QATAR UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

FACTORS AFFECTING STUDENTS' SATISFACTION WITH ONLINE LEARNING

IN HIGHER EDUCATION IN QATAR

BY

ALAA ABDULRAOUF ABUHUZAIMA

A Thesis Submitted to

the College of Business and Economics

in Partial Fulfillment of the Requirements for the Degree of

Master of Business Administration

June 2021

COMMITTEE PAGE

The members of the Committee approve the thesis of

Alaa Abuhuzaima defended on April 25, 2021.

<div style="text-align: right;">

_____

Dr. Emad Abushanab

Thesis/Dissertation Supervisor

_____

Prof. Belaid Aouni

Committee Member

_____

Dr.Mohamed Nishat Faisal

Committee Member

</div>

Approved:

Dr. Adam Mohamed Fadlalla, Dean, College of Business and Economics

ABSTRACT

ABUHZAIMA, ALAA, A, Masters: June: [2021], Master of Business Administration.

Title: <u>Factors Affecting Students' Satisfaction with Online Learning in Higher Education in Qatar</u>.

Supervisor of thesis: Dr. Emad,A, Abushanab.

This effort seeks toward exploring the major factors that play an essential part in enhancing students 'satisfaction with online learning experience in higher education in Qatar, before and during the COVID-19 pandemic. The Unified Theory of Acceptance and Use of Technology (UTAUT) model was expanded by integrating three new components to study student's satisfaction with online learning such as course design, student engagement and assessment method. Quantitative research methods were adopted, and data were collected from 750 students at four Universities in Qatar through an online survey questionnaire. The SPSS statistical software was applied to test the research model and to examine the reliability and validity of the data obtained from the questionnaire. Based on the findings, student engagement, assessment method, course design and continuance use of online learning were shown to have a substantial influence on students' satisfaction. Performance expectancy and social influence were exhibited to have a considerable impact on continuance use of online learning. Nevertheless, the influence of effort expectancy and facilitating conditions on continued use of online learning was found to be statistically insignificant. Moreover, the effects of age, gender, educational level, and nationality were also explored. It was found that there was a considerable discrepancy among the two genders, the different ages, educational level and nationalities on the different constructs

of the model. The results of this study offer many academic institutions contributions in understanding factors affecting student's satisfaction with online learning in Qatar. The findings definitely, provide insight into how colleges and universities in Qatar can effectively improve online students' experience with online learning Qatar.

Moreover, this research presented a conceptual model to shed the light on the shortness and provide a better explanation and understating to the factors affecting student's overall satisfaction and the relationships between them.

DEDICATION

I dedicate this research to my family, my mom, my dad, my brothers, and Sisters.

I wish if I can find words that really express my sincere gratitude to my mother and father for their continuance support in different aspects of life.

Thank you for being a great mother and father!

ACKNOWLEDGMENTS

First and foremost, my gratitude goes to Allah the Almighty God for blessing me with the opportunity to extend my study to this level and blessing me in every stage of my life. It would not have been possible to write this Master's thesis without the help and support of the kind people, family, and friends around me.

Above all I would like to express my feelings toward Professor Dr. Emad Abushanab, He has encouraged, supported, and guided me during all stages of my Maters studies and who has been a great mentor for me, and helped me to hone my research skills. This thesis would not have been possible without his help and support.

Also, I would like to acknowledge Dr. Belaid for his constant paramount support and guidance.

Last, but certainly not least, I would like to thank all anonymous participants who have participated in the survey and helped me to complete this research through their valuable feedback.

Words cannot express how grateful I am to my parents, my sunshine, my lifeguard, for all the sacrifices and compromise they have made during this process.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1:   INTRODUCTION

Information, communication technology (ICT) has had significant impacts and has changed all of global society and most aspects of people's lives, and it is playing an important role in many fields: industry, business, health, entertainment, and education

In the current century, Technology development, the advancement of cloud, socio-economic and demographic enhancements, all these factors are considered as, the main pillars of shifting peoples' expectations toward technology, and create new demands on society. Although these improvements hold great promise, education systems, in particular, will have to adopt to adequately prepare students for the future.

The Education field has witnessed significant changes at the institutional level due to the rapid technological advancement and the increased number of internet users (Halverson, Graham, Spring, Drysdale, & Henrie, 2014; Lei & Zhao, 2007; Mažgon, Kovač Šebart, & Štefanc, 2015, Radovan, & Dinevski, 2012). As a result, education has become one of the most important topics discussed in research projects.

Nowadays, with the increased number of universities shifting to online learning, Academic institutions paid a good attention on technology-development learning expansion, hence, emphasized with integrating ICT into the teaching process to switch traditional learning to online learning (Halverson, Graham, Spring, Drysdale, & Henrie, 2014; Mažgon, Kovač Šebart, & Štefanc, 2015).

ICT facilitates the online learning process by encouraging instructors to integrate technology into their communication with students, course design, and assessment

methods, as well as, utilize the new technological development. (Arnseth, & Hatlevik, 2012).

Online learning is a way of learning where students participate in the process of learning in a virtual environment. Students can engage in discussion with instructors, can access their course content, and can submit assignments using the online learning system. Moreover, students also receive feedback on their performance and results electronically (Horn, & Staker, 2010).

COVID- 19 has significantly influence education systems around the world, because many have shifted to online education to prevent the spread of COVID-19 and Qatar is not an exception.

In 2020, 1.6 billion students worldwide shifted to online learning because of the COVID-19 pandemic. (World Economic Forum, 202020). As a result, higher educational institutions have moved to deliver courses online, this has led to an expansion in the utilization of online learning methods in the educational system. However, the unplanned and rapid move to online learning create uncertainty for institutions, faculties, and students.

The state of Qatar provides an encouraging environment for online learning, due to the strong internet connectivity and the technological advancement, moreover, (Bhuian et al., 2013) has reported that Qatar has a high Internet penetration rate of 99%. And this makes Qatar, a suitable environment for adopting online learning environments due to the ease of internet accessibility and availability of technology devices.

1.1. Purpose of the Study

The COVID-19 crisis raises questions and poses challenges about how to enhance and to get the full benefit of online learning. There are numerous number of studies and extensive literature that have discussed the importance of online learning, but a limited quantity of findings discussed factors affecting students' satisfaction with online understanding.

Thus, this research study seeks to fill the gap by using the new anticipated factors that could affect positively with the students' satisfaction of online learning within the university students in Qatar.

Therefore, it is critical to assess the impacts of the current crisis on students' behavior, mainly by exploring the most important factors related to online learning satisfaction, and by understanding how these factors influence intentions to continued use online learning within or after the COVID-19 pandemic. In order to get more insights related to online learning satisfaction. Therefore, the research problem can be stated as follows: to measure factors affecting student's satisfaction by online learning in higher education in Qatar.

The research anticipated that suggested variables by the researchers may discourage or motivate university students in Qatar to use the online learning and positively enhance online learning satisfaction.

The results presented in this study will provide universities and educational institutions in Qatar, with precise insight about the factors affecting student's satisfaction with online learning.

1.2. Study Rational and Significance

There is a shortage of examination on the number of factors affecting student's satisfaction with online learning in higher education in the region, from theoretical and practical perspectives. This study will subsidize to filling the gap in the literature by providing scholars and practitioners with substantial insights into factors affecting students 'satisfaction with online learning, which will eventually help educational institutions to form a successful strategy to show a significant role in online learning in Qatar. Thus, this study will be significant to the ministry of education and higher education and as well as, all academic institutions in Qatar. It will enhance their understanding about the most important influences on online learning satisfaction, specifically during these unprecedented times. Such as COVID-19. It is difficult to determine the longevity of the crisis and how profoundly it will continue to affect the education sector (Cohen, 2020).

Few studies have focused on students satisfaction with online learning in the Arabic countries (Salloum, & Shaalan, 2018; Alshihri, & Smith, 2019; Bellajj, & Albugami ,2015). However, these previous studies did not sufficiently examine, and they neglect the consequence of several essential factors that may promote to online learning satisfaction.

Therefore, this research seeks to fill this gap and focus on the fundamental aspects that could affect positively on students satisfaction with online learning among university students in Qatar.

This analysis will shed light on an important topic that will be affected by long-term effects on various aspects of our lives. Understanding how these factors can help to enhance students' satisfaction with online learning, is critical for building a sustainable competitive advantage with which to create unique online learning systems.

1.3. Research Questions

The study aim can be simplified by obtaining answers to the following research questions:

RQ1: What are the factors affecting students' satisfaction with online learning in higher education in Qatar?

RQ2: Are there any differences in perceptions based on the demographic factors: age, gender, nationality, and educational level?

RQ3: Would the Qatari context support the UTAUT framework?

1.4. Research Outline

The research project is designed into the subsequent chapters.

Chapter 1: Introduction, this chapter presents the study by presenting an outline of the research study, then identifying the goal, objective, and the impact of the study. Moreover, in this chapter, the research aims, research questions and the employed research method are also presented.

Chapter 2: literature review, this chapter discusses:

✓ the definition of Online learning as well as the Online learning in educational Institutions

- ✓ demonstrate the types of online learning

- ✓ the advantages and disadvantages of Online learning.

- ✓ the development of the research model and hypotheses that has served as the theoretical foundation for performing this study and the critical factors that may have positive effect on students' satisfaction with online learning system.

- ✓ the research hypotheses that are going to be evaluated in this study. Finally, it presents a short summary on the theoretical model elements and the factors affecting the student's satisfaction and acceptance of online learning.

Chapter 3: Methodology

This section discusses the methodology employed to evaluate the most important factors of UTAUT model in terms of Online learning satisfaction in higher education institution in Qatar. including the questionnaire design, data collection, and statistical methods

Chapter 4: Data Analysis

In this chapter, the study findings are given. The chapter summarizes data analysis and the results of the research.

