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Students' Behavioural Intention towards Adoption of Online Education: A Study of the Extended UTAUT Model

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Abstract: Online education (o-education) is gaining significant attention from education providers, students, and policy makers. This research explored students' behaviors and intentions towards online education. The present research utilised the Unified Theory of Acceptance and Use of Technology (UTAUT) as a model to investigate these intentions and behaviours. The study incorporated UTAUT predictors along with three additional independent variables. This study adopted a cross-sectional design and used a closed-end questionnaire to collect data from 403 respondents. The data were analysed with SPSS and AMOS by utilising structural equation modeling (SEM) techniques. The results of the SEM analysis indicate that perceived value (PV) and convenience (Cnv) have positive influences on behavioural intention (BI), while perceived risk has a negative impact on behavioural intention (BI). Additionally, facilitating conditions (FC) and behavioural intention (BI) are found to positively influence use behavior (UB). The research findings suggest that demographics, including age, education and gender, influence behavioural intention (BI). The findings of the study have theoretical and practical implications, which are elaborated in the last section of this article.

Keywords: convenience, perceived value, perceived risk, Unified Theory of Acceptance and Use of Technology (UTAUT), Structural Equation Modeling, online-education, o-education.

Introduction

Distance education can be traced back to 1728 when a shorthand teacher named Caleb Phillipps from Boston, offered shorthand lessons to students living within the American colonies (Battenberg 1971, p. 44). With the passage of time, distance education became popular and spread across the globe. The British Open University is believed to be one of the first universities to offer full degree programmes in 1969 by using new media (Holmberg, 1995).

Technological advancements have facilitated distance education via television and mobile phones. The internet plays a significant role in the implementation of o-education. We can find institutions offering online or distance education throughout the world. The author has observed that institutions provide students with books and other learning material to study and sit in exams. Institutions offering education via the internet deliver lessons either through their websites, where students can login to study, or they send their lessons via the internet. Many institutions provide the necessary printed material in addition to online lessons.

The author believes that o-education, as a student-centered approach, is very useful. Learning material is available on the website/s, and students can study at any time. This convenience offers opportunities to students to comprehend their study material as well as to devise and post questions

online. Students can spend as much time as they wish and revisit the website, so they have more time compared with classroom-based study, where the lecture time is fixed and is mostly spent by lecturers delivering the lectures. Technology plays a significant role in the implementation of o-education. Students' acceptance is pivotal in the implementation and success of the online-education system. Students must accept the technology used in o-education, without which their efforts would be fruitless.

Previous researchers (Granić & Marangunić, 2019; Venkatesh et al., 2003; Venkatesh et al., 2012) have argued that students must accept and use the technology, otherwise it is ineffective. This technology enhances delivery efficiency, equal access, diversification and learning personalisation (Czerniewicz et al., 2020). Digital technology supports the learning and teaching process, and it has become an integral part of students' routine activities (Henderson et al., 2017), and incorporation of such technology in learning has gained the attention of researchers (Alfadda & Mahdi, 2021; Wang, 2020). Technology developments and the internet are very helpful in the implementation of o-education. The internet, as a transmission tool, is a necessity for the majority of the population (Glavas et al., 2019). Greater access to the information material provides better learning opportunities (Zraick et al., 2021). The latest 4G and 5G technologies and smart phones enable trust and enhance the use of the internet (Mishra, 2022). Mobile devices boost learning at various levels of education and students can learn at any time without being restricted to one place (Nikolopoulou, 2020). These aforesaid technological advancements and their crucial role in online education cannot be denied but the use of such technologies can only be effective if they are accepted by students.

The acceptance and adoption of mobile technologies in learning is an active research area (Cheng et al., 2020). The present study was conducted to investigate the factors that influence students' acceptance of, and their intentions towards, online education. This study selected the Unified Theory of Acceptance and the Use of Technology (UTAUT model) developed by Venkatesh et al. (2003), due to its credibility and extensive use in online education or mobile learning (García Botero et al., 2018).

The present research extends the UTAUT model by adding three predictors (perceived risk, perceived value, and convenience) and empirically tested the influences of all independent variables on the behavioural intentions of the students. This extension is based on the notion that students accept o-education with the risks and values perceived by them and with the convenience of studying online also being an important factor. The UTAUT model with these additional predictors is shown as Figure 1.

The present study has practical and theoretical implications. It will help lecturers, policy makers, institutions and other stakeholders to understand the factors that influence the behavioural intentions of students to adopt online education. Understanding these factors could help in devising online education systems.

The remainder of this research paper discusses hypotheses and research models, data collection and data analysis, research implications, limitations and recommendations for future research.

