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Ajay Kumar; Anita Priyadarshini; Mathew A.; Mishra L. D. and Mohankumar V.

## E-learning during the Pandemic: Students' Perceived Ease of Use and Attitudes

• Tanuja Khan<sup>1</sup> • Bharti Joshi<sup>2</sup>

### Abstract

The study was carried out to get an understanding about students' perception of e-learning, during the recent pandemic. Perceptions were sought from 370 undergraduates, out of which 119 were males and 251 were females. This research was done mainly because with the advancement in technology, there are various software tools available, for making e-learning possible in an easy manner. The data was collected through online questionnaires. The finding of the research shows that majority of the science undergraduates regard e-learning to be a better approach for teaching-learning activities. Major finding of the study rests on e-learning having a direct impact on its perceived use and related attitudes. In fact, e-learning has emerged as a new way of enhancing the teaching-learning process, where various platforms have the capability of enhancing the learning output. The finding of this study can facilitate in policy making, aiming at various educational institutes to utilize such e-learning mechanisms for better teaching-learning processes.

**Keywords:** *pandemic, attitude towards e-learning, perceived ease, features of e-learning*

### Introduction

Role of technology in human life is immense. During the current pandemic situation, technology has gained momentum due to the sudden closure of the educational institutes, and this in turn raises the challenges for students' learning process (Qiao *et al.*, 2021). During the lockdown, technology is serving as a solution for the entire learning process through various innovative platforms such as the learning management system (Åããð³ẽĩãã *et al.*, 2021). It has provided the IT solutions not only for educators, but for evaluation processes too. Technology plays an ultimate

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role to minimize learning gaps which arose due to the pandemic. Educators and undergraduates across the world appreciated the digital platforms for learning (Albion, 2021). The reasons for appreciation are ease of use and learning flexibility, though few limitations are present too. These include social isolation and monotony due to digital classrooms (Elmer *et al.*, 2020). Another fact to be considered is that, digital learning had never been adopted before the pandemic, and now most of the educational institutes are exploring new approaches for its adoption. Further, digital teaching software is being explored by educators to bring about maximum ease for the learners. Digital learning is a recent development and the entire education system is in the process of adopting new teaching technology as well as its methodology.

## Review of Literature

Perceived ease of use is the degree to which a person believes that using a particular system would be free from effort (Davis, 1993). Perceived ease of use influenced the student's intention, about the use of e-learning indirectly through the perceived usefulness (Stephan *et al.*, 2019). It also has a significant effect with students' attitude. Perceived ease of use has been tested to describe the acceptance of features, of e-learning (Sultan *et al.*, 2011). Various researches have applied models like TAM to find that the perceived ease of use has a significant effect on an individual's behavior of use of e-learning system (Scherer *et al.*, 2019). Attitude is defined as a person's positive or negative feeling about the given conditions. Success of any system depends on different types of factors, including the attitudes toward the system (Mikeliaë Preradoviaë *et al.*, 2016). Moreover various researches have shown that knowledge of the educator's attitude of the technology helps in their task, which facilitates technology-integrated pedagogy (Al-zboon *et al.*, 2021). Similarly there are strong associations between a learner's attitude and perceived ease of use towards e-learning, in the teaching learning process. Based on the previous studies, we proposed a research study which can examine the impact of perceived ease of use and attitude towards e-learning.

## Research Gap

The review of related literature reveals that most of the studies are taken to identify the learners' perception and their attitude toward e-learning during pandemic. Though there are various studies done in the same area, however none of the studies were performed with reference to perception and attitudes of the science undergraduate students.

## Research Questions

- What are the features of e-learning, according to science undergraduate students?
- What is the perceived usefulness of e-learning among science undergraduates, during COVID-19 lockdown?
- What is the attitude of science undergraduate students towards e-learning?

## Conceptual Framework and Methodology

Sudden change in learning has significantly changed a learner’s outlook for life, especially the education system. Learners have faced a lot of challenges due to the sudden change in our education system. This is owing to the shift from face-to-face learning mechanism to digital systems. The proposed framework has been conceptualized (Figure 1: Conceptual Framework) from the learner’s point of view. Further, *features of e-learning, perceived use of e-learning and attitude towards e-learning* were considered as constructs for the study. Features of e-learning are considered as the independent variables. Perceived use of e-learning and attitude towards e-learning were considered as dependent variables. Reliability and validity of the self-constructed questionnaires was tested with the help of SEM (Structural Equation Model) software (Jr. *et al.*, 2017). Self-constructed questionnaires were then administered to 30 learners in a pilot study, to check the suitability of the said model. The analysis was done with SEM software (Jr. *et al.*, 2017). The study used both descriptive as well as inferential statistics.

Figure 1  
Conceptual Framework



The questionnaire consisted of 18 items meant to collect information about demographics (04 items) and the research variables (14 items). The questionnaire was divided into two sections. The first section contained questions about demographic variables and other personal information. In the second section contained questions about the constructs included in the research. Constructs were measured by a five-point Likert scale. The instruments were measured on a 5-point Likert-type scale ranging from 1= strongly disagree to 5= strongly agree. Each of the variables contained different unique questions. The questionnaire items were analyzed using the SEM software (Jr. *et al.*, 2017). Following are the values for reliability and validity as shown in Table 1.1.

