

# An evaluation of online students' persistence intentions

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## Abstract

**Purpose** – The high dropout rate among online learning students is a serious issue. Using the theory of planned behavior as a framework, this study investigates what effect attitude, opinion of others and perceived ease of online learning technologies leave on Pakistani online students' persistence intentions.

**Design/methodology/approach** – The sample of this study comprises 320 students enrolled at a distance learning university in Pakistan. Online questionnaires are used to gather data for the study. Correlations and regression analysis are run to figure out the effect of independent variables on the dependent variable of the study.

**Findings** – The findings of the study show that 51% variance in online students' persistence intentions can be explained by personal attitude, subjective norms and perceived behavioral control.

**Research limitations/implications** – The use of a non-random sampling technique along with a cross-sectional design form the major limitations of the study.

**Practical implications** – The outcome of the study may help online education providers as well as policymakers to design programs and initiatives to improve students' retention in online study programs.

**Originality/value** – The study contributed to the extant literature by finding out Pakistani online students' persistence behavior is affected by their attitude, subjective norms and perceived ease of online learning. The study also found that the opinion of people closely related to students influences their study persistence decisions.

**Keywords** Online learning, Persistence, Dropout, Intentions, Opinion of other people

**Paper type** Research paper

## Introduction

The invention of online education technologies has revolutionized students' entire learning experience (Harasim, 2017). The online mode of education is gaining popularity among students because it offers greater flexibility and convenience to the learners (Yukselturk, 2009). Despite the growing approval, the number of students who successfully complete their online courses is lower than the traditional mode of education (Rostaminezhad *et al.*, 2013). As a matter of fact, student dropout is prevalent both in online (Bawa, 2016; Hart, 2012) as well as conventional mode of educations (Dewberry and Jackson, 2018; Morrison and Silverman, 2012). However, higher dropout rates in online education present a major challenge to online education providers (Chiyaka *et al.*, 2016).

Given the prevalence of student dropout and its importance to learning outcomes, student retention is among widely researched topics. It is clearly evident from the number of studies conducted in various countries of the world including Australia (Rubin and Wright, 2017), Chile (Santelices *et al.*, 2016), Latvia (Paura and Arhipova, 2014) and UK (Dewberry and Jackson, 2018).

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Despite the popularity of student retention among the research community little theoretical development is observed (Dewberry and Jackson, 2018). Since most of the studies attempted to predict student persistence either without using any theoretical framework such as studies based on data mining techniques (Yukselturk *et al.*, 2014) or focusing on academic and social integration factors. In the later stream of research, Tinto's (1975) sociological student integration theory of retention has been used predominantly to investigate students' persistence.

Numerous studies have emphasized the importance of early identification of students' potential dropout as it can help design interventions that might effectively enhance students' retention (Harasim, 2017; Inan *et al.*, 2009). The first type of studies discussed above with their lack of theoretical framework and retrospective nature are not suitable to predict a dynamic and multifaceted phenomenon. The second stream of research consisting of student integration theory of retention struggle to show consistent results. Even a few studies find this approach failed to predict students' intentions to dropout (Dewberry and Jackson, 2018).

Since voluntary student dropout involves an active choice, therefore, modern process-based psychological theories can better explain the phenomenon compared to traditional sociological models of student persistence (Dewberry and Jackson, 2018).

Investigating students intentions to dropout in conventional education settings, Dewberry and Jackson (2018) show that the theory of planned behavior explains 61% of the variance in students intentions to quit while on the other hand, factors associated with students' academic and social integration failed to predict their intentions to quit.

By applying the theory of planned behavior, Dewberry and Jackson (2018) made a significant theoretical contribution to the research of student intentions. But their research was carried out in conventional education settings within the United Kingdom. We are less sure if their findings hold for varying contexts in different geographic locations such as online education in Pakistan.

Online education with its distinctive features differs considerably from conventional mode of learning such as the absence of physical interaction among students, and between teacher and students (Gillett-Swan, 2017). Similarly, Pakistan presents a different context from the United Kingdom due to its unique cultural, social and economic profile (Hussain, 2005; Roomi and Parrott, 2008).