Research Objectives and Questions

The primary objective of the present research was to study the determinants of behavioural intentions towards and actual use of online education by students. The study was conducted to explore the

factors affecting the behavioural intentions of students to adopt online education, and also to know if these intentions influenced the actual behaviour of students in using online education. For this purpose, the study adopted the UTAUT Model and incorporated three additional determinants: perceived value, perceived risk and convenience. To accomplish the study objectives, the following research questions were used:

1. What are the predictors of the behavioural intention of students towards online education?
2. Does behavioural intention influence the actual behaviour of students towards using or adopting online education?
3. What is the impact of demographics (age, education, gender of students) on behavioural intention?

Literature Review and Hypotheses Development

According to the UTAUT model (Venkatesh et al., 2003), performance expectancy, effort expectancy, social influences and facilitating conditions positively influence behavioural intention. Facilitating conditions and behavioural intention have a positive influence on use behaviour. Performance expectancy, effort expectancy, social influence, and facilitating conditions hypotheses were developed from the original UTAUT model. The other three hypotheses, for perceived risk, perceived value, and convenience, were developed from previous studies as well.

Performance Expectancy (PE)

Performance expectancy (PE) is the "degree to which using a technology will provide benefits to consumers in performing certain activities" (Venkatesh et al., 2012, p. 159). This study investigated the influence of performance expectancy on the behavioural intention of students towards the adoption of o-education. If students believe that an o-education system improves their performance, they intend to use an o-education system. The developed hypothesis is:

> H1: Performance expectancy has a positive influence on students' behavioural intention towards online education.

Effort Expectancy (EE)

Effort expectancy is a strong determinant of intention towards the use of new technology (Venkatesh et al. 2003; Wang & Wang, 2010). Students tend to use e-learning applications if these are clear, easy and understandable (Venkatesh et al., 2003).

> H2: Effort expectancy has a positive influence on students' behavioural intention towards online education.

Social Influence (SI)

Social influences are the norms and opinions of others, such as senior students, friends and people who are important to students. These people influence students' decisions regarding adoption of an o-education system. Social influence, also called subjective norms, have a positive impact on behavioural intention (Tahir, 2023). This leads to the following hypothesis:

> H3: Social influence has a positive influence on students' behavioural intention towards online education.

Perceived Value (PV)

This research incorporates PV in the context of o-education, which involves cost and students compare this cost with benefits derived from o-education. Perceived value (PV) integrates monetary and non-monetary values (Gao & Bai, 2014), and it is a significant predictor of intentions (Tahir, 2023). Individuals compare expected costs and expected benefits to evaluate the total value of a product (Farah et al., 2018). The value is a cognitive trade-off between costs incurred and perceived benefits (Venkatesh et al., 2012). This value for money keeps customers loyal as well (Tahir, 2022). The following hypothesis was established:

> H4: Perceived value has positive influence on students' behavioural intention towards online education.

Perceived Risk (PR)

Students may perceive risk associated with online learning due to low performance of the o-education system, extra fees, and the perceptions they were not getting what they were paying for. PR with its two dimensions "adverse consequences" and "uncertainty" was introduced by Bauer in 1960. Perceived risk is consumers' expectations regarding the unfavorable consequences of purchasing a service or a product (Ko et al., 2004; Laroche et al., 2005). PR associated with uncertain consequences, negatively influences consumers' behaviours (Wang & Hazen, 2016; Tahir, 2023). Consumers evaluate price and the possibility of losing desired outcomes (Ravald & Gröonroos, 1996; Snoj et al., 2004). This risk perception negatively influences students' intentions. It leads to the following hypothesis:

> H5: Perceived risk has negative influence on students' behavioural intention towards online education.

Convenience (Con)

Information technology makes transactions, online learning, and many other functions convenient. For example, Beauchamp and Ponder (2010) state that consumers can purchase products any time from online retailers. This convenience has a positive influence on intention to buy. Study of material on convenience (Seiders et al., 2007) suggests various dimensions of convenience, such as access convenience, search convenience, online convenience, evaluation convenience, transaction convenience, etc. The present study deals with convenience of access to online education systems and its influence on behavioural intention. Flexibility and accessibility are important elements of convenience. For example, flexibility in terms of space, timing, website accessibility and product availability are important components of access convenience (Jiang et al., 2013; Roy et al., 2018). In the

present study, convenience refers to students' perception of freedom of accessibility, study opportunities, payment of dues (fees, etc.), and their ability to find solutions to queries by using the o-education system. This leads to the following hypothesis:

> H6: Convenience has positive influence on students' behavioural intention towards online education.