Chapter 5: Discussion

In this stage will discuss the results of each method found in chapter 4 and used to test the contribution of the model and reasons behind each outcome

Chapter 6: Conclusion, Limitations and Future work

In this part, we conclude with the study's implications, in addition to the study limitations and some recommendations for future research.

CHAPTER 2: LITERATURE REVIEW

2.1. Online learning

Online learning is referred as a new mode of distance learning and education. Distance learning is described as form of learning in which teaching, and learning occurs at separated places (Moore & Kearsley, 2012). Distance learning is based on communication and interaction between students and instructors by using various technologies and a special institutional equipment and organization (Moore & Kearsley, 2012). Online learning is also defined as all type of teaching where students and teachers are temporally separated at different places (Finch & Jacobs,2012).

In the literature, Online learning is also called distance learning/education, cyber learning, web-based learning, e-learning, and virtual learning, etc. In this study we considered the term online learning.

As described before, Online learning is a method of learning by using digital resources including the use of Internet and many other information technologies devices to deliver a large variety of courses and explanations that improve awareness, learning experience and concert (Song 2010, Rosenberg, 2001). Online learning is based on formal education and teaching but is provided on affordable electronic devices such as a computer, mobile, laptops, and other digital devices which played a significant role in making online learning popular with high functionality and reliability (Globenewswire, 2020).

Online learning have emerged with modest technology which helped to boost the use of this technology as it created simulation communities to the actual or physical classroom. In the field of education, the information technology has become to be a

critical tool for educators who seek for learning beside their professional lives, with low cost, easy access, and flexibility of the online learning.

The quick development of online learning has outlined the competition between higher educational institutions (Loyen, Magda, & Rikers, 2008). And most of these institutions neglect to measure the student satisfaction with online learning technology and their ability and acceptance to acquire this method of learning. Bollinger and Martindale (2004); & Tallent&Runnels et al. (2006), emphasized that more research studies have to focus on the student's satisfaction with the online learning understanding and their aim to continue using online learning. Besides, online learning has contributed to come over the number of challenges faced by the higher educational institutions, and it becomes a critical as one of the information technology tool (Bottino, 2004). Overall, it is possible to say that online learning actively replaced traditional learning, as the global network provides numerous educational platforms in the interaction between educators and students.

Nowadays, Because of the increasing development of online learning especially in the higher education institutions, there have numerous studies for this regard to determine the reasons behind this success and continues use (Demirkan, Goul,& Gros 2010; Loh et al. 2016; Weng, Tsai& Weng 2015). More relevant studies as well considered the continuous use of online learning as a major factor in online learning success.

Bhattacherjee (2001), declared that for users or students to continue using the online learning systems, they should be satisfied to maintain these users for a long term,

and for higher education students to continue to use online learning they must be satisfied with the online learning service provided by their academic institutions.

2.2. Synchronous and asynchronous online learning

In online learning, there are two types of communication between students and instructors, the synchronous and asynchronous or combination of these two types of online learning. Asynchronous learning, is the type of learning in which classes are recorded and learners have the flexibility to access these recorded classes at any time (Moore & Kearsley, 2011), while synchronous learning, refers to the live sessions provided by the instructors to the audience, through the internet connectivity and by using various digital devices.

The mode of communication between students and instructor falls into two main types, it can be asynchronous or synchronous, and depends on the way that best suites the learner.

Synchronous learning environment such as Live sessions, chat discussion and instant messaging, requires high level of engagement between instructors and learners, which is quite similar to the traditional class environment, where it requires syllabus subject outlines, projects and assignments deadlines to be met and assessments to be covered, However both parties are separated in geographical areas.(Garrison, Anderson, & Archer, 2000).

 Asynchronous online learning, known for its flexibility as it does not require the attendance of both the learner and instructor. Instructors could post readings, Assignments,

and videos and students can view and access in their own schedule with no specific time meeting.

Number of adult professionals choose to go for asynchronous classes, to give them the opportunity to combine their work, education, and family responsibilities. In addition to that, learners have the opportunity to access the posted videos at any time during the day (Skylar, 2009).

2.3. Advantages and disadvantages of online learning

Online learning has variety of advantages and benefits for students, and learners in general, such as; time and place flexibility which means, permitting students to ease access learning materials within or outside the classrooms. A large number of course options, continuous learning, financial advantages and cost saving, wide range of multimedia content, and simple teacher and student engagement and interaction (Mayer, 2020; Bates, 2005; Rosenberg, 2001; Abrami & Bures, 1996).

Online learning provide students the abilities of storing information, improve interaction between class peers, and instructors (Cho, Schmelzer, & McMahon, 2002), as well as, interaction learning environment, motivate students to learn, enhance the critical thinking and the wide range of ideas (Flynn, 1992).These advantages would significantly contribute in widening the understanding of the academic institutions to adopt and implement the online learning.

However, according to Bouhnik and Marcus, (2006), first major dissatisfactions with online learning is the lack of a 'learning atmosphere', and the absence of face-to-face contact within the group of 'student-student, student -content', and 'student-instructor'.

Another major dissatisfaction with online learning is, students stressed that they don't get instant feedback on their classwork in an online learning class environment, lack of details when instructors provide feedback to their enquiries, as well as, students stated that it takes extra time to learn new topic in an online learning setting when compared to the the needed time to learn a new topic is longer, when compared with learning a new topic in a traditional way (Bouhnik &Marcus, 2006)

Another factors that cause to student dissatisfaction is the need of direct supervising and guidance to build a new, 'self-motivation' (Bouhnik & Marcus, 2006; Dutton, Dutton & Perry, 2001, Wallace, 2000). Such disadvantages are indications of the reasons why some students leave and fail to pass their online courses after their first experience. Therefore, effectiveness of online learning depends on students' satisfaction and acceptance of the online learning system, it is vital to understand the critical influences that motivate students and affect their satisfaction with the use of online learning (Salloum, Al-Emran, Haalan, & Tarhini, 2019).

2.4. Covid-19 Pandemic and the adoption of online learning in Qatar

At March 11, 2020, the World Health Organization (WHO, 2020) confirmed that COVID-19 was a world epidemic. The spread of COVID-19 across the world has had influential impacts on most aspects of people's lives (Donthu & Gustafsson, 2020)

COVID-19 has affected not only human health but also the world's socioeconomic balance (Nicola et al., 2020) . As a result many countries adopted precautionary measures, such as; schools closure, and social isolation. Such measures were implemented to reduce the spread of the coronavirus, and they have significantly affected the schools and

universities around to globe and forced them to shift to online learning—Qatar is no exception.

In Qatar, likewise other countries, it followed the precautionary measure by shutting down all schools and universities for health and safety for its citizen and particularly students, therefore, all higher education institutions have shifted toward the online learning method as a temporary solution in order to avoid the blowout of coronavirus among students. The main goal of online learning is to make learning accessible and available for all students. To control the spread of COVID-19 in Qatar, the Ministry of education and Higher education has adopted the method of online learning instead of the physical learning or face to face to ensure all students are on track and back to studying (MOEHE, 2020).

Successfully Qatar has shifted to online learning with very short period because of its strong technology infrastructure. Moreover, with reference to The (World Economic Forum's,2019) the country of Qatar is classified as the 29th out of 141 countries with the strongest economy, as well as it is positioned first in Internet usage this helped the students in Qatar to commence their studying with the easy use and availability of network.

Qatar has made a significant impact in the area of information technology due to its strong ICT infrastructure, In addition to that, Qatar has paid a great speculation in the area of education and learning which is around 10% of its overall spending and is considered as one of the highest in the MENA region. (MOEHE,2020).

Therefore, the Information technology infrastructure in Qatar, have helped the Qatari government department to adopt the latest technologies such as e-ecommerce,

online learning or e-learning systems, and e-government. However, using online learning in Qatar is Quite new approach, as there are only very few educational institutions and organizations applying the online learning systems.

Besides most of academic institution in Qatar, are trying to move toward digitalizing the education to offer education to most undergraduates and graduates. it is worth mentioning that in the country of Qatar use of technology is very high and the use of internet. but there is few or even no study conducted about utilizing the use and acceptance of online learning in the Country of Qatar. As a result, this research aims to study Qatari universities student's perception and acceptance of adoption and use of online learning

2.5. Students' perception towards online learning

In the 21 centuries, and due to the fast change in technological innovations and advancement, online Learning has become a popular and effective learning method within higher education institutions. Many universities around the globe are now using online learning system and they implemented and incorporated the online learning system due to its powerful and effectiveness for learning and teaching (Salloum & Shaalan, 2018).

Although the many advantages and benefits of online learning systems, many universities that offer online learning encounter various difficulties and challenges in implementing and adopting a successful and effective strategies to enhance students' acceptance and satisfaction with online learning experience. the reason behind that is the absence of the deep understanding of the factors that affect students' acceptance and satisfaction with the online learning experience (AlMaiah, & Mulhem, 2019). There are

Several factors affect the students online learning experience, such as the course design , interactivity between students and instructors , Assessment method, and ease of navigation.

Therefore, to accomplish a high level of students' acceptance and engagement, and to avoid the failure of the implementation of online learning system the factors that could affect the learning process must be investigated, considered and discussed. It is essential to recognize and identify the key elements of that may perform a major role to maximize the students' acceptance and motivation toward online learning (Butorac, Nebic, & Nemcanin, 2001; Salloum, Al-Emran, Haalan, & Tarhini, 2019; AlAdwan, AlAdwan & Smedly, 2013).

Students' acceptance of online learning playing an indispensable and fundamental part in determining the efficiency and adoption of an online learning system in higher education in Qatar and to ensure its productive application. Thus, it is vital to understand and identify the elements and components that affect students' acceptance and satisfaction with online learning. However, few research studies have discussed the factors and the variables affecting the acceptance of online learning (Alshehri, Smith, & Rutter, 2019; AlMaiah, & Mulhem, 2019; AlAdwan, AlAdwan & Smedly, 2013) in the Arabic countries. So far, these studies have not discussed and covered the most critical factors that may contribute and affect the students' acceptance and satisfaction with the online learning (reasons for students to accept or reject online learning). To overcome these difficulties and challenges, the aim of this study is to give a clear understanding about university student's attitude, needs and requirements in Qatar by investigating the necessary factors that effect on students' acceptance of online learning system.