Considering these differences, it is worthwhile to conduct a study to understand students' retention behavior in the context of online education in Pakistan. Using theory of planned behavior this study intends to investigate Pakistani online students' intentions to persist with their online courses and programs. The findings of the study, in general, would help policymakers to design initiatives and interventions that could improve learning outcomes by enhancing online students' persistence rates (Harasim, 2017; Inan *et al.*, 2009). Particularly, the outcome of the study would help better explain and understand student dropout phenomenon in the context of online education in Pakistan.

## Literature review

### *Persistence and dropouts*

The advances in the internet and web technology allow educational institutes to design and offer convenient and flexible learning programs (Yukselturk, 2009). These technologies played a fundamental role in the proliferation of online degree programs and courses (Allen and Seaman, 2011). Despite numerous advantages of online mode of education, students' dropout rate is much higher in online courses than conventional learning courses (Rostaminezhad *et al.*, 2013). The number of students who fail to complete their online courses varies from country to country, for example, it is 35% in Open University UK (Smith, 2006), 36% in Turkey (Yukselturk and Inan, 2006) and 54% in US Midwestern University (Park and Choi, 2009). These findings point to the presence of contextual factors that play out to form different barriers to restrict the course completion rates.

The above lines show that online students dropout is a globally prevalent issue and different countries experience a varied dropout rate pointing to the different role contextual factors play in each country.

There are several terms used in the literature to mention failure and success in an online course such as dropout, attrition, retention and persistence respectively. The dropout and persistence are used to describe two opposite but related sets of factors leading students to successful completion or failure to complete their online programs. In other words, the lack of persistence results in students' online course dropout.

The persistence or dropout involves a set of diverse and complex factors excluding knowledge which interact to result in students' success or failure (Park and Choi, 2009; Rovai, 2003; Tello, 2007). Lee and Choi (2011) noted that definitions of dropout are inconsistent, but they broadly represent the failure to complete an online course. For example, Levy (2007) describes dropout as a voluntary act of withdrawing from an online course after a certain time period resulting in financial penalties. Other scholars refer to dropout simply as non-completion of a course (Liu *et al.*, 2009).

The persistence is considered as a multifaceted phenomenon that facilitates the completion of an online course (Hart, 2012; Haugan *et al.*, 2019). There is a lack of consensus on which factors significantly contribute to online students' persistence (Levy, 2007; Müller, 2008). Majority of the studies investigating factors leading students to drop out from online courses used Tinto (1975) and Kember (1995) models. These models emphasize that student persistence in an online course largely depends upon their academic and social integration. The successful academic integration can be facilitated by factors such as course design, psychological attributes and institutional support (Lee and Choi, 2011). For example, investigating the factors that contribute to a successful online doctorate program, Rockinson-Szapkiw *et al.* (2016) found factors related to social and academic integration can predict online doctoral students' persistence. Similarly, Rovai (2003) using student integration theory found that there is a range of factors that affect students' persistence in online courses and programs.

For social integration of students, these studies argue that financial and emotional support from family, friends, employers and colleagues is crucial. (Holder, 2007; Ivankova and Stick, 2007). These studies are based on an inadequate theoretical model that fails to explain a situation wherein an active choice is involved such as opting to dropout (Dewberry and Jackson, 2018). In addition, these studies consider others' support important for students' successful online course completion, while they ignore the influence students closely related peoples' opinion on their persistence decisions. The present study assumes that the opinion of students' closely related people influences their intentions which, in turn, affect their persistence.

Despite the wide application of Tinto's (1975) student integration theory, there are certain problematic issues associated with this theoretical approach. First, it is a complex model involving nine variables, nine casual paths and three proposed associations between variables (Dewberry and Jackson, 2018). Second, this approach has resulted in inconsistent results with some studies showing that student integration theory failed to predict students' persistence intentions (Dewberry and Jackson, 2018).

There are a few studies that attempted to explore students' persistence using a psychological processing approach. Focusing on the intention behavior link, these studies explored the persistence intentions as an antecedent of the dropout behavior. For instance, Koller *et al.* (2013) have investigated the students' persistence intentions but they measured it by evaluating four behavioral patterns. Linking behavioral patterns with intentions, these authors did not take into account related theories and empirical research on intentions (Henderikx *et al.*, 2017). Later on, Henderikx *et al.* (2017) measured students' intentions to construct their retention profiles. Their study focused on the intention to behavior link but did not investigate the antecedents of the intention. In another study, Henderikx *et al.* (2018) found four barriers namely technical and online related skills, social context, course design and time,

support and motivation, that affect persistence intentions. But this study ignores the role of personal attitude in shaping the persistence intentions. Moreover, it lacks a theoretical underpinning to explain how these barriers affect intentions. Yet another study investigating persistence intentions found that online course continuance is shaped by system quality, course quality, service quality, perceived ease of use, and perceived usefulness (Yang *et al.*, 2017). Again, this study's findings are limited as it fails to consider a range of students intentions related factors such as personal and social elements and their relationship with intentions.