Facilitating Conditions (FC)

Students need assistance, knowledge of the system, and resources to learn online. According to Venkatesh et al. (2003), infrastructure and technical supports from organisations help students to use technology. Facilitating conditions are the beliefs of users regarding the availability of support and resources necessary for behavioural sustenance (Venkatesh et al., 2012). In the present study, facilitating conditions refer to the degree of students' beliefs regarding supportive learning tools, facilities and infrastructure, which enhance the acceptance of o-education. Thus, the following two hypotheses are established:

> H7: Facilitating conditions have a positive influence on students' behavioural intention towards online education.
>
> H8: Facilitating conditions have a positive influence on students' use behaviour.

Behavioural Intention (BI)

Behavioural intention significantly influences the actual use behaviour of individuals towards technology (Venkatesh et al. 2003, 2012). BI deals with factors of the willingness of people towards actual behaviour (Ajzen, 1991). In the present study, behavioural intention is the degree of willingness of students to adopt and/or to continue using the o-education system. Therefore, it is hypothesised:

> H9: Behavioural intention has a positive influence on students' use behaviour.

Use behaviour (UB) is the dependent variable of behavioural intention as prescribed in the UTAUT model. In this study, UB refers to the extent to which tertiary education students use or adopt online education system for their studies.

Control Variables

This study modified the UTAUT model in terms of demographic factors (age, education and gender) as control variables to assess their direct impact on behavioural intention. Age was used in previous studies regarding consumer behaviour (Hawkins et al., 2007) and buying intentions (Mo & Wong, 2012). Education influences the information search process (Beatty & Smith, 1987), and it is believed that education level has direct influence on intention. Females and males have distinctive attributes that influence consumers' judgments (Holbrook, 1986) and their purchase intentions (Akhter, 2003; Ahasanul et al., 2006). So, age, education and gender are considered control variables in this study.

Methods

This section provides information regarding the research model, participants, and research instrument.

Research Model

The present study used research model by Venkatesh et al. (2003). Perceived risk, perceived value and convenience were added in the model. This model is shown in Figure 1.

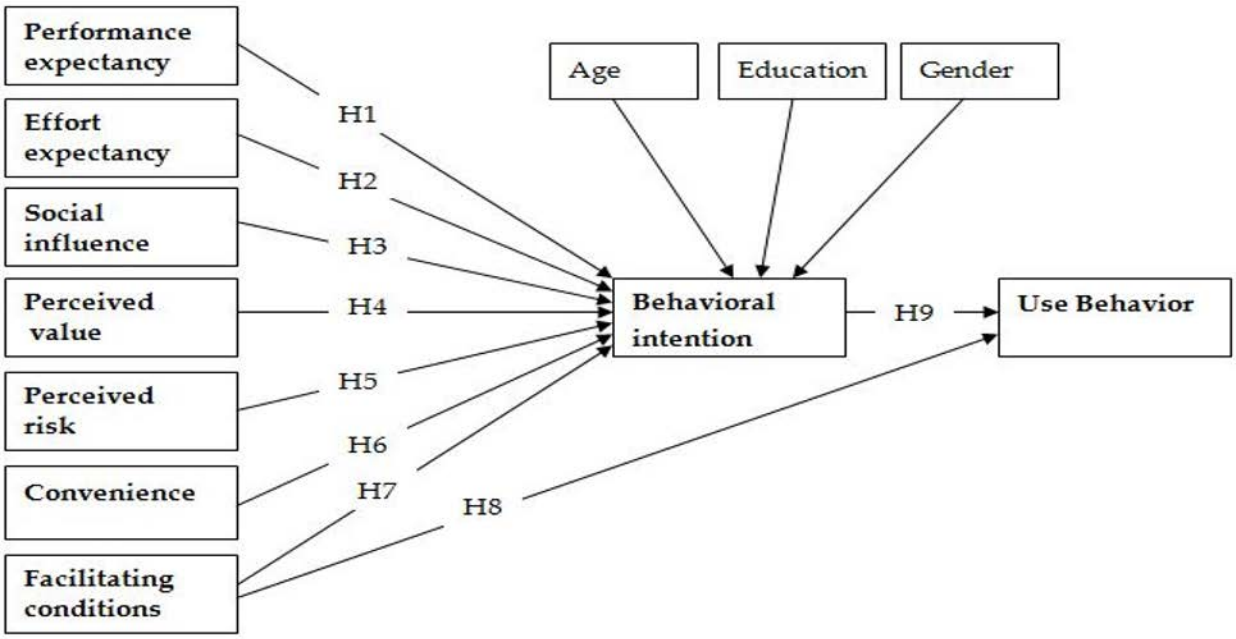

Figure 1: Hypothesised model

Participants

Data were collected from students at colleges/universities during September 2022. These respondents were randomly selected (with random sampling technique) from the district Rahim Yar Khan, Pakistan. These respondents were aged from 18 to 34 and above. There were 403 fully completed questionnaires received from the respondents. This sample size met the requirements as the minimum sample size is 200 where studies involve SEM (Kline, 2011). First, 45 questionnaires were used in the pilot study. The pilot study provided satisfactory values of reliability (Cronbach's alpha) ranging between 0.835 and 0.951. After these findings, the remaining questionnaires were used to collect further data.

