Adoption of E-Learning During the COVID-19 Pandemic:
The Moderating Role of Age and Gender

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ABSTRACT

The outbreak of the novel coronavirus disease (COVID-19) has resulted in the complete disruption of the learning ecosystem across the world. The sudden shift from classroom learning to the use of virtual platforms has not only made an unprecedented impact on the learning style of the students, but it has also resulted in the problem of adoption of the same. Thus, with the significant surge in the usage of e-learning mechanism, the researchers even tend to predict the continued usage of the digital learning platforms post pandemic due to its accelerated usage and adoption by the learners and teachers as well across age and gender. Therefore, the present research seeks to study the factors influencing e-learning adoption by the students in the context of the pandemic. Further, it would examine the moderating influence of age and gender for the adoption of e-learning using the UTAUT model with extended constructs like computer anxiety, attitude, and technology anxiety.

KEYWORDS

1. INTRODUCTION

The novel coronavirus (COVID-19) disease which was first reported in December 2019 in the Wuhan city of the central Hubei provinces of China (Holsueet al., 2020) created unprecendeted health crisis across the globe. The World Health Organization, along with the Chinese authorities worked together to find out the etiological agent and named it as a virus (2019 n-Cov). On January 11, China declared its first COVID 19 death of a 61-year-old man who was exposed to the wet seafood market (WHO, 2020a). Subsequently, the deadly infection spread across the globe (WHO, 2020b). WHO declared this deadly virus is a public health emergency on January 30, 2020 (WHO 2020a, 2020b). As a result of the outbreak of the disease, lockdown was imposed across the world which adversely affected the normal life halting all the activities. Education was not an exception to this lockdown. All the educational institutions had come to a standstill due to the closure. According to UNESCO, by April 2020, 186 countries had imposed nationwide shut down, influencing 73.8% of the total learner enrolled (UNESCO, April, 2020). Thus, the pandemic forced educational institutions to adopt digital platforms to reach out to the students. This e-learning, of course, has played crucial role in planning, delivering and tracking the learning process effectively. But at the same time, its effectiveness depends

upon digital level efficiency and willingness to adopt and accept the system. However, the e-learning mode varies from typical classroom situations when it comes to learner satisfaction, motivation, and interaction (Bignoux and Sund, 2018).

In a developing country like India, the paradigm shift towards e-learning posed serieous challenges in terms of learning quality and the way content is designed and implemented efficiently. In other words, e-learning effectiveness depends upon how well contents are curated to an online platform. The students particularly under-graduates tend to face a lot of problems in adopting e-learning in such an unprecedented pandemic. The challenges are mostly related to technology, pedagogy, changed learning styles, constraints of time and cost apart from the other factors. Despite all the challenges, the learners tend to prefer the online form due to its flexibility and other benefits. Thus, based on these premises, the present study seeks to explore the factors affecting the adoption of e-learning during this difficult times. The study also tries to analyze the moderating role of age and gender towards the adoption of e-learning by the young undergraduates.

The findings of the study are expected to overcome the pertinent challenges in the adoption of e-learning and would suggest for an alternative model of the same at the university level. As the universities do not have sufficient time to design the course content and pedagogy to meet the academic requirements of the students, the learning experience can be improved by making it more productive, user-friendly and accessible in the course of adoption of e-learning. Furthermore, it is also expected to continue the e-learning process post pandemic in view of the uncertainties that prevail today. Thus, a new learning ecosystem is set to emerge where there is a possibility of the adoption of blended learning even after the pandemic is over. The findings would also suggest the universities to update their e-learning system to facilitate the adoption of the digital learning platform effectively. The research starts with a theretical base of UTAUT followed by the review of related works, the research methodology, empirical analysis, limitations and scope for further research and above all the conclusions and recommendations.
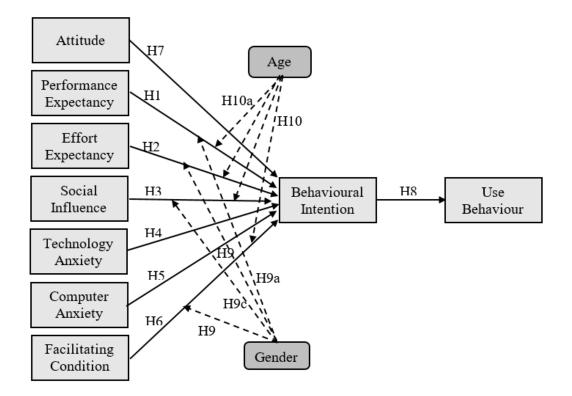
2.THEORETICAL BACKGROUND: HYPOTHESES FORMULATION