In this backdrop, theory of planned behavior provides a theoretically more robust alternative to investigate students' persistence intentions. There are several characteristics that make theory of planned behavior a better theoretical framework to investigate and predict students' intentions. First, it involves only three variables and is easier to conduct. Second, theory of planned behavior is not specific to student retention and dropout like student integration theory of retention, decision to persist with a study program or a course represents one of the several examples of behavioral change where attitude, subjective norms and self-efficacy play a role in shaping the behavior. On the other hand, Tinto's model is theoretically isolated.

Third, the theory of planned behavior presents an effective theoretical framework that can be used to "organize and systematize" several factors empirically associated with student retention. For example, Sembiring (2017) found that academic excellence influences online students' persistence and loyalty to the institute, but the author did not offer any theoretical explanation of it. Dewberry and Jackson (2018) argue that perceived academic progress is likely to influence students' persistence by shaping their attitude and self-efficacy toward the course.

Finally, studies investigating students' persistence intentions using theory of planned behavior produced consistent results. For example, the theory of planned behavior is used successfully to predict the intentions of African American students to complete their high schools (Davis *et al.*, 2002). In another study, Sutter and Paulson (2017) showed that theory of planned behavior can successfully predict university students' intentions to graduate.

The following lines offer a brief view of theory of planned behavior as well as discuss the relationship between elements of this psychological theory and students' persistence intentions. The hypotheses involved in this study are also discussed.

#### *Theory of planned behavior*

The theory of planned behavior argues that individual behavior is driven by intentions whereas behavior related intentions are influenced by three factors: an individual's attitude towards behavior, subjective norms and perceived behavioral control (Ajzen, 1991). In other words, intention highlights the likelihood of an individual to behave in a certain way (Fishbein and Ajzen, 1975). Any change in three elements may trigger a behavioral change by influencing behavior related intentions. Putting it differently, personal attitude, subjective norms and perceived behavioral control serve as an antecedent to a planned behavior's intentions.

The theory of planned behavior has successfully demonstrated to predict the individual behavior in various contexts such as technology (Cheon *et al.*, 2012), entrepreneurship (Kautonen *et al.*, 2015), consumer choice (Paul *et al.*, 2016), customer decision making (Han and Kim, 2010), healthcare (Côté *et al.*, 2012) and environment-related issues (Greaves *et al.*, 2013).

The attitude towards a behavior highlights the extent to which one likes or dislikes a behavior. The subjective norm shows an individual's perception of how people important to the individual view that behavior. The perceived behavioral control reflects an individual's perception of ease and difficulty in performing a behavior. In the following lines, the study presents a brief view of these three constructs and discusses their relationship to the study.

#### *Personal attitude and students' intentions*

As noted earlier, personal attitude depicts the extent an individual has favorable or unfavorable feelings towards a behavior. Previous studies show that attitude is a strong

predictor of the intention (Ajzen and Fishbein, 2000; Glasman and Albarracin, 2006). The attitude of the students enrolled in an online program depends upon their views about online learning (Zebregs *et al.*, 2015).

There are certain characteristics of online learning which distinguish it from the conventional mode of education. The e-learning or online education system allows students greater control over their learning by offering them the flexibility of time and space (Kaplan and Haenlein, 2016). Online education offers the opportunity to acquire knowledge and skills to individuals who due to time and space limitations cannot attend conventional educational institutes such as working professionals. Such individuals are highly likely to appreciate online learning because of the flexibility it offers to them.

By joining an online program, a student can connect with a large community of online learners (Habibi *et al.*, 2018). It offers a great opportunity to connect with like-minded people virtually around the globe. The people who tend to develop their professional and personal networks, online courses with huge potential to develop social connections with a wide range of people have a tremendous appeal for them (Chen *et al.*, 2018). The students with a tendency to develop social connections are most probable to have favorable opinions about online study courses and programs. The students who possess favorable opinion about online mode of education are most likely to complete their courses and degrees.

