Technological Readiness Among Students In Using Information And Communication Technology With Respect To E- Learning Platform For The Educational Purpose

Pragati Pallavi[1*], Junny Kumari[2]

[1*]Institutional Affiliation: Arka Jain University, Jamshedpur Contact: 7004450145 Email: Pragsr@Gmail.Com
[2]Institutional Affiliation: Amity University Patna Contact: 8102858919 Email: Junnysingh62@Gmail.Com

***Corresponding Author:** Pragati Pallavi
[*]Institutional Affiliation: Arka Jain University, Jamshedpur Contact: 7004450145 Email: Pragsr@Gmail.Com

Article History- Submission- 05 May 2023, Revision- 03 June 2023 Accepted- 10 July 2023, Published- July 2023

ABSTRACT
E-learning has shifted the vacillation of learning process among students and playing the substantial role in reorienting the higher education. It is the technology which is allowing students to learn through internet over a distance and exploring the information in their own way. With the onset of technology everywhere in our lives it is important that e-learning readiness must be assessed within its various factors. Technological readiness index has been used as a theoretical aspect to understand the e-learning readiness among students. The aim of the study is to understand the technological readiness of the students in using E-Learning Platforms for their studies. The study is done using quantitative method in which survey method has been incorporated in this research and questionnaire is used as a research tool to carry on the study. Survey was conducted among the college going students from the different colleges in India. The sample size for this research is consisted of 80 students from different colleges Study finds that students around the country are preferring to use e-learning platforms for their educational purposes as it is making their studies more interesting and easier, they can study anywhere anytime, they are becoming more techno savvy in using e-learning apps. As students are preferring e-learning platforms over traditional way of teaching for their education it is very important that government and private sector should come forward to strengthen the e-learning platforms.

KEYWORDS: E-Learning, Technological readiness index, Internet

INTRODUCTION

Speeding up in the growth of Information and Communication Technology has impacted the human lives in many ways. It has bought positive and negative both change in our lives.

Education is one field which has encountered tremendous change because of growth in Information and Communication Technology. ICT stands for "Information and communication technology". It refers to technologies that provide access to information through telecommunication. It is like Information Technology (IT) but focuses primarily on communication technologies. This includes the internet, wireless networks, cell phones and other communication mediums (Ratheeswari, 2018). Information and communication technology is playing salient role in the education it is working as catalyst in the field of education. ICTs are a potentially powerful tool for extending educational opportunities, both formal and non-formal. One defining feature of ICTs is their ability to transcend time and space. ICTs make possible asynchronous learning, or learning characterized by a time lag between the delivery of instruction and its reception by learners. With the aid of ICT, ELearning is popularly used by teachers and students to improve the efficiency and effectiveness of education at all levels and in both formal and non-formal way. E-Learning is a learning program that makes use of an information network- such as the internet, an intranet (LAN) or extranet (WAN) whether wholly or in part, for course delivery, interaction and/or facilitation. Web-based learning is a subset of e learning and refers to learning using an internet browser such as the model, blackboard, or internet explorer (Tinio, 2002). Oye et. al (2012) defined Elearning as the use of information and communication technology (ICT), which includes Webbased learning, computer-based learning, virtual classrooms, and digital collaboration to upgrade teaching and learning. According to European Commission (2001), e-Learning is the use of new multimedia technologies and the internet to increase learning quality by easing access to facilities and services as well as distant exchanges and collaboration. The advent of e-learning is part of the collaborative learning paradigm that includes Web 2.0 technologies such as wikis, blogs, podcasts, social networks, and video-sharing sites, which are widely used by students.

There are so many online app which has been introduced by the private companies to provide online education to the students. In the era when everything is just one click away, educational apps in India have brought a revolutionary change. Following are some education apps which are making life a lot easier for students by offering the best virtual knowledge. Government and private both are providing various E-learning apps where students are getting benefited.