Technology not only facilitates the design of e-learning content but also helps in developing the perception and preference of the learners to accept and adopt online pedagogical platforms for thus making the learning process more interactive, engaging, productive, and useful. As the Technology Acceptance Model is considered as the most widely used framework for studying the adoption of any new technology and the attitude and willingness of the learners towards e learning too. This study adopts the unified theory of acceptance and use of technology (UTAUT) to study the factors that influence the students to adopt e-learning during an unprecedented situation of COVID-19.

2.1. UTAUT Framework

Previous studies on technology acceptance and user acceptance were reviewed to find out the key variables affecting the adoption of e-learning from the student's perspective in higher education. The UTAUT framework was mainly developed to study the adoption of technologies. The original Technology Acceptance Model (TAM) is the most effective and frequently cited theory in the literature. But it is believed that it only predicts the success of technology acceptance between 30% to 40% of cases, which shows a less exploratory power and the less usefulness in the field of acceptance (Benbasat and Barki,2007; Bagozzi, 2007; Teo,2011; Chuttur, 2009, Venkatesh and Davis, 2000). In the important study of student's adoption of web-based learning. TAM was found to explain only 15% of the students' actual use behaviour putting other constraints on model reliability and validity (Martins and Kellermanns, 2004). But the UTAUT model has included vital components across the other user adoption models. Unlike TAM, this model, with the integration of the primary constructs and the moderating variables, has further improved the analytical efficiency to 70% of the variance to use the technology (Venkatesh et al., 2003). From the context of e-learning, TAM has relatively

Figure 1. Proposed Research model

less capacity to study the individual predisposition to acceptance. For example, social influence which was not incorporated in TAM is considered as a fundamental driver that defines the adoption of e-learning. It is believed that learners tend to be influenced by their friends, teachers, relatives, and colleague. The essential parameters like availability of infrastructure and required resources, and the social influence may also determine specific individual behaviour to accept or reject the technology. These parameters have made the model much robust as compared to other theories. Thus, based on the above research data and the reliability therein, UTAUT was considered to be more suitable for this study. It explores the adoption of the UTAUT theory with a proposal to add the variables like technology anxiety and social anxiety for investigating the factors influencing the adoption of e-learning in the Indian education system. The proposed research framework is presented in figure 1followed by hypotheses formulation.

2.2 Hypotheses Formulation

In continuation of the literature on theoretical framework, this section makes an elaborate attempt for the formulation of hypothesis. Performance expectancy (PE) is defined as "*individual beliefs that a system use will increase the job performance to complete the various tasks*" (Venkatesh et al., 2003). PE has been introduced to the UTAUT 2 by the prior studies on perceived usefulness, i.e., TAM1, TAM2, relative advantages – innovation diffusion theory (IDT). It is one of the strongest predictors of the behavioral intention to adopt the technologies in both involuntary and voluntary settings (Venkatesh et al., 2003). In the context of e-learning, it is defined as the amount to which students

rely on using e-learning will help to improve their performances in terms of grades and increase the learning performance (Wang et al., 2009). This strong belief will further strengthen the student's behavioral intention to accept e-learning. PE offers students a platform which is user- friendly, convenient, and easy to handle that in turn helps to improve the learning productivities (Wang et al., 2009). Thus, this factor helps to understand whether the performance expectancy is useful to in the adoption of e-learning. A significant positive association was found between the two constructs in many a studies. Based on the above literature support, the following hypothesis has been proposed.