Despite the benefits which online learning can bring to the students, there are certain challenges associated with it which may make some students struggle in this mode of education. Unlike conventional education, online education requires students to take responsibility for their own learning (Wang *et al.*, 2013). The students have to make a lot of effort and dedicate time to effectively manage their learning progress (Khan *et al.*, 2017). The success largely depends upon students' ability to effectively set their schedules and manage their studies. Meeting deadlines is an important element of the online learning system (Harasim, 2017). Not everyone is comfortable to plan, monitor and manage their own learning progress (Kuo *et al.*, 2013). It is likely that people who are not good at these attributes may not look at online education favorably.

Online education provides a virtual learning experience where students and teachers without having physical or face to face contact interact with each other. Not everyone enjoys virtual interaction; therefore, it is likely that some people find it difficult to electronically interact with their peers and teacher (Harasim, 2017). Consequently, they hold an unfavorable view of the online learning system. The students who possess a negative view of online learning are highly likely to drop out from their courses and degrees.

Based on the above discussion, the study proposes the following hypothesis;

*H1.* The personal attitude of online students is related to their intentions to persist in the online education system.

### *Subjective norms and students' persistence intentions*

Subjective norms represent individuals' perceptions of how people around them would view performing a certain behavior. As noted earlier, theory of planned behavior provides a way to consider the influence of opinion and thoughts of other people. According to the theory of planned behavior, individuals value the opinion and views of the important people around them and it affects their likelihood of engaging in a certain behavior (Ajzen, 1991).

In an online environment, students may approach their senior fellows for advice and guidance. Since senior students hold experience of studying in an online environment, they can effectively shape the mind of new students by sharing their practical experience of issues and challenges which may arise during the course of online learning (Yu *et al.*, 2010). The opinion and views of the senior students may strongly influence new or relatively inexperienced students' perception of the online learning system. Family and friends may

also shape the perception of online students about online learning. For example, if family members and friends believe that online education can impart valuable knowledge and skills to students, it is likely to affect how online students perceive an online course or program.

Peers may also influence the perception of online students about their online learning experience (Boud *et al.*, 2014). Moreover, students may also listen to various education experts. If those opinion leaders are critical of online education's learning outcomes, then their opinion may affect students' perception of online learning (Allen and Seaman, 2011). In light of the above discussion, the study proposes the following hypothesis;

- H2. The subjective norm is related to online students' intentions to persist in an online program.

#### *The perceived behavioral control and students' persistence*

Online education is different from the conventional mode of learning since students do not interact face-to-face with their instructors and classmates (Harasim, 2017). In online courses, students are responsible for their own learning (Wang *et al.*, 2013). For the successful realization of learning outcomes, online programs' students are required to exhibit a self-regulated learning behavior (Al-Sheeb *et al.*, 2019; Broadbent and Poon, 2015). Their perception of the extent they feel ease or difficulty in performing a certain task plays an important role in their self-regulated learning. The previous studies show that the perception of having the required skills and knowledge is related to the intentions to persist as well as to students' performance and success (Au *et al.*, 2018; Brown *et al.*, 2008). In fact, the perceived behavioral control element of theory of planned behavior is similar to the concept of self-efficacy (Ajzen, 2002, 2006). Bandura (1997) defines self-efficacy as individuals' belief that they can perform at a high level and accomplish success in a particular domain. Therefore, in the context of this study, the students who believe that they have the required skills and knowledge to accomplish success by displaying high-level performance possess online learning self-efficacy.

The research on self-efficacy in the context of online learning focuses on students' use of computers or the internet. The self-perception that one can effectively use computers leaves positive effects on students' learning (Chen *et al.*, 2010). The positive self-assessment of students' own capabilities to complete an online course is associated with their online learning satisfaction (Shen *et al.*, 2013). Another study finds that internet self-efficacy is a good predictor of students' satisfaction (Kuo *et al.*, 2013). In light of this discussion, the study formulates the following hypothesis;

- H3. The perceived behavioral control relates to students' intentions to persist in an online course.