Major Private initiatives for E-Learning

Merit Nation: This education app is like a one-stop solution for the students of classes 6-12. Be it some help in homework, doubt clearing session, textbook solutions, video lessons, sample papers, mock test, easy notes for revision for class 6-12, previous year board papers and all sort of study material for national Olympiads as well. This app helps students for entrance exams like IIT-JEE, NEET, CA CPT and other exams like BBA and NDA

Byju's: Byju's which is in today's date financially strong and well managed eLearning video platforms which has the aim to make learning fun for students. Their videos are very engaging and video lessons help in adaptive learning. This app also has complete mock tests and sample papers for class 7-12 for all the board exams which help in preparing for competitive exams like IIT-JEE, CAT and NEET. Performance analysis feature of this app helps students to improve their academic performance.

myCBSEGuide: This education app is having all those features a CBSE student will need for example, sample papers, mock tests, video lessons, chapter wise questions, NCERT solutions for class 3-12. It has feature of quizzes which students can enjoy with their friend while learning and it also provides a gamified learning solution.

Vedantu is India's one of the largest tutoring companies started by three IITiian friends, This e-learning app is facilitating students in learning online by providing them with some of the best-curated teachers. Vedantu's one of the best qualities is that they have a very good quality of teachers available. It provides both individual and group classes. This app is very interactive, as it has feature of two-way audio, video and whiteboarding tools where both teachers and students are able to see, hear, write, and interact in real-time. It provides online classes for grades 6-12, competitive exams and co-curricular courses.

Vidyakul: This app is based on the mission to bridge the gap between tutors and students. Through this app students can meet renowned teachers online.

Toppr this app is involved in making learning more personalized for students. It has a wide range of courses to K12 students. It's one of the best features is live classes feature which very much helps the students to clear their doubts in real-time. It also has a timetable feature for the students so that can be aware of the classes.

Doubtnut is an education app based on a unique concept. Students having doubt in any math problem, he or she can click a picture and upload it and within a few seconds, he or she will get a video solution to their question.

Coursera: Coursera is a global online learning platform that offers asynchronous, access to online courses and degrees from topmost universities and companies. Coursera collaborates with universities and other organizations to offer online courses. In 2021 it was estimated that about 150 universities offered more than 4,000 courses through Coursera

Major Government initiatives in ICT

SWAYAM: The 'Study Webs of Active Learning for Young Aspiring Minds' (SWAYAM) is a unified platform which is providing online courses and covering school 9th class to Post

Graduate Level. Till date 2769 MOOCs (Massive Open Online Courses) have been offered on SWAYAM, as per the data of about 1.02 crore students have enrolled to different courses till date.

SWAYAM Prabha: SWAYAM Prabha is a government initiative for providing 32 High Quality Educational Channels through DTH (Direct to Home) across the country on 24X7 basis. It has curriculum-based course content covering different sort of disciplines. The main aim of this is to make quality learning resources accessible to remote areas where internet availability is still a challenge.

National Digital Library (NDL): this is a project aimed to develop a framework of virtual repository of learning resources with a single-window search facility. On NDL more than 3 crore digital resources available. It covers almost all major domains of education and all major levels of learners including life-long learners. It has been found that above 50 lakh students have registered themselves in the NDL, with about 20 lakhs active users. This is also available through a mobile app.

E-Yantra: This app is for engineering colleges in India on embedded systems and Robotics. The training for teachers and students is imparted through workshops where participants are taught basics of embedded systems and programming. Across India more than 275 colleges have been benefited with this initiative.

Virtual Lab: The Virtual Labs Project is for developing a fully interactive simulation environment for experiments, collect data, and answer questions to assess the understanding of the knowledge acquired. For above purpose, it is very much required to develop virtual laboratories with state-of-the-art computer simulation technology to create real world environments and problem handling capabilities. There are about 225 such labs operational, with more than 1800 experiments and benefitted more than 15 lakhs students.