Research Instrument

A closed-end questions-based questionnaire was used to collect data from the students. The five-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral-Neither agree nor disagree, 4 = Agree, and 5 = Strongly Agree) was used in the questionnaire. Respondents had the choice to select only one option for each question. The questionnaire's first section covered the following nine areas: performance expectancy, effort expectancy, social influences, perceived value, perceived risk,

convenience, facilitating conditions, behavioural intention and use behaviour. The next section covered demographics (age, education level, gender) relevant to the students.

The questionnaire was developed with the scale items adapted for the ease and convenience of the respondents. These measurement items were selected from previous studies (Dowling & Staelin, 1994; Venkatesh et al. 2003; Beauchamp & Ponder, 2010; Chang & Wang, 2011; Jiang et al., 2013). The reliability and validity of the instrument is given in Table 2.

Collected data were analysed with the Statistical Package for the Social Sciences (SPSS), v.19 and Analysis of Moment Structures (AMOS), v.21. Results of the SPSS data analysis and structural equation modeling (SEM) are discussed under the results' section.

Results

Demographic Details

The present research included demographic characteristics (age, education, and gender) of the respondents. Their details are summed up in Table 1. The majority of the respondents (41.2%) fell in the range of 26 to 33 years of age. Most of the respondents (186) — constituting 46.2% — were doing their bachelor studies. In the gender category, 60% of the respondents were male, whereas female respondents made up 40%.

Table 1: Demographic Details of Respondents

Items	Classification	Frequency	Percentage (%)
Age	18 - 25	95	23.6
	26 - 33	166	41.2
	34 and above	142	35.2
	Total	**403**	**100**
	Intermediate	57	14.1
	Bachelors	186	46.2
	Masters and above	160	39.7
	Total	**403**	**100**
Gender	Female	161	40.0
	Male	242	60.0
	Total	**403**	**100**

Measurement Model

Average Variance Extracted (AVE), Factor Loadings, Cronbach's Alpha and Composite Reliability (CR) were ascertained in connection with the measurement model. Values of Average Variance Extracted and factor loadings indicate the convergent validity of items of a scale. According to Fornell and Larcker (1981), these values should be greater than 0.50. Hair et al. (2010), also suggested that values of **a**verage variance extracted above 0.50 are acceptable. Cronbach's alpha is used to measure the reliability of construct. Alpha values above 0.70 are satisfactorily acceptable (Hair et al., 2010) and values of composite reliability (CR) should be greater than 0.70 (Hair et al., 2012).

Data analysis results indicate that all values of Average Variance Extracted and factor loadings exceeded the minimum acceptance level and were greater than 0.50. Values of Composite Reliability (CR) and Cronbach's alpha were greater than 0.70. These values are summarised in Table 2.

Table 2: Validity and Reliability

Construct	Items	Mean (M)	Standard Deviation (DV)	Factor Loadings (FL)	Average Variance Extracted (AVE)	Cronbach's Alpha (α)	Composite Reliability (CR)
Performance Expectancy	PE_1	3.18	1.322	0.649	0.683	0.916	0.832
	PE _2	3.21	1.139	0.601			
	PE _3	3.10	1.174	0.555			
	PE _4	3.18	1.240	0.700			
Effort Expectancy	EE_1	4.04	1.044	0.757	0.732	0.927	0.814
	EE _2	4.01	1.045	0.840			
	EE _3	4.03	1.026	0.823			
	EE _4	4.05	1.006	0.811			
Social Influence	SI_1	3.36	1.221	0.773	0.729	0.935	0.912
	SI_2	3.29	1.158	0.712			
	SI _3	3.37	1.205	0.704			
	SI _4	3.42	1.199	0.715			
Perceived Value	PV_1	3.03	1.408	0.643	0.647	0.880	0.905
	PV _2	3.06	1.359	0.797			
	PV _3	3.18	1.314	0.784			
	PV _4	3.16	1.316	0.628			
Perceived Risk	PR_1	2.83	1.224	0.592	0.694	0.846	0.831
	PR _2	2.83	1.156	0.776			
	PR _3	2.79	1.221	0.729			
	PR _4	2.86	1.144	0.635			
Convenience	Cnv_1	3.23	1.361	0.569	0.714	0.885	0.734
	Cnv_2	3.03	1.292	0.721			
	Cnv_3	3.19	1.288	0.731			
	Cnv_4	3.15	1.297	0.773			
Facilitating Conditions	FC_1	3.02	1.330	0.809	0.726	0.932	0.813
	FC_2	2.97	1.236	0.782			
	FC_3	3.04	1.306	0.726			
	FC_4	3.04	1.339	0.719			
Behavioural Intention	BI_1	3.25	1.165	0.771	0.807	0.842	0.791
	BI_2	3.27	1.243	0.696			
	BI_3	3.24	1.205	0.684			
Use Behaviour	UB_1	2.98	1.277	0.819	0.834	0.917	0865
	UB_2	3.11	1.297	0.754			
	UB_3	3.23	1.358	0.645			
	UB_4	3.16	1.373	0.694			