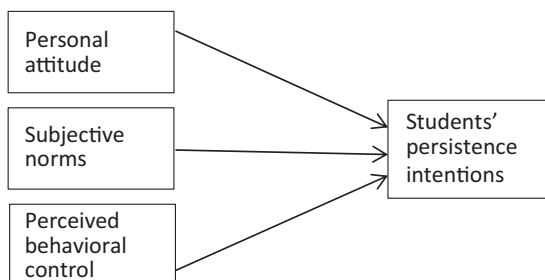
#### *Persistence intentions*

Intentions are the best predictor of any planned future behavior (Krueger *et al.*, 2000). Developing a better understanding of the antecedents of the intention can help us better understand the intended behavior (Krueger *et al.*, 2000). According to theory of planned behavior, intentions are influenced by personal attitude, subjective norms and perceived behavioral control which in turn impact future behavior (Ajzen, 1991). In the context of this study, the students' persistence or dropout behavior can be explained from their intentions which are shaped by their personal attitude, subjective norms and perceived behavioral control.

#### *Theoretical model*

Considering the above discussion, the study adopts following theoretical model in order to evaluate students' persistence in online courses (see Figure 1).



**Figure 1.**  
Theoretical model

### Research methodology

The study involves students enrolled in various online courses offered by a Pakistani online distance education university. The students belong from the management sciences and social sciences faculties. This study involves convenience sampling which is a type of non-probability or non-random sampling. With convenience sampling, a researcher selects respondents because of their convenience of accessibility, availability at a particular time and geographical proximity (Etikan *et al.*, 2016). Using this technique, a request to students for participation in the study was placed over the university's Learning Management System (LMS). As a result, 127 students filled the online questionnaire, seven days later, a follow-up notice was placed over the LMS requesting students to complete the online questionnaire. Consequently, the number of respondents rose to 320.

In order to measure the variables of this study – personal attitude, subjective norms, perceived behavioral control and persistence intentions, a questionnaire is adapted from Ajzen (2006). The questionnaire is powered by “Google Docs” and a link to the questionnaire is provided to the respondents allowing them to fill in the online questionnaire. As the questionnaire used in this study was adapted, therefore, the opinion of two individuals with relevant knowledge and expertise was sought on the content of all items comprising this questionnaire. After having their feedback, relevant modifications and changes were made in the questionnaire. In this way, the face and content validity of the questionnaire is established (Bolarinwa, 2015). Since theory of planned behavior questionnaire has been widely used by various studies (Paul *et al.*, 2016) to assess behavior related intentions, it points to the high construct validity.

The Cronbach's alpha values are calculated for all questionnaire items intending to measure the different variables of the study. The Cronbach's alpha value for the personal attitude, subjective norms and the perceived behavioral control is 0.74 respectively. While the persistence intentions variable shows 0.78 Cronbach's alpha value. All these values lie above the Cronbach's alpha acceptable value level of 0.70 (Nunally and Bernstein, 1994).

A brief description of how the variables involved in this study are measured is provided below.

#### *The personal attitude*

The personal attitude of respondents is assessed using various statements about salient features of online education such as self-scheduling, meeting deadlines, interacting with peers and teachers, etc. The Cronbach's alpha for items measuring personal attitude is 0.74. The respondents rated their response on a 5-point Likert-scale to statements such as, “I dislike online education because I cannot see my teacher and class fellows”.

#### *The subjective norms*

This variable is evaluated by analyzing students' friends, family, peers, and colleagues' views on the effectiveness of online learning. The questionnaire items consist of four statements

(Cronbach’s alpha 0.74) such as, “My friends believe online education imparts valuable skills and knowledge”.

*The perceived behavioral control*

It captures respondents’ views about having the required skills and capabilities to address the demands of an online course. The Cronbach’s alpha for the questionnaire items measuring perceived behavioral control is 0.74. The variable consists of 10 statements designed to measure students’ ability to locate certain online content, computer using skills, effective communication skills, ability to meet deadlines, etc. The respondents are asked to rate their response on a 5-point Likert-scale to statements such as, “I can effectively communicate with my teachers and peers”.

*Persistence intentions*

Intentions to persist are measured using three items. It includes statements such as, “I am thinking to switch to the conventional mode of learning”. The Cronbach’s alpha for items measuring intentions is 0.78.

*Analysis and results*

Majority of the respondents (65%) are among 18–25 years age group. They are predominately male (64%) and 56% of respondents are working professionals as shown in Table 1.