- **Quick Response (QR)** -This is for helping students, teachers, parents, and educators access digital resources, **QR** codes have been developed with printed textbooks of NCERT duly mapping eResources with each chapter of the books.
- **National Repository of Open Educational Resources (NROER)** this portal (http://nroer.gov.in/welcome) has been created by NCERT. Till date a total of 14145 files including 401 collections, 2779 documents, 976 interactive, 1664 audios, 2586 images and 6140 videos are uploaded.

- **Digital learning Initiatives by CBSE.** SARANSH is a tool for comprehensive selfreview and analysis for CBSE affiliated schools and parents. It allows them to analyse students' performance for taking remedial measures. SARANSH is one app which brings schools, teachers, and parents closer, so that they can monitor the progress of students and help them improve their performance. At present it is available for Standards IX – XII and facilitates with a comprehensive overview of Standard X performance since 2007 and Standard XII performance since 2009, till the current academic session.
- DIKSHA (Digital Infrastructure for Knowledge Sharing) is a national platform for school education, an initiative of National Council for Education Research and Training (NCERT), Ministry of Education. DIKSHA is based on the core principles of open architecture, open access, open licensing diversity, choice and autonomy as outlined in the Strategy and Approach Paper for the National Teacher Platform released by the former Hon' Minister for Human Resources Development Shri Prakash Javadekar in May 2017.

This paper aims to understand the technological readiness of the students in using Information and communication technology for their education by conducting
systematic literature review.

OBJECTIVE OF THE STUDY

The objective of the study is to understand the technological readiness of the students in using E-Learning Platforms for their studies

LITERATURE REVIEW

The technology-readiness construct refers to people's tendency to accept and use new technologies for carrying out goals in home life and at work. The construct can be viewed as an overall state of mind resulting from a gestalt of mental enablers and inhibitors that collectively determine a person's predisposition to use new technologies. The proliferation of technology-based products and services have urged the demand of studying how people are embracing these technologies in their lives. combination of positive and negative feelings about technology underlies the domain of technology readiness. According to Parasuraman's (2000) initial conceptualization, TR has four dimensions: innovativeness and optimism, representing
"motivators" contributing to TR, and discomfort and insecurity, which are "inhibitors" detracting from it (Parasuraman,2000).

A study conducted by (Mafenya, 2013) he used skill, attitude, experience, organizational barrier, and motivation factors to investigate student pedagogical readiness in University of South Africa Context. This research found that basically students and faculty aware of the benefits of e-learning can improve education and providing flexible learning, but the implementation has required careful planning.

(Benta et al, 2014) in their research has unveiled that the use of e-learning platform improves students' perception towards homework and its importance in the educational process (Onyema et al, 2020) in their study found that e-learning has the potential to enhance active learning and ubiquitous learning, and if properly harnessed, it can assist students to develop more interests in each course and acquire the confidence and skills they need to enhance their academic achievements.

(Mahajan, & Kalpana, 2018) in their study found that 98% students agreed that e-learning is useful, and 86% male and 94% female are motivated to use it. They agreed that implementing e-learning would improve performance. Most of the students disagreed with adapting difficulties on implementing newer e-learning modules and tools while the others agreed due to lack of training. Students gave suggestions to start blogs, online discussions, online submission of homework, and video assisted training for clinical work.

(Elsayed & Ali, 2010) chose a sample of students of Egyptian facility of tourism and hotel to study the readiness assessment of the students in a facility. The results unveiled that many factors affect the level of readiness such as skills of learning and technology in addition to management behaviour. The study showed that the level of student readiness is also dependent on the student's skills to be able to deal with e-learning.

(Kaushik & Agrawal, 2021) in their study highlighted that students have positive attitude towards the e-learning approach. The diffusion of e-learning platforms occupies them with a feeling of optimism and innovativeness. However, discomfort in using the newly penetrated elearning platforms was also found.