Table 1.1  
Reliability and Validity

	Cronbach's Alpha	Rho_A	Composite Reliability	Average Variance Extracted (AVE)
<i>Features of e-learning</i>	0.875	0.882	0.901	0.535
<i>Perceived use of e-learning</i>	0.782	0.782	0.902	0.821
<i>Attitude towards e-learning</i>	0.831	0.841	0.899	0.748

All constructs in this study are first-order reflective. Measurement quality is verified by examining the constructs of reliability and validity. All the values of composite reliability indicators were higher than 0.7 and internal consistency was assessed via *Cronbach's Alpha Coefficient*. All values were above 0.8, indicating excellent (1.0–0.90) reliability for all the constructs used in the study. The average of variance extracted (AVE) was also examined for each construct and values were found to be substantially higher than Chin's (1998) suggested 0.5 thresholds. All the values of the construct were above the threshold values hence, the questionnaire used was appropriate for the study. Later on, the study included 370 respondents from two universities of India for the required data analysis.

## Research Hypotheses

This study will attempt to explore the following research hypotheses based on the research model illustrated in figure 2.

- Hypothesis 1 (H1): E-Learning has a significant direct impact on the perceived use of e-learning of the learners.
- Hypothesis 2 (H2): E-Learning has a significant direct impact on the attitude towards e-learning of the learners.



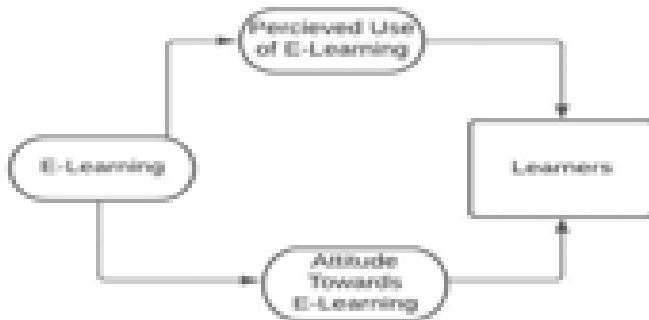


Figure 2: Construct Association

**Structural Model Assessment**

Structural Equation Model was employed in order to establish a relationship between the constructs and their prognostic significance. Bootstrapping process was employed with 500 bootstraps without changing the sign. This process helped in the identification of p-values for the framed hypotheses, of the present study.

**Path Coefficient**

Table 1.2  
Mean, STDEV, T-Values, P-Values

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values	Hypothesis
E-Learning ->attitude towards e-learning	0.712	0.716	0.049	14.39	0.000	Supported
E-Learning ->perceived use of e-learning	0.747	0.751	0.048	15.574	0.000	Supported

**Interpretation of Hypothesis**

The two hypotheses mentioned below have a positive significant relationship with the construct:

- E-Learning has a significant direct impact on the perceived use of e-learning of the learners.
- E-Learning has a significant direct impact on the attitude towards e-learning of the learners.

## **Conclusion and Discussion**

This study was set out to analysis the students' perception about e-learning as they were the main beneficiaries of e-learning during the pandemic. The research shows that science undergraduate students believe in e-learning mode as a helpful tool for continuing studies during the pandemic. The research was done mainly because with advancement of technology, there are various software tools which are making e-learning possible in an easy manner. The finding of the research shows that majority of science undergraduates think that e-learning is better for learning, during pandemic like situations. Some major findings of the study reveal that e-learning has a significant direct impact on the perceived ease of use and attitude towards e-learning.

## **Recommendations and Future Scope**

Since the pandemic has increased the scope of e-learning, this will make undergraduates students and teachers compare face-to-face and e-learning mechanisms side by side. This will make undergraduates students experience hybrid learning (combination of traditional and e-learning) which is their preferred choice of learning, as reflected in the study. Researchers also believe that there are some drawbacks of online learning such as internet connectivity, increased class strength, cost factors etc. Due to the ongoing pandemic situation, educational institutions need to explore other e-learning platforms so that undergraduate students do not suffer in any manner and therefore the future scope of research lies in determining whether the educational institutions give weightage to those employers who are working in area of e-learning and if institutes are taking a lead to develop their own e-learning platforms to launch Massive Open Online Courses (MOOCs).

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The Indian Adult Education Association founded in 1939, aims at improving the quality of life through education, which it visualizes as a continuous and lifelong process. It directs its efforts towards accelerating adult education as a process, a programme and a movement.

The Association co-ordinates activities of various agencies – governmental and voluntary, national and international – engaged in similar pursuits. It organizes conferences, seminars and undertakes surveys and research projects. It endeavors to update and sharpen the awareness of its members by bringing to them expert views and experiences in adult education from all over the world. In pursuit of the policy, the Association has instituted the Nehru Literacy Award and Tagore Literacy Award for outstanding contribution to the promotion of Adult Education and Women's Literacy in the country respectively. It has also instituted Dr. Zakir Husain Memorial Lecture, which is delivered every year by an educationist of eminence.

The Association has brought out many publications on themes related to adult education, including Hindi editions of several UNESCO publications. It brings out the Indian Journal of Adult Education, Proudh Shiksha and IAEA Newsletter.

The Association acts as the Indian arm of the International Council for Adult Education, International Literacy Association and the Asian-South Pacific Association for Basic and Adult Education. Its membership is open to all individuals and institutions who believe in the aims and objectives of the Association.

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