Online learning effectiveness cannot be achieved if students are not willing to continue use the online learning, and if student's acceptance and satisfaction level is low. Many conditions and requirements are needed before implementing and adopting the online learning system to higher education institutions.

2.6. Technology adoption and acceptance theories

Many studies focuses on determining the level of acceptance and usage of technologies and on investigating the factors affecting individual's intentions to use new tools (Davis, Bagozzi, & Warshaw, 1989,). The technology acceptance theories are developed to measure the effect of factors that could affect the level users overall satisfaction with any technology or system. These theories depend on number of variables or factors which consists the structure and model. There are ten most common used theories of technology acceptance and adoption of technology which can be summarized as follows.

- The original Technology Acceptance Model (TAM): majority of studies use this model to as main reference and it is cited into the literature and is considered as one the most influential and effective model to predict the effectiveness of factors influencing technology acceptance (Bagozzi, 2007; Benbasat & Barki, 2007; Chuttur, 2009; Teo, 2011; Venkatesh & Davis, 2000, Alshehri, Smith, & Rutter, 2019).

- The Theory of Reasoned Action (TRA), the TRA another important model that was mainly designed to study and explain deliberate intended behavior (Fishbein, & Ajzen, 1975), and was established to investigate human behavior (Fayad & Paper, 2015). Attitude towards behavior (individual's feelings) and subjective norms

(individual's perception) are the Two main constructs and determinants of human behavior in TRA. (Fayad & Paper, 2015). However it is important to mention that TRA doesn't define the beliefs that are functional for specific behavior of some person (Davis et al., 1989).

- Innovation Diffusion Theory (IDT): IDT aim to assess the adoption of a new idea and of an innovation (Rogers, 2003 Fichman 1992)

- Theory of planned behavior (TPB). TPB is obtained by integrating new factor (Perceived behavioral) to the (TRA) model (Ajzen, 1991).

- Decomposed Theory of Planned Behavior (DTPB): The DTPB is obtained by integrating 3 factors from the IDT model (relative advantage, complexity and compatibility) to the TPB model.

- Extended Technology Acceptance (TAM2): is an extension from TAM by implementing the factor 'subjective norm' as interpreter of users' intention (Venkatesh & Davis, 2000).

- Combined TAM and TPB (C-TAM-TPB): C-TAM-TPB gathers the constructs of (TPB) model with perceived usefulness from TAM (Taylor & Todd, 1995).

- Social Cognitive Theory (SCT): SCT have the social influence as a major factor affecting social reinforcement (internal or external) (Bandura, 1986; Compeau, & Higgins, 1995).

- Model of Personal Computing (PC) utilization (MPCU): this model is appropriate to study user's acceptance and the use of information technologies. This model occurred adapted by Thompson et al., (1991) to anticipate personal user computer experience (Thompson, Higgins, & Howell, 1991).

- The Motivational Model (MM): this model focuses on the role of psychological part and its influence on behaviour (Davis, Bagozzi, & Warshaw, 1992).

Major issues and problems exist with the above mentioned theories and models mentioned above. Are generic and don't really test the acceptance and satisfaction of the users.

Qingfei et al., (2008) has reported that main issue is that each theory uses different expressions and definitions in their constructs, but all these constructs have the same concepts. In addition, and according Qingfei et al., (2008), there is no theory that contains and explain and assess all behavioral factors.

Therefore, UTAUT has been used in this research was extended to deeply understanding the main constructs that affect students 'satisfaction with online learning in Qatar. And the UTAUT been expanded by adding three predicted variables that researchers anticipate would be a good predictor of students satisfaction with online learning.

2.7 UTAUT (Unified Theory of Acceptance and Use of Technology)

In order to study and explain users' adoption and satisfaction level of a new technology or system the theory model UTAUT was developed. Results of previous studies found that UTAUT is one of the most applicable and suitable model to explain students' acceptance of a technology compared to the other hypotheses and models in the field of information technology use (Jong, & Wang, 2009). UTAUT has received particular attention and was considered as one of the most valid and predictive model used to

anticipate and study the level of acceptance, satisfaction and continuance use of online learning system (Abubakar, &Ahmad, 2013; Abdullah, & Ward, 2016; Ozkan, & Kanat, 2011). Compared to the other theories and models, UTAUT is considered one of the best, applicable and simple theories because he is less complex with a limited numbers of variables allowing better understanding and investigating the influences that could influence users' acceptance and satisfaction with a new system or new technology.

UTAUT is a model of users' acceptance of use of a technology and it is obtained by compiling and integrating the eight models and theories discussed above. UTAUT includes important parameters such as needed resources, the ease of the system , the available support from technical infrastructure and the social parameter (user can be influenced by people around him/her such as parents, friends, teachers, …) and the presence of moderators of age, gender that could significantly impact a user's acceptance or rejection a technology. This combination of the most important factors that affect users acceptance have made the UTAUT model a suitable, popular, appropriate in the domain of technology acceptance over the other used theories (ex: TAM). In this work, and in order to deeply recognize students acceptance and satisfaction with online learning in higher education in Qatar and to help implementing successfully the online learning system, the UTAUT model will be used (Al-Rahmi et al., 2019; Al-Fraihat, Joy, Masadeh, & Sinclair, 2020; Valencia-Arias, Chalela-Naffah & Bermúdez-Hernández , 2019; Venkatesh, & Thong, 2012; Suki 2019).

The figure 1 below represent the original form of the UTAUT model formulated in 2003 by Venkatesh et al. Some changes were made on this model in 2008 in which new three key factors were added.   In 2012, a modified version is obtained by extending the

model and remained designed for the customer sector. This theory is very usable in many areas and domains but in this work we give particular consideration of its application for online learning in higher education institutions.
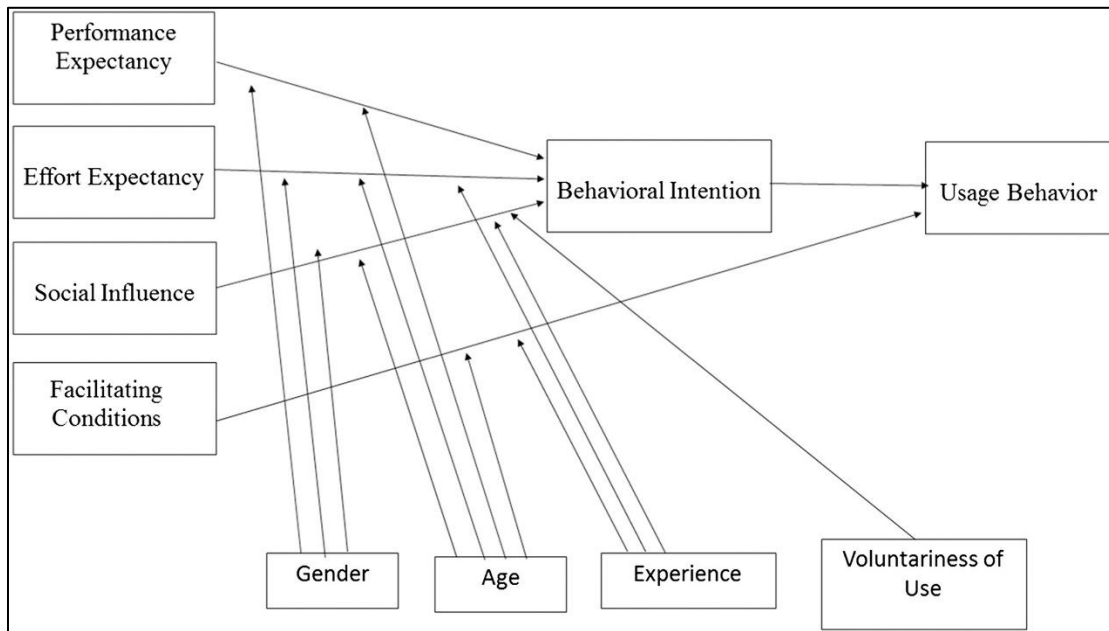
Figure 1: The UTAUT Model (Venkatesh, Morris, Davis, & Davis, 2003)

2.8. Research framework and research hypotheses

The main research question of this study is: what are the factors affecting students' satisfaction with Online learning in higher education in Qatar?

The UTAUT model proposed for use in this study is shown in Figure 2. Four core parameters are suggested by this model as directly determining continued use and satisfaction with online learning, namely: performance expectancy, effort expectancy, social influence and facilitating conditions. The model also has one direct determinant of satisfaction (continued use of online learning system) and three new factors positively affect students' satisfaction to use online learning (student engagement, assessment method and course design). The model therefore extends UTAUT to include student engagement, assessment method and course design for determining student's acceptance and satisfaction with regard to the use of online learning in Qatari higher education. Several of the key components of the general UTAUT model are omitted as most of students in the study sample are of a related age.
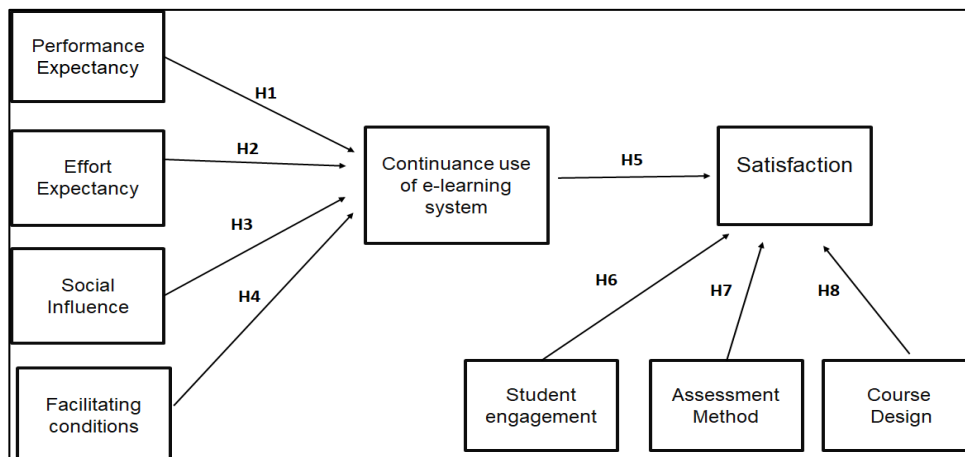
Figure 2:The proposed research model

2.8.1. Performance Expectancy (PE)

Is related to people's opinions degree that the use of a system will allow them to attain gains and boost their job accomplishment to complete a variety of assignments (Venkatesh, Morris, Davis, & Davis, 2003).