Note: Values represented at significance of $p < 0.05$.

Discriminant validity is tested by comparing the square root of AVE with the intercorrelation of constructs. The square root of AVE should be greater than the interconstruct correlations (Fornell & Larcker, 1981; Park et al., 2014). All values of square roots of AVE were greater than the values of intercorrelations of constructs. These are summarised in Table 3.

Table 3: Discriminant Validity Analysis

Construct	M	SD	PE	EE	SI	PV	PR	Cnv	FC	BI	UB
Performance Expectancy (PE)	3.17	1.091	**1.000**								
Effort Expectancy (EE)	3.36	1.095	0.379**	**1.000**							
Social Influence (SI)	3.11	1.157	0.568**	0.494**	**1.000**						
Perceived Value (PV)	2.83	0.982	0.627	0.389**	0.514**	**1.000**					
Perceived Risk (PR)	3.15	1.130	-0.139**	-0.187**	-0.247**	-0.220**	**1.000**				
Convenience (Cnv)	3.02	1.188	0.588**	0.427**	0.627**	0.754**	-0.234**	**1.000**			
Facilitating Conditions (FC)	3.25	1.051	0.512**	0.464**	0.801**	0.490**	-0.283**	0.690**	**1.000**		
Behavioral Intention (BI)	3.12	1.187	0.455**	0.309**	0.547**	0.628**	-0.326**	0.724**	0.567**	**1.000**	
Use Behavior (UB)	4.03	0.933	0.521**	0.489**	0.722**	0.608**	-0.363**	0.812**	0.796**	0.675**	**1.000**

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

N = 403

Structural Model Analysis

Confirmatory Factor Analysis (CFA), with AMOS 21, was performed and goodness-of-fit was assessed by running the Chi-square test. The value of CMIN was 127.874 with 34 degrees of freedom. Ratio of chi-square to degrees of freedom ($\chi 2/df$) was 3.761. This ratio is below the criterion of 0.50, suggested by previous researchers (Bagozzi et al., 1991, Lee & Tsai, 2005).

Results of other indices were also satisfactory and met the criteria (Kline, 2011; Wu & Chang, 2005). These indices with values were: CFI = 0.919, AGFI: 0.925, NFI: 0.907, GFI = 0.924, IFI = 0.920, RMSEA = 0.016, TLI= 0.927. After meeting these criteria, further analysis was carried out to calculate beta values, R-squares, and p-values. P-values were used to discover whether a hypothesis was accepted or rejected. Beta values showed the influence of predictors on dependent variables. Overall variance in the value of the dependent variable due to independent variables was assessed by R-squares. These values are shown as structural model results in Figure 2.