Table 2 shows how variables of the study are related to each other. According to Table 2, subjective norms exhibit the strongest correlation with intentions  $r = 0.671, n = 320, p < 0.01$ . It means an increase in the subjective norms is associated with a rise in intentions. Personal

**Table 1.**  
Descriptive analysis

Demographic	Frequency	Percentage (%)
<i>Age</i>		
18–25 Years	228	65.1
26–36 Years	98	28.0
37–47 Years	23	6.6
47 Years and above	1	0.3
<i>Gender</i>		
Male	227	64.9
Female	121	34.6
Prefer not to mention	3	2
<i>Professional</i>		
Yes	198	56.6
No	152	43.4

**Note(s):**  $n = 320$

**Table 2.**  
Correlations matrix

Constructs	1	2	3	4
Subjective norms	1	0.488**	0.211**	0.671**
Personal attitude	0.488**	1	0.039	0.531**
Control behavior	0.211**	0.039	1	0.176**
Intensions	0.671**	0.531**	0.176**	1

**Note(s):** \*\*. Correlation is significant at the 0.01 level (2-tailed)



attitude also has a strong correlation with persistence intentions as evident from  $r = 0.531$ ,  $n = 320$ ,  $p < 0.01$ . The perceived behavioral control with  $r = 0.176$ ,  $n = 320$ ,  $p < 0.01$  exhibits a weak relationship with students' persistence intentions variable as exhibited by Table 2. Overall, two variables of the study – personal attitude and subjective norms – demonstrate a strong correlation with the persistence intentions while perceived behavioral control denotes a weak relationship as shown in Figure 2.

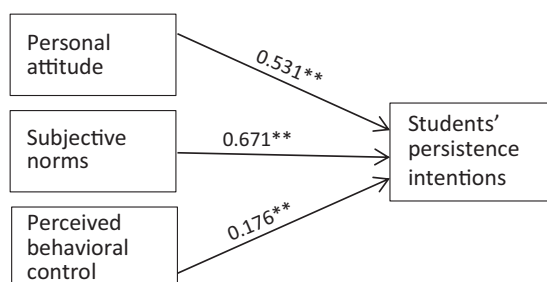
Additionally, in order to further analyze the relationship between predictor (personal attitude, subjective norms and perceived behavioral control) and outcome (persistence intentions) variables, a multiple linear regression analysis is run. The use of regression analysis is in line with Sutter and Paulson (2017) who using theory of planned behavior investigated college students' intentions to graduate. The findings of the analysis are presented in Table 3.

The findings show that subjective norms with  $B = 0.617$  is the largest contributor to the outcome (persistence intentions) variable. It means one unit increase in subjective norms results in 0.617 unit change in the persistence intentions. With  $B = 0.247$ , personal attitude is the second largest contributor to the outcome variable – intentions. A one unit increase in personal attitude triggers a 0.247 unit change in the persistence intentions. The perceived behavioral control with  $B = 0.213$  shows one unit change in perceived behavior control accounts for 0.213 unit change in the outcome variable (persistence intentions).

The standardized coefficient  $\beta$  provides another way of looking at predictor and response variables relationship (Seber and Lee, 2012). The data listed in Table 3 shows that one SD change in subjective norms results in 0.53 unit variation in the outcome variable.

The above discussion shows that a variation in predictor variables (personal attitude, subjective norms and perceived behavioral control) is associated with a change in the outcome variable (persistence intentions).

The  $t$ -statistics help us to determine the extent parameters found in a sample are expected to be found in the population from where the sample is drawn. Larger the  $t$ -statistics value and smaller the  $p$  value, more are we confident that our calculated relationship holds true for the population (Field, 2013). The  $t$ -statistics values and corresponding  $p$  values (subjective norms  $t$ -statistics = 11.372,  $p = 0.000$ ; personal attitude  $t$ -statistics = 5.979,  $p = 0.000$ ;



**Figure 2.**  
Theoretical model with  
correlational values

Predictor	<i>B</i>	SE ( <i>B</i> )	$\beta$	<i>t</i>	Sig ( <i>p</i> )
Subjective norms	0.617	0.054	0.527	11.372	0.000
Personal attitude	0.247	0.041	0.271	5.979	0.000
Perceived behavior Control	0.213	0.058	0.154	1.345	0.000

**Note(s):** Adjusted  $R^2 = 0.503$ ,  $R^2 = 0.508$ ,  $F(3,316) = 108.546$ ,  $p < 0.001$

Dependent Variable: Intention

**Table 3.**  
Regression analysis

perceived behavioral control  $t$ -statistics = 1.345,  $p = 0.000$ ) as shown in Table 3, reveal that the relationship found in the sample is representative of the original population. In other words, based on the data of the study, we expect the persistence intentions of students studying in a Pakistani online distance education university are shaped by their personal attitude, subjective norms and perceived behavioral control.