Countless researches have demonstrated that performance expectancy (PE) is a considerable contributing factor of behavioral intention (BI) to utilize an online learning system (Alrawashdeh, Muhairat & Alqatawnah, 2012; Usoro, Echeng, & Majewski, 2013) in the basic form of the UTAUT. Many researchers have implemented the UTAUT model and they have suggested that performance expectancy is linked to behavioral intention. (PE and behavioral intention are connected) (Ventakesh, Thong, & Xu, 2012; Mahande, & Malago, 2019; Dwivedi, Rana, Jeyaraj, Clement, & Williams, 2019; Rodrigues, Sarabdeen, Balasubramanian, 2016).

Researchers recognized that (PE) element is the greatest interpreter of the user's behavioral intention and had a Likewise, direct influence on the behavioral aim to use a technique. In this research paper, it is assumed that students will show a constructive feeling towards an online learning system if they realize that this method is smooth, and useful in completing their educational tasks (Venkatesh, Morris, Davis, & Davis, 2003).

In the UTAUT model used in this study, PE is considered as one of the strongest influences to consider the intention to continue use an information technology scheme, Many researchers shown that this variable remain significant at all levels (Thomas, Singh, & Gaffar, 2013; Hamzat & Mabawonku, 2018, AlWadhi & Morris, 2008; Davis, Bagozzi, & Warshaw, 1989; Bandyopadhya, & Fraccastoro, 2007).

The findings of a research conducted by (kocaleva, Stojanovic, & Zdravev, 2015) shows that amongst the UTAUT components, the EE and FC have the greatest influence of students' intent to use new technology. Furthermore, corresponding to the analysis, SI and FC are in greatest association with the BI and by this means the most influencer factor on the behavior of applicants for acceptance and use of the online learning.

Built on the above argument, it is hypothesized:

H1: Performance expectancy will have significant positive influence on student's continued use of online learning.

2.8.2. Effort Expectancy (EE)

Referred to the degree of simplicity and the ease of use of a non-complex and bugs free system in technology (Venkatesh, Morris, Davis, & Davis, 2003). In this framework, it evaluates level of work pupils anticipate to put in applying the online learning system to complete an academic task. Results of previous studies have demonstrated a considerable relationship between effort expectancy and behavioral intention to apply online learning system (Alrawashdeh, Muhairat & Alqatawnah, 2012; Usoro, Echeng, & Majewski, 2013; Marchewka, Liu, & Kostiwa, 2007).

Mahande & Malago, 2019; Alshehri, Smith, & Rutter, 2019), identified that the effort expectancy (EE) is an essential determinant of the UTAUT model and was important factor affecting users' acceptance of online learning system. Similarly, (Bellaaj, Zekri, & Albugami, 2015) in their study, they have reported that (EE) has a substantial constructive effect on the actual use of online learning system. This indicates when students realize that

an online learning experience is easy to use with the minimum of effort, that will help them to use it. Therefore, in this study the following hypothesis is proposed:

H2: Effort expectancy will have significant positive influence on continued used of online learning

2.8.3. Social Influence (SI)

Social Influence is described as the extent to which the person is influenced and affected by others such as parents, friends, relatives, and teachers to use or not a new equipment or system. It is related to whether the opinion and decision of important people influence an individuals' behavior, use and acceptance of a system (Venkatesh, Morris, Davis, & Davis, 2003). The social influence is an important incorporated component in the UTAUT model, this factor has a significant strong influence when individuals are more sensitive to the opinions of other people around them (Venkatesh, Morris, Davis, & Davis, 2003).

A major positive association concerning social influence and behavioral intention to utilize an online learning system has been reported by many researchers (Khechine, Pascot, & Bytha, 2014; North-Samardzic & Jiang, 2015; Šumak., Polančič, & Heričko, 2010). In contrary, other studies, demonstrated that there is no significant association between SI and BI to utilize online learning system (Alshihri, Drew, & AlGhamdi, 2013).

However, Mahanda, & Malago (2019), reported that it can be influential (Mahanda, & Malago, 2019). This there is possibility that the impact differs from a area to another and is from a society to another (Almaiaih, & Alyoussef, 2019). Consequently, it is suggested that:

H3: Social influence will have significant positive influence on continued use of online learning .

2.8.4. Facilitating Conditions (FC)

This is one of the main constructs of UTAUT Model, it is defined as the level to which an individual need the support from structural and mechanical infrastructure and believes that they are important to him/her to utilize a system or a technology and help to perform a task (Venkatesh, Morris, Davis, & Davis, 2003). In the original model of UTAUT the influence of FC was not significant. Many researchers investigated the impact of facilitating conditions on behavioral intention and found that facilitating conditions was very influential on the behavioral intention (Salloum, & Shaalan, 2018; Olasina, 2019).

In this paper work, facilitating conditions is described as the extent at which university students in Qatar trust that technical infrastructure, available resources and experienced people are ready to help, support and assist to fix any problem to enhance the acceptance and satisfaction level of us of the online learning system. it is also the specific experience of how well the academic institution offers support in using the online learning system (Venkatesh, Morris, Davis, & Davis, 2003). Support for a new online experience from universities and colleges, lead to high implementation effects from undergraduates and graduate students and instructors (Hamzat, & Mabawonku, 2018). In this study the following hypothesis is proposed:

H4: : Facilitating condition will have significant positive influence on continued use of online learning .

2.8.5. Continued use of online learning

One of the key elements that illustrate the effectiveness and successfulness of online learning is, the intention of users to continue using the online learning method, Chiu at al. (2005), declared that students and instructors continue the use of online learning, and is considered as the main measurement of usefulness, as this indicates that these users are satisfied with the experience and the outcome of the method, nevertheless, the current usage is an important element of the success of acceptance of current technology, but for the long-run, the continues use of online learning is essential (Bhattacherjee,2001).

CUOL, Can be identified as the situation which students tend to use online learning under certain conditions and circumstances. Continued use of an online learning may be one of the most vital factors influencing to increase students' satisfaction in online learning. Another term of continued use of online learning is, behavioural intention (Hamid, Razak, Bakar, & Abdullah, 2016).

It refers to the acceptance of online learning systems, and whether students prefer online learning to traditional learning, think that online learning should be implemented in all classes, will encourage other peers to use online learning classes to other students and intend to participate with online learning frequently in the near future

Bellaaj, Zekri, & Albugami (2015) performed an empirical investigation on continued use of online learning. Their study developed a model in light of certain factors in the UTAUT and indicated that performance expectancy and effort expectancy affect the intent of continued use of online learning. Moreover, they found that the impact of social

influence has a stronger positive effect on intention of continued use of online learning in women than men (Bellaaj, Zekri, & Albugami, 2015; Rahman, Rosman, & Sahabudin, 2020). More students use online systems the more satisfied and accepting of them they are

H5: Continued use of online learning, will have significant positive influence on students' satisfaction of online learning system

2.8.6. Students' Engagement (SE)

The future jobs will be more and more digitally specific, for this reason students need an education that prepare them for this technology and digital transformation (World Economic Forum, 2016).

Students around the world have expressed mental and emotional strain related to online learning because of the physical absence of the instructor, they feel disconnected, and they are at risk of performing low (Hancock, & Zubrick, 2015). This outcome indicates that student's engagement considered as one of the strongest factors to determine online learning satisfaction.

Student engagement, performance and satisfaction are the most important factors that motivate universities to stay competitive and to deliver a high quality learning experience and to prepare and help students to be expert with the technology skills needed for the future jobs (Fisher, Perényi, & Birdthistle, 2018; Garrison, & Kanuka, 2004; O'Flaherty, & Phillips, 2015). To guarantee that online learning experience is an effective and acceptable method, professionals should play an essential role to online learning in exploring and finding the best strategies to help students getting more engaged and motivated in their online learning experience.

Expanding Student engagement in online learning experience is a difficult and important way than it is in on-campus courses because during online courses, students have limited ways and opportunities to keep motivated and engaged.

A study shows that, students during online courses were less motivated and engaged than students in face to face classes (Fisher, Perényi, & Birdthistle, 2018). However, the absence of engagement will affect negatively the students 'satisfaction and acceptance of online learning.

Therefore, the following hypothesis is proposed:

H6: Student's engagement will have significant positive influence on students' satisfaction with online learning

2.8.7. Assessment method (AM)

Angus and Watson (2009) Described the assessment as an important and critical factor that could influence students learning, which evaluate students overall learning experience and the level of understanding of the providing course content (Angus, & Watson, 2009). Brookhart (1997), confirmed that assessment method is defined as the association between the course elements, and instructor touches into the course. Moreover, assessment helps students determining the course level of difficulty (Brookhart, 1997).

Assessment method is critical factor that influence the student satisfaction of online learning and considered as a significant component in identifying students' satisfaction and acceptance of online learning. Developing an effective, convenient and suitable Assessment method for online evaluation activities and for measuring learning goals is an important way to enhance students' satisfaction with online learning experience (Wright,

2003). Assessment method is related to the online administration and testing of activities, assignments, and tasks during online learning experience.