H1: Performance expectancy influences the behavioral intentions to adopt the e-learning system in the Indian context.

Similarly, effort expectancy (EE) is explained as "*the degree of ease associated with the use of the system*" (Venkatesh et al., 2003) and is identical with the perceived ease of use from the technology acceptance model (Davis et al., 1989). Previous studies have found that EE has a direct relationship to behavioral intention (BI) (Lin et al., 2014a,b; Venkatesh and Zhang, 2010). After reviewing the previous studies it is found that views of the students on the adoption of the technologies support the vital role that EE plays as an essential predictor for the BI (Park, 2009; Cheung and Vogel, 2013; Al- Gahtani, 2016, Chiu and Wang, 2008). EE as a predictor helps to analyze the belief pattern of the students to use the e-learning system. It is generally assumed that if a student feels e-learning pedagogy is user friendly without any technical glitches, he is more likly to be inclined to adopt the e-learning in their learning environment. Moreover, it would be helpful to get an insight into whether EE factors influence the e-learning adoption. Therefore, the following hypothesis has been formulated

H2: Effort expectancy has a significant influence on the behavioral intention to adopt e-learning in the Indian context.

Social influence (SI) is the degree to which a student considers the opinions of peers, groups, friends, colleagues, relatives, and other family members for using e-learning methods. From the previous studies on UTAUT, it was found that perception has a significant relationship with the BI to accept technologies like e-learning (Venkatesh et al., 2003; AbuShanab et al., 2010). Earlier studies have found that the individual's intention to adopt e learning technology is generated by social influences. Thus,, in the literature SI is found to be an essential contributing factor to determine the BI to adopt e-learning and hence the following hypothesis was formulated.

H3: Social influence has a significant impact on the behavioral intention to adopt e-learning in the Indian context.

Technology anxiety (TA) is the willingness and abilities of the learners to accept when they come in contact for the first time with a new technology like e-learning (Venkatesh and Bala, 2008; Meuter et al., 2003). TA is also found to be helpful in reducing the mental acceptance of automated technologies. In other words, negative and positive feelings about the technologies are closely related to their behaviors. TA also might cause discomfort about the technologies (Liljander et al., 2006). Technology anxiety (TA) is a significant predictor of the user's intention to adopt technology like e-learning (Meuter et al., 2003). The user acceptance of e-learning might increase the technology anxiety while using online platforms and small devices like computers, laptops, mobile phones, tablets etc.. Although it is convenient and flexible unlike offline mode of attending lectures, there is a lack of privacy and data security. Thus (TA) has a negative influence on the adoption of e-learning. Based on the above arguments, the following hypothesis was proposed.

H4: Technology anxiety has a significant negativeinfluence on the behavioral intention to accept the e-learning in the Indian context.

Computer anxiety (CA) is an essential factor for the acceptance of new technology like e-learning. Venkatesh et al., (2003) defines it as *"evoking anxious or emotional reactions when it comes to performing the behavior."* CA is an emotional reaction that results from a fear of negative output after using the computer. Igbaria and Parasuraman (1989) define CA as the *"tendency of individuals to be uneasy, apprehensive, or faithful about the future or current uses of computer."* To Alenezi et al. (2010) CA plays a crucial role in the adoption of e-learning in the setting of higher education. Abdullah and Ward (2016) found that 59% of students expressed about the negative effect of CA on the e-learning context. In previous studies fear of the implementations of the computer was associated with data hacking and leaking which posed a challenge for the adoption of e-learning (Igbaria and Chakrabarti,1990; Gilroy and Desai,1986). Computer anxiety is associated with negative opinions about computers. Based on the above premises, the following hypothesis was formulated

H5: Computer anxiety has a significant negative influence on the behavioral intention to accept e-learning in the Indian context.