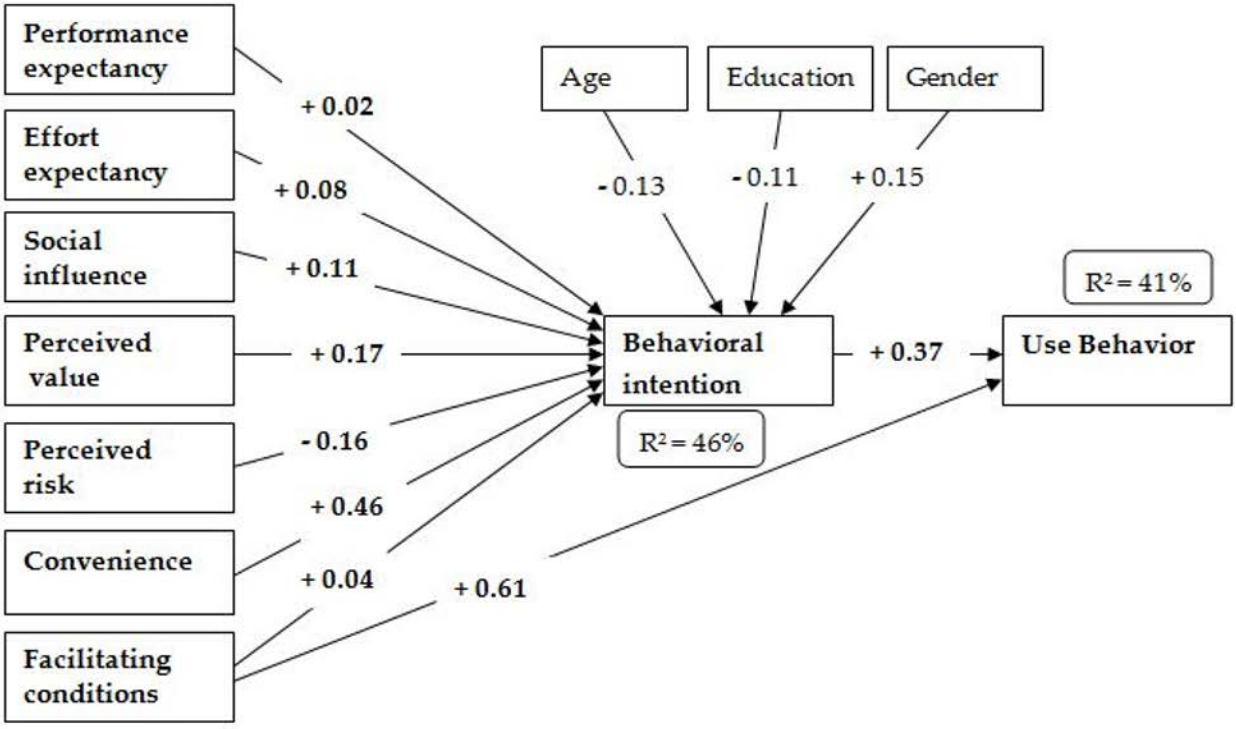

Figure 2: Structural model results

As shown in Figure 2, there is the strongest positive influence (β = 0.61) of facilitating conditions on use behaviour. After this relationship, convenience had a significant influence on behavioural intention (β = 0.46). Influence of behavioural intention on use behaviour was also strong (β = 0.37). Other beta values are shown in Figure 2. Age, education and gender of respondents significantly influenced behavioural intention, as shown in Figure 2. Independent variables brought an overall variance of 46% to behavioural intention, where R-square was 0.46. There was a 41% variance in use behaviour, due to its predictors (behavioural intention and facilitating conditions). Table 4 shows the summary of relationships of variables and hypotheses results. These findings are discussed under Discussions and Implications after Table 4.

Table 4: Summary of Relationships of Independent and Dependent Variables

Hypothesis	Structural Path	Beta Values (β)	R-Square (R^2)	Significance ($p < 0.01$)	Result
H1	PE → BI	+ 0.02		0.000	Supported
H2	EE → BI	+ 0.08		0.000	Supported
H3	SI → BI	+ 0.11		0.000	Supported
H4	PV → BI	+ 0.17		0.000	Supported
H5	PR → BI	- 0.16		0.000	Supported
H6	Con → BI	+ 0.46		0.000	Supported
H7	FC → BI	+ 0.04		0.000	Supported
H8	FC → UB	+ 0.61		0.000	Supported
H9	BI → UB	+ 0.37		0.000	Supported
Behavioural Intention (BI)			0.46		
Use Behaviour (UB)			0.41		

Note: PE = Perceived expectancy, EE = Effort expectancy, SI = Social influence, PV = Perceived value, PR = Perceived risk, Con = Convenience, FC = Facilitating conditions, BI = Behavioural intention, UB = Use behaviour. Values represented at significance of $p < 0.01$.

Discussion and Implications

Discussion

Performance Expectancy (PE)

All hypotheses in this study that were accepted as predictors showed influence on dependent variables as hypothesised. Performance expectancy has a positive but weak effect on behavioural intention. In the sense of a positive relationship, these findings are in line with previous studies (Ameri et al. 2020; Huang & Kao 2015; Yıldız & Dinçer, 2021). Those studies showed that performance expectancy is a significant predictor of behavioural intention. The present research showed that PE is not a strong or powerful predictor of BI, which is in accordance with the previous study by Asare et al. (2016) that showed PE as a non-significant predictor of behavioural intention.