The reason behind the Low and poor level of students' performance in assessment is the instructors' failure in creating a suitable and effective online tests and self-evaluation tests in their classes, which decrease the level of satisfaction with online learning experience. The immediate feedback assessment for students can definitely effect on students' satisfaction of online learning experience (Almaiah, & AlYoussef, 2019).

Researchers study the effectiveness and the reliability of assessment method in online learning by investigating the way to provide a significant assessment activity and the use of varied learning evidence and assessment models. They reported the importance of immediate feedback, attention to students' needs, and the importance of a well design activities that boost critical thinking and increase students' creativity (Berrocoso, Garrido-Arroyo, Videla, & Cevallos, 2020)., Gikandi, Morrow, & Davis, 2011, Guerrero-Roldán, & Noguera, 2018). The concepts of Self-assessment (Wang, 2014); Peer assessment (Hew, 2016) and automated assessment (Garcia, Flkner, & Vivian, 2018) were also studied and investigated by researchers.

Jordan (2009) created an argument, where the form of assessment when students are only exposed to multiple choice questions, can be effective measurement of students overall understanding. On the other hand, researcher suggested that proper structured online assessment, including multiple questions level such as; choice questions, problem solving, critical thinking and analysis skills will help instructor to enable students understanding and performance (Brady 2005; Leung, et al. 2008; Draper 2009).

Online learning should be an excellent way of delivering formative assessment. (Osuji, 2012), have proved that have the type of assessment method significantly impacts the students' online learning satisfaction

(Osuji, 2012).

Thus, researchers (Bakerson & Rodriquez- Campos 2006), concluded that improving a system's usability by providing a user-friendly formative feedback interface improves the online learning experience and creates positive student sentiment and it is very influential in shaping online learning students behavior.

Overall, extensive use of formative assessments in online learning is linked to greater student satisfaction with online learning

Therefore, this study proposes the following hypotheses:

H7: Assessment Method will have significant positive influence on student' satisfaction with online learning

2.8.8. Course Design (CD)

Course design contains of components of the course such for example course overview, content objectives, structure and course output (Wright, 2003). Kauffman (2015) has studied student perspectives towards successful online learning and concluded that there are two main factors for effective online learning: course design and time management. Many other researchers have reported that the course content and design have a significant effect on students' satisfaction with and acceptance and use of online learning (Wright, 2003; Mtebe & Raisamo, 2014; Tchouba et al., 2015; Chawinga & Zozie, 2016; Ghazal, Samarraie, & Aldowah, 2018; Aldowah, Samarraie, & Ghazal, 2019).

Well-designed online learning programme are an essential element affecting learning effects and satisfaction in online learning (Piccoli, Ahmad, & Ives, 2001). Patterson (2007) and Grace et al. (2012) also showed that an online course with an understandable structure and that caters for all students levels and provides multiple ways of assessing students is linked to increased student satisfaction. Piña and Bohn (2014), however, argued that the course design is not the main factor in assessing the quality of and satisfaction of an online course, but rather the instructor performance during the course delivery.

In terms of what constitutes good design, Leidner and Jarvenpaa (1995) and Sun et al. (2008) showed that interactive communications and media presentations, online interactive discussions and cooperative learning models motivate students and can help them develop critical thinking models and establish learning models effectively. Almaiah and AlYoussef (2019) and Placencia and Muljana (2019), meanwhile, summarize that the literature suggests the following elements of good online course design:

- Avoid using long pages that require scrolling because this will reduce reader understanding. Avoid using horizontal scrolling as most users dislike it.

- Pages should be short, and organized with significative information to increase reader comprehension.

- Menus should be displayed as a "table of contents" without scrolling and should have one link per item.

- The use of software features with consistent component can keep the students engaged and motivated to use online learning systems, and significantly influence the online learning process. For instance, the consumption of videotapes and

simulations can explicate difficult ideas more successfully than text (Tchouba et al., 2015), and the use of audio tapes as well as, cartoons will be able to support learners to focus and consider what the lecturer explained in the classroom. The proposed hypothesis in this study is therefore:

H8: Course design will have significant positive influence on student satisfaction with online learning

2.8.9. Students' Satisfaction

Evaluating and measuring student's satisfaction level in online learning environment varies among universities, colleges and countries. Researchers, (Lee, 2010; Abdous & Yen, 2010; Richardson & Swan, 2003), stated that, there are multiple attributes affect students 'satisfaction with the online learning experience, such as, flexibility in an online course, course technology and social presences. Lorenzo and Moore (2002), reported that, immediate feedback, combination of academic and administrative services, student's engagement, the quality of the delivered course are positive influencers of satisfaction.

Tomei (2006), assured that students engagement and interaction in an online learning course with instructors and colleagues, leads to a high level of satisfaction. Grandzol & Grandzol (2010), agreed with this, and supported the same outcome in their research study, which illustrated that learner's interaction has a positive significant relation to student perception and satisfaction.

On the other hand, (Abdous & Yen, 2010; Steinman, 2007) concluded that, low communication and the absence of the immediate feedback from instructors to students,

low online course quality, and structure, result in dissatisfaction of the online learning experience and eventually a withdrawn from an online course.

Conversely, in Qatar, the COVID -19 pandemic has revealed a transformation in the way of learning where students   tend to set in a traditional classroom, and then shifted to online learning due the unexpected circumstance. The academic institutions concentrated on delivering the course outcome and helped students and instructors to interact via variety of online platforms, which resulted in an overall satisfactory experience by Both genders. And it is worth mentioning that this study demonstrated that, Qatari and Non-Qatari students who were highly engaged and effectively assessed by the course instructors, reported greater amount of satisfaction with the online learning experience.

To support that, a study from Indonesia by (Muzzamil, Sutawiya & Harsasi, 2020), outlined that there are several variables influence the satisfaction and the intention to continued use of the online learning experience. In particular, ways of assessing students in the online course, and student interaction with; course structure, peers and instructor. Steinman (2007) suggested that discussion board and chat tools help develop a good environment for engaging students to reach the ultimate goal of satisfaction. And to retain positive experience.

2.9. Summary

The rapid enhancements in communication technology have had a profound influence on online learning and produced multiple benefits for students, faculty, and institutions. For example, the cost effectiveness of educational resources has improved and students may enjoy the flexibility to balance study, family, and work responsibilities more independently.

This literature review has revealed that only a partial number of research have attempted to understand and explore students' perceptions about, acceptance of and satisfaction with online learning experiences.

This study aims to find out more about student online experiences and what encourages students to maintain and engage in online learning. More knowledge about the factors that influence students' satisfaction will give a precise insight to instructors and academic institutions to design online courses, their assessment methods and enhance student's engagement. This study focuses on best practices and strategies to increase effectiveness in online learning experience. Thus, this work is to provide details outcome for institutions who are willing to create online courses to provide informed decisions in the implementation process. This will help universities and faculty in Qatar to transition to online learning more effectively.

For this purpose, a modified UTAUT model was developed, including three new critical factors tailored to assessing the acceptance, and satisfaction with online learning specifically. These are student engagement, course design and assessment method.

Table 1 represents the factors influencing students' satisfaction in the modified Unified Theory of Acceptance and Use of Technology (UTAUT) used in this research.

Table 1: Research Variable Definitions and Measurements

Variable Definitions	Conceptual Definition	Source
Performance Expectancy (PE)	The degree to which an individual believes that using the system will help him or her attain gains in job performance	(Venkatesh, Morris, Davis & Davis, 2003)
Effort Expectancy (EE)	The degree of ease associated with the use of the system	
Social Influence (SI)	The degree to which an individual perceives that important others believe he or she should use the new system	
Facilitating Conditions (FC)	The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system	
Continuance use of the online learning system (CU)	The extent to which an individual is willing to continue to use the learning system in the near future. Davis (1989) suggests that an online learning system is successful, effective and will continue to create student satisfaction if the student is not willing to give up learning through the online learning	(Davis, 1989).
Students' Engagement (SE)	Student engagement is the extent to which an online learning system motivates and engages the student in the process of learning. SE reveals that students enjoy using the system and that they are taking interest in the process of learning. An online system with lower SE will adversely affect the motivation, interest, participation, and engagement of the student in academic activities. SE helps to improve the attendance and participation of students.	(Spanjers, Burns, & Wagner, 2008) (Pintrich & De Groot, 1990; Skinner & Belmont, 1993a)
	SE has also been defined as the level of student involvement in academic activities and participation.	(Axelson & Flick, 2010; Coates, 2007; Leach & Zepke, 2011; Morris, & Finnegan et al., 2005)

Variable Definitions	Conceptual Definition	Source
Students' Engagement (SE)	SE also improves the willingness of the student to participate in online classes, presentations and other academic activities and this saves students' time, energy and motivation.	(Axelson & Flick, 2010; Kuh, 2009).
Assessment Method (AM)	This factor refers to the effectiveness of assessment methods used by the institute to test the accomplishment of learning outcomes of students. It also refers to the fairness of the evaluation system, the flexibility of assessment methods and the relationship between learning techniques and student performance	(Christopher, Tallent-Runnels, 2004; Robles Braathen, 2002; Sanchis, 2001).
	A higher level of transparency and accountability contribute to effective and reliable assessment methods. AM is also related to the perception of students to measure the quality of assessment methods. It also encompasses variety of different assessment methods applied by the instructor to measure student performance	(Newman, 2015).
Course Design (CD)	Course design relates to the structure of the online course supplied with the most adequate supplement materials to effectively deliver the online course.	(Moore, 1993, p. 3).
Students' Satisfaction (SS)	Student satisfaction refers to the extent to which students believe that the online learning system successfully met their expectations. The higher the gap between the perception and expectation of students, the lower the satisfaction. It is important that the learning system should be consistent with students' expectations.	(Aman, 2009; Moore, 2005).
	Student satisfaction is the student's overall pleasure or belief from an experience	(Elliott & Shin, 2002, p. 198)

CHAPTER 3: RESEARCH METHODOLOGY

The aim of this chapter is to illustrate the research procedures and methods that are used in this study to measure student satisfaction with the online learning experience in higher education in Qatar, and to analyse the factors that are affecting students' overall satisfaction with online learning in higher education in Qatar.