Facilitating condition (FC) implies for an environmental or physical setting under which a person performs various activities (Salloum and Shaalan, 2018). FC is defined as the presence of resources and infrastructure to support the usage and adoption of e-learning in a given institutional setting. (Venkatesh et al., 2003). In the e-learning context, resources like excellent, fast, seamless net connectivity, availability of a computer, laptop or tablet, and other necessary infrastructure resources directly or indirectly support the success of accepting e-learning. Thus student's perception depends on the availability of supportive products and services to adopt e-learning culture. Thus, the presence of external resources are needed to enhance the implementation of its behavior (Ajzen,1991). Generally, lack of complete information, timely assistance, and insufficient resources could obstruct the students in the adoption of e-learning (Nanayakkara,2007). This study assumes that FC determines student's perception to use e-learning. Training on usage, infrastructure availability increase the skills, abilities, and knowledge of e-learning systems (Salloum and Shaalan, 2018). Teo (2010) studied that the influence of FC on the adoption of the technologies tend to affect the adoption of e-learning (Sharma et al., 2016; Tarhini et al., 2017a). Thus, based on the above logic the following hypothesis has been formulated.

H6: Facilitating condition has a significant influence on the user behavior to accept the e-learning in the Indian context.

Attitude towards using technology in e-learning explains the degree to which the person has an attitude, which influences the behavioral intention to use directly. The attitude towards using in the context of the e-learning system affects the behavioural intention to use (Stoel and Lee,2003; Lee et al., 2005; Roca and Gagne, 2008; Liu et al., 2009). From the previous literature, it shows that 'attitude towards using' realizes successful implementations (Huang and Liaw, 2005). Generally, attitude towards using it directly affects the behavioral intention to use.(Alharbi and Drew,2014). Therefore, the following hypothesis was proposed based on the aforesaid literature support.

H7: Attitude towards using influences the behavioral intention to accept e-learning in the Indian context.

Behavioural intention (BI) refers to an individual's intention to use the technology for various tasks. An individual's intention to use e-learning applications rather then to use the conventional mode of learning. Previous studies have validated and tested the actual uses in the e-learning context and have been affected by the intention to use the system (Chang and Tung, 2008; Tarhini et al., 2014, Tarhini et al., 2017a, 2017b; Liu et al., 2010). Individual commitment also strengthens behavioral intentions (Ngai et al., 2007). Various studies have found that behavioral intention influences the actual uses systems (Motaghian et al., 2013; Davis, 1989; Wang and Wang,2009). As aligned with the previous studies, this study also established a relationship between (BI) to the actual use in the context of e-learning adoption. In other words, it is a precursor of the behavior to use. Therefore, the following hypothesis was developed.

H8: Behavioural intention to use significantly influences the behaviour to accept e-learning in the Indian context.

Age moderates the relationship between PE, EE, SI and FC on the BI (Venkatesh et al., 2003; Lu et al., 2009). The influences of PE was found to be more strong in the case of youngsters unlike EE and SI, which had a stronger effect for the older people (Venkatesh et al., 2003). It is found that older people tend to give more importance to support and help in the context of a job, which is known as FC (Hall and Manfield, 1975). Younger students are more worried about increasing the performance during the time of using the technologies, unlike older students whose primary concern is the ease of using e-learning and its applications. Age and gender have a combined effect on the relationship between BI and FC. The differences in gender in the task orientation and focus on instrumentality would become higher with age (Morris et al., 2005). As students grow older, the differences in gender roles would be found significant. Thus, older girls' studentsare likely to focus on FC. Previous literature shows that gender differences in the context of (FC) become high with the increase in age (Venkatesh et al., 2003; Morris et al., 2005).