Overall, the regression model shows that it accounts for 51% of the variance in the students' persistence intentions ( $R^2 = 0.508$ ,  $F(3,316) = 108.546$ ,  $p < 0.001$ ). Again, close values of  $R^2 = 0.508$  and adjusted  $R = 0.503$  show that the model holds for both the sample as well as the original population (Seber and Lee, 2012).

None of the predictor variables' mutual correlation is equal to or above 0.80, gives a crude idea that multicollinearity is not a problem (Field, 2013). Further, all three independent variables (personal attitude, subjective norms and perceived behavioral control) make significant individual contributions to the variation in the dependent variable (persistence intentions), it also indicates that multicollinearity is not meddling with the outcome of the analysis (Seber and Lee, 2012). In order to get more subtle estimates of multicollinearity Variance Inflated Factor (VIF) is calculated. The VIF scores are below 10 and tolerance scores are above 0.2 indicating that multicollinearity is not affecting the results of the study. With this, findings of the study provide sufficient support to all three hypotheses – H1, H2 and H3 of this study.

### Discussion and conclusion

The present study aims to measure the persistence intentions of the students studying in various online courses using theory of planned behavior. The study is concerned to empirically investigate the factors that influence online students' persistence. The findings of the study reveal that theory of planned behavior can successfully measure and predict the persistence intentions of students enrolled in various online courses.

With this, the study supports Davis *et al.* (2002) who using theory of planned behavior predicted African American students' intentions to complete their high schools. The results of the study also confirm Sutter and Paulson (2017) who predicted university students' intentions to complete graduation using theory of planned behavior. Similarly, the findings of the study are in line with Dewberry and Jackson (2018) who found that theory of planned behavior explains 61% variance in students' intentions to quit.

The study makes several important contributions to the students' persistence or dropout literature. The study is first to use theory of planned behavior to investigate the persistence intentions of the online students. Considering the differences between conventional and online mode of education such as the absence of physical interaction between teacher and students (Gillett-Swan, 2017), the findings of the study can help to understand the students' persistence or dropout-related issues in the context of online environments.

Second, the study demonstrated that students highly regard the opinion of their closely related people while making dropout or persistence decisions. Since the results show 61% variance in the persistence intentions can be explained by the subjective norms variable. It clearly denotes that online students' friends, family members, peers and colleagues' opinion play an important role in determining if they would continue with their courses or they would quit.

With this, the study extends findings of the previous studies which argue the emotional and financial support of online students' closely related people play an important role in their decisions to drop out or persist. It is not just emotional and financial support that matters, the opinion of closely related people such as peers, family members and colleagues also determines whether students would continue or quit their online studies.

The findings of the study also lend support McGhie (2017) who emphasized the importance of making right friends who can support, encourage and assist students academically.

Third, the study is carried out using data from students enrolled in an online Pakistani university. Pakistan being an Islamic as well as a developing nation exhibits several unique

cultural, social and economic characteristics (Hussain, 2005; Roomi and Parrott, 2008), the research outcome of the study can help understand students' persistence in idiosyncratic context of Pakistan.

The study endorses previous studies that consider persistence as a multifaceted construct (Au *et al.*, 2018; Hart, 2012; Haugan *et al.*, 2019). Adopting a multidimensional approach consisting of attitude, others' opinion and self-efficacy this study shows that 51 % variance in online students' persistence intentions can be explained by these elements of theory of planned behavior. Together with the findings of Dewberry and Jackson (2018) who found theory of planned behavior explains 61% variance in college students' intentions to leave. The results clearly show that theory of planned behavior can effectively assess students' persistence intentions both in conventional as well as online mode of education.