Effort Expectancy (EE)

The findings of this study suggest that effort expectancy has a positive influence on behavioural intention but this impact is also insignificant like the impact of PE. This implies that students perceive that they can make less effort in the case of online education. Getting o-education with less effort induces students to adopt it. This research showed a less powerful effect of EE on BI, whereas previous studies (Gharrah & Aljaafreh, 2021; Venkatesh et al., 2012),) proved EE as a powerful predictor of BI.

Social Influence (SI)

Social influence is a good predictor of behavioural intention as per the findings of the present research. It suggests that students' intention towards o-education is influenced by perceptions or viewpoints of their friends, parents, lecturers, relatives and other people important in their lives. These findings are in accordance with a number of previous studies (Ameri et al., 2020; Gharrah & Aljaafreh, 2021; Moorthy et al., 2019; Nistor, 2012; Venkatesh et al., 2012), but are also contrary to the findings of some previous studies (Dakduk et al., 2018; Yıldız & Dinçer, 2021). Both of the latter two studies found that social influence did not significantly influence behavioural intention.

Perceived Value (PV)

Perceived Value is the overall assessment of the utility of a product or service (Zeithaml, 1988). It has positive influence on behavioural intention. Students perceive value of o-education in terms of the balance between the expenses and worth of the education. If they think that they pay an affordable or reasonable price for o-education and it is good value for money, they tend to adopt online education. In other words, students compare what they pay with what they get. The utility derived from such comparison establishes Perceived Value. The findings of this study indicated that PV is a significant predictor of behavioural intention, and this finding supports previous studies (Cronin et al., 2000). Studies on the role of PV on purchase intention (Agostini et al., 2021; Chen & Chang 2012; Ponte et al., 2015; Wang & Hazen, 2016) also indicate that PV has a positive influence on purchase intention.

Perceived Risk (PR)

It was hypothesised that perceived risk has a negative influence on students' behavioural intention towards online education. The finding of this study supports this hypothesis as perceived risk negatively influences behavioural intention towards o-education. Perceived risk represents uncertainties associated with an event, transaction or decision. Students perceive risk if they are uncertain of their decisions regarding adoption of online learning. They might be uncertain about the performance of an o-education system, any hidden costs they have to bear, or might simply think that o-education will not benefit them according to their expectations. Previous studies on online shopping (Peng et al., 2008; Sorce et al., 2005; Su & Huang, 2011) indicate that PR is a significant predictor of intention. The present study also indicates the same.

Convenience (Con)

The results of this study indicate that convenience is a crucial predictor of behavioural intention towards adoption of online education. Most of the respondents strongly agreed that convenience was one of the good predictors of acceptance of new technology for online learning. Education providers may be remote or distant and students need to physically attend a class, which demands a lot of time, money and energy. Getting education online is convenient. If students can access an online education system any time from any place for study and making transactions, they tend to adopt o-education. This finding validates the results of previous studies on mobile English learning (Yoon & Kim, 2007), mobile banking (Jiang et al., 2013) and switching to internet learning (Chen & Keng, 2019).

Facilitating Conditions (FC)

Facilitating conditions have a positive influence on behavioural intention and use behaviour. The effect of FC on BI is not strong but its impact on use behaviour is the strongest (0.61) among all the variable relationships. The weak positive relationship of FC and BI is contrary to UTAUT and UTAUT2 but a strong relationship between FC and use behaviour (UB) validates the findings of these studies. Education providers should focus on this issue and strive to provide better networks, technical support and resources to enable students to use o-educations systems in a better way.

Behavioural Intention (BI)

Behavioural intention shows a strong positive influence on use behaviour validating UTAUT and UTAUT2 models. It validates other previous studies (Ameen et al., 2018; Ameri et al., 2020).

Demographics

Demographic factors (age, education and gender) are significant influencers. Age has a negative relationship with behavioural intention, which means that younger students have greater intention towards o-education. Similarly, education and BI are negatively related, and this implies that students at lower academic levels have more intention towards o-education. We can say that students in their intermediate level tend to adopt o-education more than graduate level students and so on. The positive relationship of gender and BI suggests that male students incline towards o-education more than female students.

Implications

Theoretical Implications

The purpose of this research was to explore the intentions and behaviours of students towards online education. This study has a number of theoretical implications. First, this study retested the original framework of Venkatesh et al. (2003) to understand the adoption of online education by students. It validates previous research findings and contributes towards the existing knowledge on the subject. Second, the study incorporated three additional predictors, called perceived value, perceived risk, and convenience. Third, this theoretical model also incorporated age, education and gender as demographic variables and tested their direct influence on behavioural intention. In this way, the present study provides an extended UTAUT model for future studies. This enhances the uniqueness of the present study.