Age and gender are theorized to play a moderating role in the effect of PE on BI. In other words, the effect of PI on BI moderated by age and gender would be stronger for youngers (Venkatesh et al., 2003). Similarly, older users face difficulty in processing the complex and new information that influences their learning of the latest technologies (Plude and Hoyer, 1985; Morris et al., 2005). These difficulties might be reduced to the memory and cognitive capabilities linked with the ageing process Male students tend to give maximum efforts to achieve their goals despite the inherent constiraints. But in case of female students, they tend to emphasis to maximise their efforts involved to attain their objectives (Rotter and Portugal, 1969; Henning and Jardim, 1977; Venkatesh and Morris,2000). Similarly, male students tend to depend less on the FC when accepting the new technologies like e-learning but female students focus more on supporting external factors. Therefore, the following hypothesis was formulated.

H9: Age and gender moderate the influences of performance expectancy, effort expectancy, social influence, and facilitating conditions on the behavioral intentions to accept e-learning in the Indian context.

3. RESEARCH METHODOLOGY

A structured questionnaire was administered on randomly selected sample respondents in the state of Andhra Pradesh, India. A total of 500 respondents mostly undergraduate students belonging to different age categories were selected for the survey based on convenience sampling out of which 89 responses were rejected for not filling the responses correctly. The survey instrument of (PE), (EE), (SI), (BI) and (FI) were adopted from Venkatesh et al., (2012). The scale of attitude towards

using the e-learning was adopted from Masrom, (2007) and the scale of use behavior was taken from Samsudeen and Mohamed (2019). The scale measurement of (CA) was adopted from Abdullah et al. (2016) and (TA) scale was used from Yoon and Han, (2013). All the constructs were measured using a 5-point Likert scale starting from 1= strongly disagree to 5= strongly agree. For analysing the data smart PLS- 2.0 was applied for the study.

4. EMPIRICAL ANALYSIS

From the demographic composition of the respondents, it is observed that 70.80% of the respondants are male, and 29.10% are female. Similarly, it is found that 15.57% belonged to the age group of 17-20 years, 24.87% of the resondants are aged between 21-23 years 19.70% of the respondents are between 24-26 years old and 18.97% of the total respondents are aged above 27 years.

Further a two-method approach was used. The measurement model was developed with the help of confirmatory factor analysis (CFA). The CFA was used for conducting the convergent and the discriminant validity. For calculating the moderating variables, we have applied multigroup analysis. Before proceeding for further analysis, there is a need to evaluate the content validity of the scale items measurements. There is also a need to calculate the criterion validity to check how best the predictor would predict a dependent variable.

4.1 Construct Reliability and Convergent Validity

Reliability explains the consistency of the items using construct measurement (Leung et al., 2015). Cronbach alpha (α) values must be greater than 0.70 (Bernstein and Nunnally, 1994).The construct reliability, which is based on the calculation of the actual loading of each construct, must be higher than 0.70, and the average variance extraction (AVE) much be higher than 0.50. While construct validity intends to validate the scale measurement. (Hew and Leong, 2011) convergent validity explains the constructability to provide similar results. In the convergent validity, the composite reliability (CR) must be higher than 0.70, and each factor loading and (AVE) must be higher than 0.50 (Fornell and Larcker, 1981). The average variance extraction must be higher than the correlation coefficient.

From Table 1, it is observed that Cronbach alpha and composite reliability of all the construct are greater than 0.70 hence it met the criteria for reliability. Further the factor loading of all the items are greater than 0.5 except item 2 of the construct EE and item 3of the construct UB. But the factor loding values of these two items are nearly equal to 0.5 hence accepted for convergent validity. Further AVE value for all the construct are greater than 0.5 that met the criteria for discriminant validity. As convergent validity, construct reliability, and discriminant validity threshold are met for all the construct. Hence we further test the significance through the bootstrapping method of structural equation modelling. The path analysis based on the t-statistics to verify the significance of the hypotheses is presented in Table2.