By using three factors as antecedents to students' persistence intentions and then demonstrating individual influence of each element on the students' persistence intentions, the study contributes to the literature by addressing the calls of delineating factors that significantly contribute to the online students' persistence (Levy, 2007; Müller, 2008).

The past studies have emphasized the importance of self-efficacy in students' achievement of learning outcomes, satisfaction and persistence (Au *et al.*, 2018; Chen *et al.*, 2010; Kuo *et al.*, 2013; Shen *et al.*, 2013; Wang *et al.*, 2013), the findings of the present study endorse the results of previous studies by showing a link between perceived behavioral control and persistence related intentions.

The majority of respondents of the study are working professionals. It lends indirect support to the idea that online education allows working professionals to advance their qualifications and knowledge by overcoming the issues of time and space. However, further research is required to assess the extent working professionals find online education beneficial in addressing their learning needs.

There are several practical implications of this study that may prove useful to online education providers. Since the findings of the study show that the personal attitude towards online education explains 24% of variance in persistence intentions. Therefore, it is critical for online education managers to consider attitude-related issues in the designing of online courses. In particular, they need to focus on following two important issues.

First, the managers involved in the design and delivery of online programs need to highlight salient features of online education in general and their programs in particular. It is likely that based on this information students start rating their programs favorably leading to develop a positive attitude towards online education.

Second, it is critically vital to find out factors that lead students to develop a negative attitude towards online study programs. With knowledge of such factors, online education providers need to develop interventions which can effectively address students concerns, issues and problems leading them to develop a positive attitude towards online learning.

Third, since findings of the study show that students value the opinion of others while making persistence decisions. This may involve their friends, family members, peers and colleagues. It is a challenge for online education providers to find ways to spread favorable word-of-mouth about the quality of the learning experience they offer to their students. It also implies that online learning programs need to be of high quality, any issues and problems with the design and delivery of the online programs may likely to create a bad reputation for online learning in general and those programs, in particular. It may result in dissatisfied students leading to a high dropout rate.

The results of the study demonstrate that self-efficacy explains a 21% variation in persistence intentions. It implies online students' self-efficacy can influence their study persistence decisions. Therefore, the fourth practical implication of this study is online education institutes should carefully assess the abilities and skills of their students. In case a

mismatch exists between students' current and required abilities and skills, appropriate interventions should be designed to make up for the deficiencies of the students.

Finally, it is likely that students with conventional education backgrounds find it hard to go with the self-regulated nature of online education (Posey and Pintz, 2014). And this transition may have implications for their self-efficacy. However, we recommend further research to clearly demonstrate the link between transition from conventional to online mode of education and its effect on students' self-efficacy.

A strong orientation program with an aim to help students to make a smooth transition from conventional to the online mode of learning may help students establish a realistic idea of the challenges and ways to address them.

### Limitations

This study has several limitations that need to be considered while interpreting its findings. First of all, the sample drawn from the population is not a simple random sample. It means we are less sure that the sample used in this study is truly representative of the original population.

Second, this study consists of a cross-sectional design that calculates the findings of the study at a particular point in time. Haugan *et al.* (2019) conducted a longitudinal study to assess factors associated with upper secondary school students' intentions to leave. Similarly, a longitudinal study may better investigate the extent elements of theory of planned behavior can influence online students' persistence intentions.

### Future research

The future researchers can make a number of contributions to allow a better understanding of issues related to students' persistence or dropout. It would be worthwhile to examine the relationship between personal attitude and subjective norms. The researchers can raise particular question such as "Do the opinion of students' closed circle people affects their personal attitude towards online education?"

Since this study found online students consult and value the opinion of their peers, friends, family members or colleagues. Valuable contributions can be made by exploring whose opinion students pay the most attention to form their closed circle people while making persistence decisions. The finer-grained knowledge can be developed by investigating differences between students who intend to quit and those who intend to persist in terms of their opinion seeking behavior. Do students with persistence intentions most likely rely on their family members opinions or vice versa?

Another useful contribution can be made by investigating if the opinion of important people just affects students enrolled in online programs or it also influences the persistence of students studying in a conventional mode of learning.

By adopting a longitudinal research design, future studies can shed light on to what extent students with intentions to persist are able to actually exhibit that behavior and what effects it has on their learning performance. Therefore, longitudinal studies are recommended to better delineate the effects of three elements of theory of planned behavior on online students' persistence intentions.

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