	P value
Course Features	18.1523	1.55670	.653	-.556	0.05
Infrastructure	18.2119	1.60669			

Since the prob (p) value is less than 0.05, the null hypothesis is accepted at 5% of significance, as indicated in table 2. hence, it is proved that there is no significant difference between the course feature and the infrastructure of Edutrest Private limited.

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Multiple Regression Analysis

The relationship between online learning systems and chemistry students' Intention to use them was explored using multiple regression analysis, as presented in table 3.

Table 3. Presenting MRA Summary of online learning system

Dependent variable	Intention to Use (Y)
Independent variables	Quality (X1) Flexibility (X2) Course Features (X3) Infrastructure(X4) Effectiveness(X5) Perceived Satisfaction(X6)
Multiple R-value	.505
R Square value	.255
F value	8.217
P value	.000

Table 4. Variables result in Multiple Regression Analysis

Variables	Unstandardized co-efficient (B)	SE of B	Standardized co-efficient (Beta)	t value	P value
Constant	8.232	1.533		5.371	0.000
$\mathbf{X_1}$	0.199	0.094	0.037	0.36	0.719
$\mathbf{X_2}$	-0.017	0.098	-0.018	-0.169	0.866

X_3	0.091	0.11	0.094	0.832	0.407
X_4	0.069	0.102	0.073	0.676	0.5
X_5	0.172	0.095	0.197	1.812	0.072
X_6	0.197	0.097	0.215	2.041	0.043

The partial influence of Quality on Intention to use, with the other variables held constant, is represented by the coefficient of X1 at 0.199 as presented in Table 4. According to the anticipated positive sign, the Intention to use would rise by 0.199 for every higher-quality unit, and this coefficient value would be considered significant at a 5 percent level. The course feature's partial effect is represented by the coefficient of X3 at 0.091, while the other variables are kept constant. According to the anticipated positive sign, the Intention to use would rise by 0.091 for each unit that the Team Course feature is implemented. This coefficient value is significant at a 5 percent level. With the other variables held constant, the coefficient of X6 is 0.196, which shows the partial impact of perceived satisfaction. Intention to use would rise by 0.197 for every unit increase in perceived satisfaction, according to the projected positive sign, and this coefficient value is significant at a 5 percent level. The partial influence of Quality on Intention to use, with the other variables held constant, is represented by the coefficient of X1 at 0.199. According to the anticipated positive sign, the Intention to use would rise by 0.199 for every higher-quality unit, and this coefficient value would be considered significant at a 5 percent level. The course feature's partial effect is represented by the coefficient of X3 at 0.091, while the other variables are kept constant. According to the anticipated positive sign, the Intention to use would rise by 0.091 for each unit that the Team Course feature is implemented. This coefficient value is significant at a 5 percent level. With the other variables held constant, the coefficient of X6 is 0.196, which shows the partial impact of perceived satisfaction. Intention to use would rise by 0.197 for every unit increase in perceived satisfaction, according to the projected positive sign, and this coefficient value is significant at a 5 percent level. The multiple regression equation is

$$\mathbf{Y} = 8.232 + 0.199\,\mathbf{X_1} + 0.017\,\mathbf{X_2} - 0.091\mathbf{X_3} + 0.069\,\mathbf{X_4} + 0.172\,\mathbf{X_5} + 0.197\,\mathbf{X_6}$$

8.Suggestions and Recommendations

- It has been suggested that e-learning providers establish guidelines for the instructors to follow to ensure that the course contents developed for the course content are high Quality. In addition, it would greatly benefit the learners if a content bank was established. When evaluating the Quality of content, it is necessary to consider its accuracy, completeness, ease of comprehension, timeliness, relevance, and consistency.
- According to the study's findings, design characteristics have the most significant relationship with the perceived satisfaction level. As a result, there needs to be more emphasis placed on improving the design. One solution that could be implemented is to create educational content to allow students to acquire and create their information and knowledge. Therefore, learning activities must incorporate visual, audio, or textual materials, such as software like a flash, to allow students to investigate pertinent ideas and concepts and provide opportunities for tailoring the learning content to the student's specific requirements. Furthermore, the visual appeal-related features, such as images, video, or flash, must adhere to the generally accepted standards of semantics, style, and grammar. Hence, it is suggested that Elearning service providers emphasize the design dimension to achieve greater satisfaction concerning e-learning within the context of a blended learning environment among younger students.
- It is recommended that e-learning providers pay close attention to their ICT infrastructure by modernizing and updating it to address learners' concerns about the confusion they encounter when searching for information, navigating websites, and choosing simple e-learning software.

9. Conclusion

In India, they had been using the traditional learning system for a while, and it had been able to maintain its viability. However, educational requirements are shifting rapidly, and at the same time, a global education standard is becoming the de facto norm, which is compelled India's educational system to undergo several reforms. India has become a comprehensive leader in the information technology and technology-enabled services industries. The young people of India make up the majority of the country's population, and there is no other way to educate such a large number of people on such a large scale without the help of Technology. Therefore, online education is especially important to India. E-learning is unquestionably becoming more well-known in India, albeit at a more gradual rate when compared to the rate of popularity growth

seen in other countries. The provision of digital literacy to the teaching and learning community within the education sector is an urgent necessity if the digital divide is to be bridged and educators and students are to be given the ability to make effective use of information and communication technologies to further their empowerment through increased knowledge. E-learning has become the reality of higher education because educational training institutions, which are the nation's core, are today imparting enormous knowledge with various e-learning technologies. As a result, it is very true to say that e-learning has become the reality of higher education. The findings of this cross-survey research indicated a positive connection between the aspects of the Course, the design features, the Technology, the individual characteristics, and the environmental characteristics. Learners are the ultimate beneficiaries of a learning system; if they are not satisfied, there is no chance that the system will be successfully implemented. The level of satisfaction students achieves is directly proportional to the degree to which the components of their online education are high Quality and adaptable. The learner's intrinsic goal orientation, self-efficacy, user-friendliness of the interface, and the usefulness of the learning components are also factors that influence satisfaction. Learner satisfaction is significantly impacted by improved infrastructure for information and communications technology (ICT), proper availability of technical assistance, and knowledge of how to use computers. If these aspects are cared for healthily, there will be an increase in the efficiency of the methods used for online education. Among the many available learning methods, learners appear to record high usage to access learning materials and share resources online. According to the findings of this cross-survey study, the learners believed that the design dimension, which included the influences of perceived usefulness and ease of use, was the most imperative factor in determining their level of contentment concerning the e-learning component included in the blended learning environment. As a result of this finding, institutions have been motivated to emphasize the design dimension more. In subsequent research, consideration can be given to the constraints imposed by this study. Increasing the generalizability of the findings requires addressing the constraints placed on this study.

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