Table 2 descriptions: From Table 2 it is observed that, the t – statistics values for the hypothesis H2 and H4 are less than 1.96 at 0.05 level of significance, hence not accepted that means effort expectancy and technology anxiety does not have significant impact towards behavioural intention. Similarly all other hypothesis such as H1, H3, H5, H6, H7 and H8 the value of t – statistics are greater than 2.56 at 0.01 level of significance. Hence the relationship among these variable of interest are considered significant and we accept the proposed hypothesis.

4.2. Moderator Effect of Age and Gender

The moderator effect was calculated and analysed using Joreskog and Sorbom (1993). In table 3, the moderating effect of (PE), (EE), (SI) and (FC) are represented.

From Table 3 it is clear that t- statistics for the hypothesis H9b is greater than 1.96 and hence accepted at 0.01 level of significance (t=2.08) and rest all are not accepted. Hence gender is only

Table 1. Construct reliability and convergent validity

	Latent constructs	Factor loading	Cronbach alpha	Composite reliability	Average variance extraction
Effort expectancy	Item 1 Item 2 Item 3 Item 4	.901 .455 .513 .500	.7366	.7328	.5420
Social influences	Item 1 Item 2 Item 3	.891 .728 .661	.7642	.8072	.5865
Technology anxiety	Item 1 Item 2 Item 3	.861 .728 .661	.8056	.8853	.7202
Computer anxiety	Item 1 Item 2 Item 3 Item 4	.859 .725 .799 .508	.7173	.8196	.5401
Facilitating conditions	Item 1 Item 2 Item 3 Item 4	.853 .575 .718 .508	.7494	.8278	.5634
Attitude	Item 1 Item 2 Item 3 Item 4	.893 .905 .898 .848	.9088	.9361	.7856
Performance expectancy	Item 1 Item 2 Item 3 Item 4	.769 .799 .929 .930	.8803	.9185	.7393
Behavioral intentions	Item 1 Item 2 Item 3	.921 .920 .869	.8877	.9304	.8169
Uses Behavior	Item 1 Item 2 Item 3	.904 .928 .485	.7130	.8244	.6286

Table 2. Hypotheses result by using SEM

Hypotheses	Regression path	T-statistics	Supported
H1	PE BI	3.160	Yes
H2	EE BI	.677	No
H3	SI BI	2.519	Yes
H4	TA BI	.934	No
H5	CA BI	9.436	Yes
H6	FC BI	3.346	Yes
H7	Attitude BI	5.203	Yes
H8	BI Usage behavior	13.492	Yes

Table 3. Moderator effect- Gender: Multigroup analysis

Hypotheses	Path	Male	Female	T-statistics	P values	Significant
H9a	PE BI	.26	.25	.01	.99	No
H9b	**EE BI**	**.29**	**.28**	**2.08**	**.03**	**Yes**
H9c	SI BI	.78	.75	.29	.76	No
H9d	FC BI	.83	.349	.39	.72	No

having a moderating effect between effort expectancy and behavioural intention. Further moderating test of age between the variable of intrest are presented in Table-4

From Table 4 it is clear that t- statistics for the hypothesis H10a is greater than 1.96 and hence accepted at 0.01 level of significance (t=2.18) and rest all are not accepted. Hence age is only having a moderating effect between performance expectancy and behavioural intention.

5. DISCUSSIONS AND CONTRIBUTIONS

The main purpose of the study seeks to check the appropriateness of the extended UTAUT model in the context of e-learning of the under-graduates in the Indian education system. By applying the extended model, it examined the relationship between the perception of students towards e-learning and use behavior by the Indian students. The results of this study confirmed that all the antecedents are are found to have 53.3% of cumulative variance for the user behaviour. Almost all the constructs are well supported based on the proposed conceptual model. The findings reaffirm the applicability of the UTAUT to measure the acceptance and adoption of e-learning in India. This study contributes to the field of e-learning acceptance by adopting the most critical factors after validating the adoption model in a particulare-learning environment. This study confirms that (PE), (SI), (CA), (FC), attitude, and (BI) were found to be significant for determining the e-learning adoption corroborating the previous studies by Samsudeen and Mohamed (2019) and Ain and Kaur (2015). Age moderates the relationship between (PE) and (BI) with 95% of the confidence interval, which implies that the effect of younger is stronger than the older age category students. Gender moderates the relationship between (EE) and (BI), which supports the previous studies done by Wang, (2016). At 95% of confidence interval, the relationship between (EE) and (BI) is significantly different from male to female which indicated that the effect of the male is stronger than female category students.