The key drive of this study is to evaluate the effect and the importance of these influences with regard to student satisfaction, and to identify the association between students' engagement, assessment methods, course design, and other influences (performance expectancy, effort expectancy, social factors and facilitating conditions), and students' satisfaction with online learning.

This chapter, therefore, discusses the proposed model, research hypotheses, research design, data collection, statistical assessment, sampling strategy, and instrumentations.

3.1. Proposed model and research hypotheses

Based on the literature review and theories discussed in Chapter 2, it is evident that many factors can affect student's satisfaction with online learning. Accordingly, a new model was developed by integrating three external factors (student engagement, assessment methods, course design) into the UTAUT model. The suggested model determines the effect of these four external factors with the established UTAUT constructs (performance expectancy, effort expectancy, social influence and facilitating conditions) on students' satisfaction with their online learning experience in higher education in Qatar. These elements reviewed by previous academics cover almost every piece of e-learning environments; nevertheless, they have never been incorporated into one UTAUT model to

investigate their influence and relationships. This research creates such a model, presented in Figure 3 below.
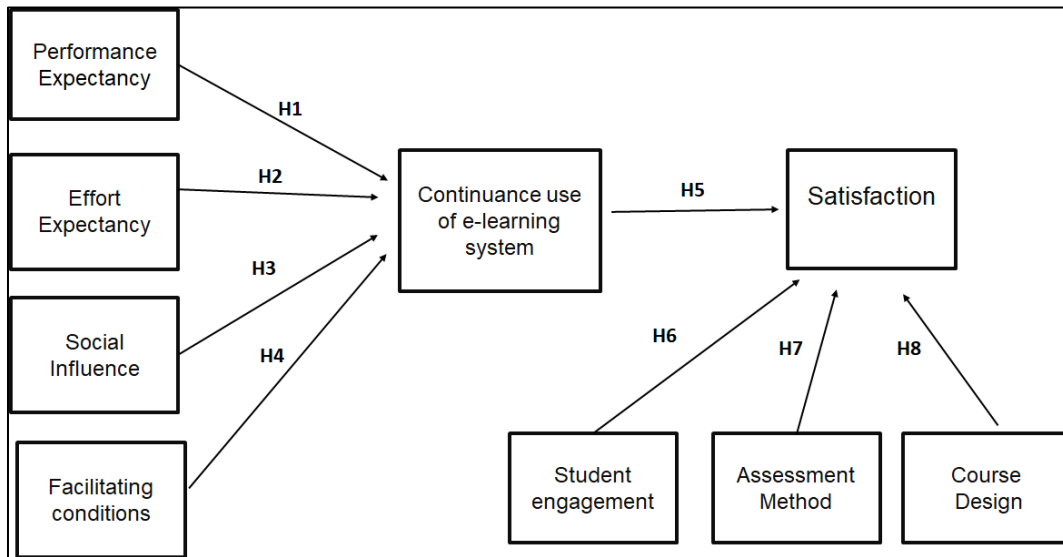
Figure 3: Modified UTAUT model used in this study

3.1.1 Research hypothesis

The aim of this study is to examine the following hypotheses:

H1: Performance expectancy will have significant positive influence on student's continued use of online learning..

H2: Effort expectancy will have significant positive influence on student's continued use of online learning.

H3: Social influence will have significant positive influence on student's continued use of online learning.

H4: Facilitating conditions will have significant positive influence on student's continued use of online learning.

H5: Continued use of online learning will have a positive influence on students' satisfaction and acceptance of online learning

H6: Student's engagement will have significant positive influence on students' satisfaction with online learning

H7: Assessment Method will have significant positive influence on students' satisfaction with online learning

H8: Course design will have significant positive influence on students' satisfaction with online learning

3.2. Research design and measurement development

A quantitative Correlational research survey methodology was used in this research paper, to verify the factors that affect students' satisfaction with the online learning experience in higher education in Qatar (Aliaga & Gunderson, 2000).

The main determination of this work was to examine the effect and the importance of these factors with regard to student satisfaction, and to identify the association between students' engagement, assessment methods, course design, and other influences (performance expectancy, effort expectancy, social factors and facilitating conditions), and students' satisfaction with online learning.

This chapter, therefore, discusses the proposed model, research hypotheses, research design, data collection, statistical analysis, sampling strategy, and instrumentations

3.3. Approval procedure

The Institutional Review Board (IRB) of Qatar University confirmed this study of the human subject protections guidelines. Approval was obtained from Qatar university by an official letter via email, The approval is under the number QU-IRB 1380-E/20, dated 4th of October 2020 (see Appendix A). The approval procedure is important to confirm the validity and integrity of the questionnaire and to make sure that the research follows ethical practices.

To control for the common method bias, the questionnaire was designed to contain first the endogenous (dependent) variables and then their predictors (exogenous) variables (Murray, Kotabe, & Zhou, 2005)

3.4. Sample selection

This research focuses on the satisfaction and willing to continued use of online learning among higher education students in Qatar. The target population was those undergraduate and postgraduate university students in Qatar, aged 18 years and above, who have used online learning in higher education in the country of Qatar, whether at the time of the coronavirus pandemic or at any other time. Students could be from any department, be of any nationality (Qatari and non-Qatari), male or female. Thus undergraduate and postgraduate students outside the state of Qatar and students in Qatar who are below 18 years old were excluded (the consent form stipulated that students below 18 years old cannot participate).

The sample would represent the population and contain enough participants. In this study, 750 responses were received from four universities in Qatar: Qatar University, the Community College of Qatar, Virginia Commonwealth University School of the Arts in

Qatar and Weill Cornell in Qatar. Following Hair et al. (2010), this sample size was deemed acceptable.

3.5. Instrumentation

A survey questionnaire was created built on relevant literature, and in particular the UTAUT model, to understand the constructs that influence students' satisfaction with the online learning experience in higher education in Qatar (see Appendix B).

The study tool contained three major factors for the proposed modified UTAUT model. They are as follows: student engagement, assessment method and course design. In addition to these three factors, performance expectancy, effort expectancy, social influence and facilitating conditions, and continued use of online learning were also measured.

Achieving effective measures requires good and clear questions organized coherently across the questionnaire. With that in mind, the development of the questionnaire is a multistage process that requires close attention to detail. A broad review of the literature on satisfaction with online learning was done as the first stage. Previous studies helped in the identification of the constructs in the proposed model with appropriate modifications for the context of online learning (Lee, 2014).

To ensure that the questionnaire was well designed, clear, valid with good writing and appropriate measurement scales, it was reviewed by the supervisor and was also pre-checked with four graduate students and colleagues. The candidates were requested to conduct the survey online and provide constructive criticisms or feedback about the structure of questions and content, in order to help refine the clarity and appropriateness of

the items, as a result, some items were amended or replaced to be more reflecting each variables.

The final survey questionnaire comprised three main sections. The first section was devoted to collecting respondents' demographic and general information containing gender, age, education level, and nationality. The second section included questions about the dependent variable, in which respondents were questioned to determine the degree to which they agreed or disagreed with the items, based on a five-point Likert scale (1= strongly disagree, 2= disagree, 3= Neutral, 4=agree, and 5=strongly agree). The participants were also asked a series of questions that pertained to the independent variables of the research interest, again using a five-point Likert scale. The last section contained an open question where respondents could provide their own feedback about the topic, or if they felt that there were factors that were not considered

3.6. Data Collection

Data were collected for eight weeks from the middle of October, 2020 until the end of December 2020, through web survey (i.e. convenience online sampling method (Google Docs), and social media channels, such as WhatsApp and Facebook. the web survey was chosen due to its ease accessibility and some constrains to approach a large number of population candidates (Evans & Mathur, 2005; Shih & Fan, 2008) especially in the perspective of the Covid-19 pandemic during the period of the survey.

Qatar University, the Community College of Qatar, Virginia Commonwealth University School of the Arts in Qatar and Weill Cornell in Qatar were contacted, and the purpose of the study was explained. Then, the four universities mailed the web-survey link to their students. Ultimately, a total 750 students participated in the study. Through the

induction process, students were notified that involvement was voluntary and anonymous, meaning that they could leave the questionnaire at any point in time during the survey.

3.7. Data Analysis

This study used (SPSS v.27.0) for the statistical assessment. Data were examined using step by step regression evaluation. We used nine constructs s as regressors. The data analysis was conducted in five steps as follows:

1. Demographic statistics were assessed to verify the participants' attributes.

2. A t-test and analysis of variance (ANOVA) were applied to assess any substantial variation amongst demographic attributes in perceptions and in the overall level of university students' satisfaction with online learning.

3. The convergent and discriminant validity, reliability (Cronbach's alpha values) and internal consistency were also tested to determine the items efficiency for the nine determinants including (1) Performance expectancy, 2) Effort expectancy, 3) Social Influence (SI) 4) Facilitating Conditions 5) continuance use of online learning, 6) Students engagement, 7) Assessment method, 8) Course design 9) satisfaction.

4. Once the measures were validated, SMART PLS software techniques were conducted to evaluate the relationship between constructs, as well as, the software was employed to assess the validity of the proposed model. Smart PLS was manipulated to analyze the association among the nine variables. The data was analyzed using IBM SPSS version 27 and Microsoft Excel.