According to (Oketch, 2013) learners' readiness should be determined before institutions introduce e-Learning since it requires that they use the internet, collaborate with peers, and interact with the trainer for support. The learners should be ready to adopt the responsibility of a self-driven mode of training, respond to the challenges of technology, and more importantly be disciplined to learn alone and to respond to online instructions.

RESEARCH METHODOLOGY

Research methodology is done in a systematic way and researcher has adopted specific methodology for this research. In this research researcher has adopted quantitative method. Survey method has been incorporated in this research and questionnaire is used as a research tool to carry on the study.

Survey was conducted among the college going students from the different colleges in India. The sample size for this research is consisted of 80 students from different colleges. The sample for the study is done through by purposive

sampling. A questionnaire was made on Likert scale and administered among respondents. Questionnaire was focused on the technological readiness of the respondents. To find out the technological readiness, Technological Readiness Index (TRI) created by Parsuraman and Colby (2015) was used keeping four dimensions- Optimism, Innovativeness, Discomfort, and Insecurity- in view. For each dimension 3-4 question were made. Total number of questions were 13. To know the technological readiness as high or low mean value of each variable under each dimension were calculated.

RESULT & DISCUSSION

To measure the technological readiness of the students, all the four dimensions: Optimism, Innovativeness, Discomfort, and Insecurity were measured in the study. 3 questions to measure optimism, 4 questions to measure innovativeness, 3 questions to measure discomfort and 3 questions to measure insecurity were asked. All the questions were asked on Likert scale (5Strongly agree, 4-Agree, 3-Neutral, 2-Disagree and 1-Strongly disagree). Researcher decided to put 1-3 on lower scale and 4-5 on higher scale. On the above basis following table emerges.

Dimension	**Higher Value of lower scale**	**Higher Value of higher scale**
Optimism (3)	**3x3=9**	**3x5=15**
Innovativeness (4)	**4x3=12**	**4x5=20**
Discomfort (3)	**3x3=9**	**3x5=15**
Insecurity (3)	**3x3=9**	**3x5=15**

Table:1

Three questions were asked under optimism, therefore higher value of lower scale was 3x3=9 and higher value of higher scale was 3x5=15. Likewise, four questions were asked under Innovativeness, so the higher value of lower scale is 4x3=12 and higher value of higher scale is 4x5=20. Similarly, 3 questions were asked under Discomfort and Insecurity, so their Higher Value of lower scale was 9 and Higher Value of higher scale 15. On the set criterion if respondents score mean value is higher than higher value of lower scale then respondents will be on high side, if mean value is lower than higher value of lower scale then they are on the low side.

Level of Optimism

Under optimism three variables were selected – first preference of using e-learning platform, second E-learning is much easier and interesting, third E-learning gives freedom to study anytime anywhere.

Variables (Optimism)	Mean Value	Std. Deviation
Preference of E-learning platform over traditional learning	3.85	1.005601401
E-learning platforms made studies easier and interesting	4.16	0.920150648
With the emergence of ICT, I can study anytime anywhere	4.42	0.672116438
Mean value of optimism	12.43	

Table 2

Based on mean value of each variable under optimism the overall mean value optimism is 12.43, which is higher than higher value of lower scale 9 and close to the higher value higher scale. It derives that optimism level of respondents towards technological readiness for elearning is **high**

Level of Innovativeness

Under innovativeness four variables were selected – first e-learning makes the student opinion leader, second e-learning is making students techno savvy, third students are actively using elearning platforms, fourth usefulness of e-learning platforms.

Variables (Innovativeness)	Mean Value	Std.deviation
E-learning makes the student opinion leader	2.06	0.757974483
E-learning is making students techno savvy	3.96	0.877911
Students are actively using e-learning platforms	3.95	0.898663
Usefulness of e-learning platforms	4.26	0.631329
Mean value innovativeness	13.93	

Table 3

For innovativeness dimension the overall mean value innovativeness is 13.93, which is close to the higher value of the lower scale which means that innovativeness level of respondents towards technological readiness towards e-learning is **low.**

Level of Discomfort

Under discomfort three variables were selected – first e-learning platforms are not user friendly; second E-learning sometimes fails due to lack of internet connectivity, third always learning through e-learning platforms does not provide appropriate answer.