5.1. Implications

This study contributes to the UTAUT model in several ways. The demographic role of age and gender in the adoption of e-learning in the Indian context was well analysed in the study using the theoretical

Table 4. Moderator effect- Age: Multigroup analysis

Hypotheses	Path	Younger	Older	T-statistics	P values	Significant
H10a	PE BI	**.34**	**.28**	**2.18**	**.03**	**Yes**
H10b	EE BI	.07	.65	.19	.84	No
H10c	SI BI	.49	.83	.34	.72	No
H10d	FC BI	.49	.83	.29	.51	No

model. It also contributes to the body of knowledge of e-learning adoption. From the theoretical context, the proposed research model is well validated in the Indian context about the use behavior and (BI) of e-learning adoptions. This study has extended UTAUT by adding three constructs viz. attitude, (TA), and (CA) and demographic variables like age and gender The findings of the study also provides an insight to the management, faculty and researchers as well. The study findings may identify the priority areas where e -learning can be adopted and successfully implemented without technical glitches. Moreover, the study would help in understanding the modalities in the adoption of e-learning for improving the learning process during the difficult times. With the study of student's perception towards e learning process, the university administration could improve the existing installations and future deployments can be customized based on needs and expectation of the students. At the same time, the educational institutions have to ensure that the e -learning platforms achieve productivity, efficiency, and performance of students during this period of pandemic.

5.2. Limitations and Future Study

The present study, of course, suffers from certain limitations as well. With regard to sampling, the study selected samples from a few universities and colleges in a particular State of India and has not collected data representing the entire student population of the country which may not provide enough reflection of the attitude towards the acceptance of e-learning. Future research should focus on the universities and colleges in the entire country for more generalisation of the findings. Future studies should address the behaviour towards other e-learning technologies like WebCT. This study has examined the acceptance of e-learning in a specific milieu of compulsive learning especially during the period of lockdown due to the pandemic. Thus future research should focus on the study of attitude of the students during the period of normalcy to accept e-learning with regard to voluntary usage. Further, as the study was conducted using quantitative method, future research can be conducted with a qualitative approach or a mixed approach for better generalisation. Alternative frameworks and theories can also be used for investigating the behavioural intention of the students to accept e-learning. Future research may include other constructs like trust, culture, experiences as well for the study of e-learning acceptance.. As the present study is student-centric, the future studies may be conducted from the faculty perspective to get an understanding of the factors affecting the successful implementation of virtual learning.

6. CONCLUSION

Based on the previous studies on UTAUT, our research has tried to examine the factors affecting the adoption of e-learning in a specific context. It has also examined the moderating role of age and gender for the study of behavioral intention. In the first place, the study has validated, tested, and extended the UTAUT for the Indian e-learning ecosystem by incorporating important constructs like computer anxiety, technology anxiety, and attitude on the UTAUT nomological structure. Secondly, the findings indicated that the factors like performance expectancy, social influence, computer anxiety, facilitating condition, attitude, and above all behavioral intention were significant. Thirdly, with regard to gender, the male category, moderated the relationship between effort expectancy the behavioral intentions, unlike the female category. Fourthly, the effect of age, especially younger category moderated the relationship between performance expectancy and behavioral intention. Finally, the findings of the study would be helpful for the e-learning experts in developing robust user friendly and highly customised applications for effective adoption of e-learning by the students and instructors as well.

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