CHAPTER 4: DATA ANALYSIS

In this section of the research work, we will describe the outcomes of the study and present the evaluation of the quantitative data collected from the survey questionnaires. The main goal of the study was to inspect the associations among different variables, namely: performance expectancy, effort expectancy, social influence, facilitating conditions, continued use of online learning systems, student engagement, assessment method, course design and satisfaction with online learning

The number of respondents of this study survey were more than 750, according to the statistics there were 6 participants didn't complete the variable questions, they have filled out the demographic questions only. As a result, these responses were deleted and we were left only with 750 respondent these participants leave the survey because of the big numbers of tested variables.

4.1. Demographics profiles of the participants

The total sample included 750 responses, the majority (n=633, 84.3%) were female students and 15.7% were Males. The reason behind the significant number of female respondents is that the survey was sent to 4 different universities: Community College, Qatar university, Carnage Melon and Weill-cornel by email, and most of these candidates are females. Moreover, the survey was sent out to WhatsApp groups dedicated only for girls. The demographic characteristics of participants in this study are presented in Table 2. Most respondents were in their 20s (41.8% of the respondents aged between 21-30, 33.7% between 18-20) and 21.6 % between 31-45 and only 2.9% 45 or more. The most frequently occurring classification group is in bachelor's degree (42.1%) followed by high diploma (28.1%), high school or less (21.3%), and postgraduate (8.5%). Qatari were the

prominent group (67.6%) and non-Qatari (32.4%). This is considered as good representation for the real society data, because it is very near to the actual population (World Population Review, 2019).

Table 2: Respondents' Demographic Data (N=750)

Character		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Female	633	84.3	84.3	84.3
	Male	118	15.7	15.7	100.0
	Total	750	100.0	100.0	
Age	18-20	253	33.7	33.7	33.7
	21-30	314	41.8	41.8	75.5
	31-45	162	21.6	21.6	97.1
	45 or More	22	2.9	2.9	100.0
	Total	750	100.0	100.0	
Educational level	Bachelor	316	42.1	42.1	42.1
	High Diploma	211	28.1	28.1	70.2
	High School or less	160	21.3	21.3	91.5
	Postgraduate	64	8.5	8.5	100.0
	Total	750	100.0	100.0	

Character		Frequency	Percent	Valid Percent	Cumulative Percent
Nationality	Non-Qatari	243	32.4	32.4	32.4
	Qatari	508	67.6	67.6	100.0
	Total	750	100.0	100.0	

4.2. Descriptive Statistics

A descriptive statistical analysis is defined in this part to give a clearer insight of the factors affecting students' satisfaction with online learning.

Descriptive statistics such as Mean and Standard deviations are summarized in table 3 below. Results comprises mean ratings on a 5-point Likert-scale (1= Strongly Disagree to 5= Strongly Agree) for the construct. As seen, the mean value over 9 constructs ranged from 3.095 (most negative evaluation) to 4.135 (most positive evaluation), most items are considered as high and moderate agreement. Most of the elements standard deviations are related within the variable construct itself as well as, if compared with the other factors which show corresponding dispersion of data around the mean., which implies that most of the students' responses were either somewhat Agree or Moderately Agree.

As can be seen the students have a tendency to believe that online learning is a helpful and beneficial, and it will increase their chance of getting a better grade. Descriptive analysis of the students' opinions for effort Expectancy indicates that the students be likely to approve that online learning is simple, flexible, and straightforward. Results also show that the students may be influenced by people around them and by others who believes they

should use online learning. In addition, the descriptive statistics also confirm the students' perceptions that they should be equipped with the needed resources, experience, and assistance to use online learning.

Students reported that they prefer the interaction with their instructors during online learning, participating in discussion with their colleagues. However, they tend to be neutral in terms of perception that interaction in online learning is more effective than in physical or traditional learning.

The descriptive statistics additionally indicate that most of the students agree with the statements in the positive responses for the Assessment method, Student engagement and Course design, continuance use of online learning experience and satisfaction with online learning experience. All means for all the factors are above 3.095 and the standard deviations are greater than 1. This shows a narrow and small spread around the mean and shows that the majority of students agree on the advantages of the online learning experience in higher education in Qatar.

Table 3: Descriptive statistics Results

Performance expectancy PE	N	Mean	Std. Deviation
PE 1: I find online learning useful for my studies.	751	3.19	1.393
PE2: Using online learning increases my chances of achieving Tasks.	751	3.32	1.441
PE3: I can save time when I use online learning.	751	3.66	1.405
PE 4: In online learning I am more focused on the task required	751	3.03	1.489
PE5:If I use online learning, I will increase my chances of getting better grades.	751	3.07	1.487

Performance expectancy PE	N	Mean	Std. Deviation
Total construct	751	3.254	1.443
Effort Expectancy (EE)	N	Mean	Std. Deviation
EE1:I find online learning easy to use	751	3.86	1.254
EE2: My interaction with online learning is clear and understandable.	751	3.35	1.373
EE3: Learning to operate an online learning application does not require much effort	751	3.74	1.296
EE4:I have the proper training to use online learning effectively	751	3.87	1.223
EE5:I find online learning flexible and easy to use	751	3.84	1.258
Total construct	751	3.732	1.2808
Social influence (SI)	N	Mean	Std. Deviation
SI 1: People who are important to me think that I should use online Learning.	751	3.27	1.328
SI 2: People who influence my behavior think that I should use online learning.	751	3.23	1.331
SI 3: People whose opinions I value, think that I should use online learning.	751	3.28	1.338
Total construct	751	3.26	1.332333
Facilitating condition (FC)	N	Mean	Std. Deviation
FC1: I have the necessary resources to use online learning	751	4.14	1.109
FC2: I have the necessary knowledge to use online learning.	751	4.19	1.054
FC3: I have the proper ICT (information and communication technology) skills to effectively use online learning	751	4.23	1.023
FC4: I feel comfortable using online learning	751	3.50	1.438
FC5: My university has supported the use of online learning	750	3.94	1.134
FC6: My University has provided training for me to use online learning	751	3.28	1.359
Total construct	751	3.88	1.186167
Student Engagement (SE)	N	Mean	Std. Deviation
SE1: I frequently interact with my instructor during online learning	751	3.47	1.282
SE 2: I discuss with my colleagues what I learn during online learning, outside lecture time	751	3.17	1.365
SE 3: I complete my readings as assigned during online learning.	751	3.42	1.257

Student Engagement (SE)	N	Mean	Std. Deviation
SE 4: I participate in chat sessions during online learning	751	3.60	1.239
Student Engagement (SE)	N	Mean	Std. Deviation
SE 5: I think the instructor effective online teaching skills, will increase student interaction	751	3.70	1.291
SE 6:I think "student to student' interaction in online learning, is more efficient than in face to face class	751	2.80	1.501
SE 7: I think class discussions are more effective in online learning, than in face-to-face classes	751	2.93	1.537
Total construct	751	3.298	1.353143
Assessment Method (AM)	N	Mean	Std. Deviation
AM1:I find it easy to concentrate on the questions when doing an online exam	751	3.07	1.518
AM2:Preparation for exams is easier in online learning	751	3.16	1.520
AM3: Online assessments are appropriate for my major subject areas.	751	3.27	1.379
AM4:I find it important that courses in online learning are assessed using variety of Methods	751	3.84	1.175
AM5:I find it important to me that course assessment methods for online courses are clearly described.	751	4.01	1.198
Total construct	751	3.47	1.358
Course Design (CD)	N	Mean	Std. Deviation
CD1:I think It is important to have online-course contents appropriately structured and designed based on the objectives of the course	751	4.17	1.072
CD2:I find it important to have a user-friendly online course delivery system for students.	751	4.21	1.050
CD3:I think that online course activities must be designed to get the best out of students	751	4.22	1.053
CD4:I find it important to communicate through online course with other colleagues from the group.	750	4.06	1.124

Course Design (CD)	N	Mean	Std. Deviation
CD5:I find it important to regularly receive feedback about my work from online-course teacher	751	4.21	1.047
CD6:I find it important that online course, provides mandatory and optional study material in digital form.	751	3.94	1.120
Continuance use of online learning (CUOL)	N	Mean	Std. Deviation
CUOL1: I intend to continue using online learning in the future.	751	3.18	1.555
CUOL 2: I will always try to use online learning	751	3.22	1.485
CUOL 3:I plan to enroll in online courses more in the future	751	3.18	1.520
CUOL :I enjoy using online learning	750	3.20	1.545
Total construct	750	3.195	1.52625
Students' satisfaction (SS)	N	Mean	Std. Deviation
SS1:I am satisfied with my overall experience in online learning	751	3.28	1.466
SS2:I feel online learning is effective as in face to face learning	751	2.92	1.540
SS3:Online learning meets my expectations	751	3.12	1.455
SS4:I would recommend online learning for others	751	3.06	1.568
Total construct	751	3.095	1.50725

4.3. Correlation

The correlation research design is used to determine the correlation among two or more variables in the model (Creswell, 2008). Parametric Pearson (r) correlational designs is used to measure the power of connection (field, 2009) between UTAUT's independent variables (performance expectancy, effort expectancy, social influence, facilitating condition), and UTAUT's dependent variable (continuance use of online learning and satisfaction). Pearson correlation analysis to test the connections between all the constructs in the UTAUT model are summarized in Table 4. Following the recommendation of Dancey and Reidy (2004), a Pearson's correlation value ≥ 0.7 is considered very strong,

between 0.4-0.69 is considered strong, and moderate for a value between 0.3-0.39, weak for a value between 0.2-0.29 and negligible for value < 0.19)

➢ *Pearson Correlation results suggested there was a very solid, positive association between* continuance use of online learning and:

- performance expectancy, $r = 0.816$, $p < 0.01$

- social influence, $r = 0.712$, $p < 0.01$.

➢ *Pearson Correlation results indicated that there was a strong, positive association between* continuance use of online learning and:

- Effort expectancy, $r = 0.651$, $p < 0.01$.

- Facilitating condition, $r = 0.604$, $p < 0.01$.

➢ *Pearson Correlation results indicated there was a very strong, positive correlation between* Students' satisfaction and: - Assessment Method, $r = 0.755$, $p < 0.01$.