Variables (Discomfort)	Mean Value	Std.deviation
e-learning platforms are not user friendly	2.4	0.909775
E-learning sometimes fails due to lack of internet connectivity	3.45	1.055126
third always learning through e-learning platforms does not provide appropriate answer	3.75	0.927003
Mean value Discomfort	9.6	

Based on mean value of each variable under discomfort the overall mean value discomfort is 9.6, which is again close to the higher value of the lower scale which means that discomfort level of respondents towards technological readiness towards e-learning is **low.**

Level of Insecurity

Under insecurity three variables were selected – First was trust issues in e-learning, second rechecking of any doubt from various other sources and third is confirming the doubt from traditional method of learning also.

Variables (Insecurity)	Mean Value	Std.deviation
Trust issues in e-learning	3.55	0.992376
Rechecking of any doubt from various other sources	4.02	0.795159
Confirming the doubt from traditional method of learning also.	3.77	1.055126
Mean value Insecurity	11.34	

Table 5

Based on mean value of each variable under insecurity the overall mean value insecurity is 11.34, which is **moderate** as per scale which means that students are neither insecure nor secure in using e-learning platform for their studies.

Data analysis revealed that students are Optimist in using e-learning platform. Students are low in Innovativeness factor and Discomfort factor. As far as Insecurity factor is concern students are neither insecure nor secure in using e-learning platforms.

As per the Parasuraman and Colby (2015) there are four categories of people based on technological readiness Explorers (high motivation, low inhibition), pioneers (high motivation, high inhibition), skeptics (low motivation, low inhibition), paranoids (moderate motivation, high inhibition), and laggards (low motivation, high inhibition).

Explorers (18%)—tend to have a high degree of motivation and low degree of resistance.

Skeptics (38%)—tend to have a detached view of technology, with less extreme positive and negative beliefs.

Pioneers (16%)—tend to hold both strong positive and negative views about technology Avoiders (16%)—tend to have a high degree of resistance and low degree of motivation Hesitators (13%)—stand out due to their low degree of innovativeness.

Data reveals that the respondents are Explorers. It means that respondents are optimistic about new technologies. They have high expectations from new technologies using e-learning apps for their education. They are not innovative when comes to e-learning apps. But at the same time, they are uncomfortable also in using e-learning platforms are not user friendly, E-learning sometimes fails due to lack of internet connectivity and -learning platforms do not provide appropriate answer. As far as insecurity factor is considered students are neither insecure nor secure in using e-learning platforms.

This study suggests that as students have strong positive and negative views regarding use of e-learning platforms for their education. Government and private sector need to strengthen the e-learning platforms so that students can use e-learning platforms for their education without discomfort and insecurity factor.

CONCLUSION

Study finds that students around the country are preferring to use e-learning platforms for their educational purposes as it is making their studies more interesting and easier, they can study anywhere anytime, they are becoming more techno savvy in using e-learning apps. At the same time, they have certain discomfort and insecurity also in using e-learning platform due to internet connectivity issues, lack of sufficient content on e-learning apps. As students are preferring e-learning platforms over traditional way of teaching for their education it is very important that government and private sector should come forward to strengthen the e-learning platforms.

LIMITATIONS OF THE STUDY

The study has potential limitation. This study is carried out with smaller sample size due to time constraints. To get the bigger picture regarding technological readiness of e-learning platforms among students its required to conduct study in more structured ways. The study is only based on the one aspect of the technological readiness index. This study could have done with different angle of the technological readiness index for better understanding of the topic.

FUTURE DIRECTION OF THE STUDY

Other researcher can take more sample from different part of the country keeping private and government school, rural and urban area in the mind. Then the finding would be more
insightful.

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