Practical Implications

This study has practical implications for students, parents, institutional management, educators, and policy makers. Social influence, perceived value, perceived risk, convenience, and facilitating conditions have significant influence on behavioural intention. These practical implications will help institutions in motivating their students to adopt online education. These findings are also helpful in mitigating the risks perceived by students.

Social influence has a positive influence on behavioural intention. It suggests that students' decisions are affected by people who are important to them. Lecturers and friends of students can encourage students to adopt o-education. Facilitating conditions have the strongest positive impact on use behaviour. Educational institutions and their service providers should provide facilities, resources and timely information to help students in achieving their academic objectives. Institutions can encourage students to adopt online education by improving the quality of course content, providing user-friendly interfaces, and designing the o-education system according to the needs of the students.

The findings regarding perceived value and perceived risk also provide important information. Academic organisations should set reasonable prices that are affordable for students and should serve the students who pay them. This will make courses worthwhile for students and they will find them valuable. Perceived risk has a negative influence on behavioural intention. Students must be provided with a secure online learning system at no extra charge. The relationship between convenience and behavioural intention is also significant. It implies that online education providers must ensure that their system is accessible all the time, and that their staff members are vigilant to solve online queries.

Students' decisions to engage in o-education depends on access to the system, making fee payments and availability of responses to their queries. Education providers need to ensure consistency between students' expectations and system convenience by providing adequate information and easy and flexible payment methods. Demographic variables have a significant impact. Educators must be well aware of the priorities, inclinations and needs of students, with respect to their age, education level and gender. This will help in serving students better and attracting more of them.

Limitations and Recommendations

This study is coupled with a number of limitations. These limitations can be used as a basis for future studies. First, this study was conducted in one district only due to lack of resources. Future studies could cover a wider geographical area. Second, it is a cross-sectional study and future researchers could use the model of this research to conduct longitudinal studies. Longitudinal studies will help in understanding the changes in students' behaviours and intentions towards online education over a period of time. The third limitation is demographics; since the present research included only three demographic variables (age, education and gender). Further research could include additional variables, for example, parents' employment, income and education levels, house ownership and ethnicity. The use of the Convenience Dimension is also a limitation of this study. There are five dimensions of convenience (SERVCON), namely, post-benefit convenience, transaction convenience, benefit convenience, decision convenience and access convenience (Seiders et al., 2007). The author considered only access convenience in the present study. Future researchers could apply other dimensions as well. The present research was conducted through the lens of Unified Theory of Acceptance and Use of Technology (UTAUT) but developed the model further. Future researchers could use the model in studies pertaining to education and other fields.

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Appendix: Online Education Measures and Sources

Measures	Adapted from
Performance expectancy	
I would find online education system useful in my studies.	Venkatesh et al. (2003)
I can complete my tasks more quickly.	
Online education will increase my performance.	
Online education helps in collaborations with other students.	
Effort expectancy	
I can easily learn online learning system.	Venkatesh et al. (2003)
This education system is easy to use for me.	
I will become skillful at online learning system.	
I have to make less effort as compared with face-to-face education.	
Social influence	
People who are important to me think that I should study online.	Venkatesh et al. (2003)
People who influence my behavior think that I should study online.	
Senior students suggest me to study online.	
My friends think and recommend me online education.	
Perceived Value	
Online education is reasonably priced.	Venkatesh et al. (2012)
Online education is a good value for the money.	
Online courses are worthwhile.	Chang and Wang (2011)
I get from online courses for what I pay.	
Perceived Risk	
I will have to pay extra costs for online study.	Dowling and Staelin (1994), Sarkar (2011)
Institute or service providers might overcharge me.	
I may not get what I want from online education.	
I cannot trust the performance from online education.	
Convenience	
I can study anytime I want.	Jiang et al. (2013)
The website is always accessible.	
It is very convenient to pay fee in online education.	Beauchamp and Ponder (2010)
It is very convenient to find answers of frequently asked questions (FAQS) from the website.	
Facilitating conditions	
I have the resources necessary to use online education system.	Venkatesh et al. (2003)
I have the knowledge necessary to use online education system.	
Online education system is compatible with my mobile/ PC/laptop.	
I can get help from others when I have difficulties in using online education system.	
Behavioral intention	
I intend to use online system in the next semester.	Venkatesh et al. (2003)
I intend to study always online in the future.	
I will suggest others to study online.	
Use Behavior	
Getting education online is a good idea.	Venkatesh et al. (2003)
Online education makes study more interesting.	
Using online education system is fun.	
I like using online education system.	