- Student Engagement, $r = 0.740$, $p < 0.01$.

- Continuance use of online learning, $r = 0.887$, $p < 0.01$.

- Performance expectancy, $r = 0.837$, $p < 0.01$.

- Social influence, $r = 0.727$, $p < 0.01$

➢ *Pearson Correlation results indicated that there was a moderate correlation between* Students' satisfaction and course design, $r = 0.340$, $p < 0.01$.

➢ *Pearson Correlation results indicated that there was a strong, positive correlation between* Students' satisfaction and:

 Facilitating condition, $r = 0.627$, $p < 0.01$.

Effort expectancy, $r = 0.672$, $p < 0.01$.

As shown, all variables are significant at the 0.01 level. Also, there is no risk of multicollinearity as all correlations are less than 0.9.

Table 4: Pearson correlation for all the constructs

		PE	EE	SI	FC	SE	AM	CD	CUOL	SS
					Correlations					
PE	Pearson Correlation	1	.713**	.712**	.671**	.726**	.744**	.386**	.816**	.837**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000	.000
	N	751	750	751	750	751	749	750	750	749
EE	Pearson Correlation	.713**	1	.613**	.780**	.698**	.634**	.466**	.651**	.672**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.000
	N	750	750	750	749	750	748	749	749	748
SI	Pearson Correlation	.712**	.613**	1	.553**	.656**	.613**	.394**	.712**	.727**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000	.000
	N	751	750	751	750	751	749	750	750	749
FC	Pearson Correlation	.671**	.780**	.553**	1	.639**	.605**	.571**	.604**	.627**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000	.000
	N	750	749	750	750	750	748	749	749	748
SE	Pearson Correlation	.726**	.698**	.656**	.639**	1	.685**	.443**	.724**	.740**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000	.000
	N	751	750	751	750	751	749	750	750	749
AM	Pearson Correlation	.744**	.634**	.613**	.605**	.685**	1	.442**	.703**	.755**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000	.000
	N	749	748	749	748	749	749	748	748	747
CD	Pearson Correlation	.386**	.466**	.394**	.571**	.443**	.442**	1	.369**	.340**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000	.000
	N	750	749	750	749	750	748	750	749	748

Correlations

		PE	EE	SI	FC	SE	AM	CD	CUOL	SS
CUOL	Pearson Correlation	.816**	.651**	.712**	.604**	.724**	.703**	.369**	1	.887**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		.000
	N	750	749	750	749	750	748	749	750	748
SS	Pearson Correlation	.837**	.672**	.727**	.627**	.740**	.755**	.340**	.887**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	
	N	749	748	749	748	749	747	748	748	749

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

Assessment Method = (AM), Continues use of online learning = (CUOL), Course design = (CD), Effort expectancy= (EE), Facilitating condition = (FC), Performance expectancy = (PE), students' satisfaction = (SS), Social influence = (SI), Student engagement = (SE).

4.4. Analysis of the Measurement Model

The measurement and structural model assessment are required to make the structural equation modelling data analysis (Hair et al., 2006). The testing of the measurement model includes the determination of convergent and divergent (discriminant) validity. The structural model step is essential to establish the strength and direction of the relationships among the constructs. For a good and acceptable measurement indicator, factor loadings must be at least 0.6 and preferably 0.7, the minimum value for construct reliability should be 0.7 and average variance extracted (AVE) for each construct should be ≥ 0.5 (Hair, Anderson, Babin, & Babin, 2010). Figure 4 below illustrates the research model.
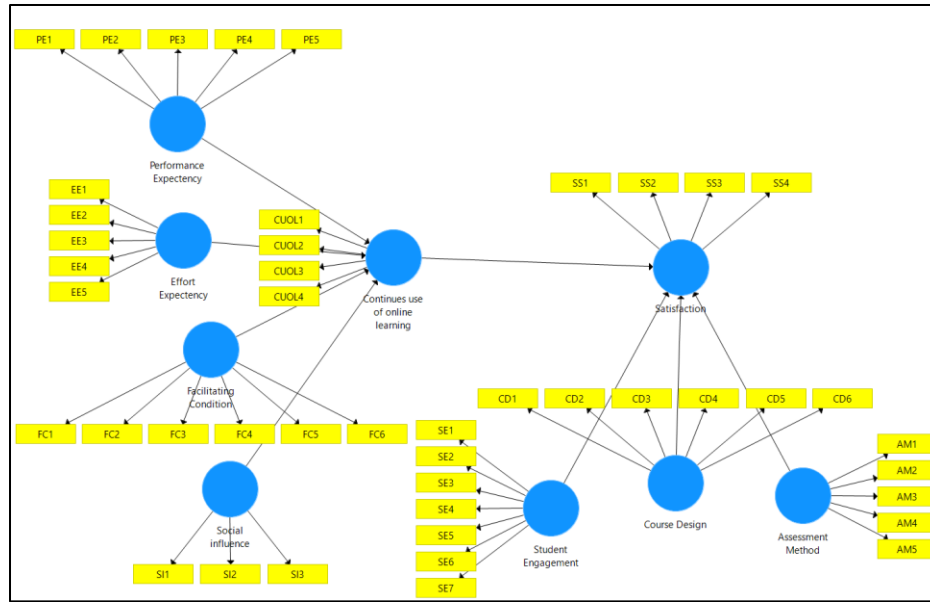
Figure 4:Illustration of the Research Model

The latent variables (e.g. PE, EE.) in the model do not clearly appear in the survey questionnaire and we cannot measure them directly. The observed variables are used to measure the constructs, for example in our model PE1, PE2, PE3, PE4 and PE5 for performance expectancy. There are 9 latent variables in this model, including performance expectancy, effort expectancy, social influence, facilitating conditions, student assessment, course design, student engagement, continuance use of online learning and satisfaction. Note that the performance expectancy, effort expectancy, social influence, facilitating conditions, student assessment, course design, student engagement are the independent variables, and the continued use of online learning and satisfaction are the dependent variable.

Performance expectancy, Effort expectancy and assessment method include 5 observed variables individually. Facilitation conditions and course design include 6 observed variables individually. Continuance use of online learning and satisfaction include 4 observed variables individually. Social influence and Student engagement

include 7 and 3 observed variables respectively. Therefore, there are 9 latent variables and 45 observed variables.

4.4.1. Measurement of Reliability and Construct Validity

Smart PLS Software was applied to evaluate the construct validity and the reliability of the measurement instrument.

4.4.2. Reliability Analysis

The initial test of the analysis is the reliability analysis to verify the research instrument (questionnaire). Reliability analyses measure the internal consistency in the same construct using Cronbach's Alpha. The values of Cronbach's alpha (bolded) for each variable are listed in Table 5 below. The recommended minimum value for score reliability in exploratory research is $\alpha \geq 0.7$ (Hair et al., 2010, Nunnally, 1978). As shown in Table 4, the reliability values for all the research determinants were higher than 0.7, therefore, the questionnaire was considered reliable and valid.

Table 5: Cronbach's Alpha Value of Main Variables

Constructs	N	Number of items	Cronbach's Alpha
Performance Expectancy (PE)	750	5	.916
Effort Expectancy (EE)	750	5	.894
Social Influence (SI)	750	3	.951
Facilitating condition (FC)	750	6	.855
Continuance use of online learning (CUOL)	750	4	.960
Student Engagement (SE)	750	7	.871
Assessment Method (AM)	750	5	.822
Course Design (CD)	750	6	.924
Students 'satisfaction (SS)	750	4	.959

4.1.2. Validity Analysis:

a. Convergent validity

The purpose of convergent validity is to examine that items can represent the relevant construct. Discriminant validity measures if there is a difference or variance of the items from other factors (Anderson & Gerbing, 1988).

Average Variant Extracted (AVE) means the variance in the indicators that is explained by the variance in common factor. Simply, it is the degree of variance that has

been measured by the model. AVE for all constructs must be greater than 0.5 for all the constructs. (Hair et al. 2010). The convergent validity test was computed; and we have found that all latent factors of the construct model have values over 0.5.

The smallest value is founded by Assessment method factor (0.583) whilst the greatest is acquired by Continuances use of online learning (0.971). Convergent validity is ascertained by examining factor loadings. When applying loadings analysis, items must have a stronger association with their own related constructs in which they should load highly (> 0.6) (Chin, 1998). As shown in Table 6, most loadings are above 0.80 and all of them are above the acceptable level of 0.60 (except for the AM4, AM5 and CD6).These low loadings do not seem to significantly harm model fit or internal consistency, because all AVE>0.5. This corresponds with a Composite reliability values of between 0.704-0.911 (except for CD1, FC1 and SE 1), all higher than 0.7 (Hair et al., 2014).

Table 6: Convergent validity and reliability of measurement model

Constructs	Items-indicator	Loading	AVE	CR
Assessment method	AM1	0.866	0.583	0.871
	AM2	0.861		
	AM3	0.867		
	AM4	0.630		
	AM5	0.523		
Course Design	CD1	0.877	0.906	0.640
	CD2	0.905		
	CD3	0.886		

Constructs	Items-indicator	Loading	AVE	CR
	CD4	0.836		
	CD5	0.850		
	CD6	0.215		
Continuance use of online learning	CUOL1	0.957	0.971	0.894
	CUOL2	0.962		
	CUOL3	0.928		
	CUOL4	0.934		
Effort expectancy	EE1	0.871	0.922	0.704
	EE2	0.840		
	EE3	0.746		
	EE4	0.812		
	EE5	0.901		
Facilitating condition	FC1	0.774	0.897	0.594
	FC2	0.836		
	FC3	0.786		
	FC4	0.801		
	FC5	0.768		
	FC6	0.648		

Constructs	Items-indicator	Loading	AVE	CR
Performance expectancy	PE1	0.896	0.937	0.750
	PE3	0.808		
	PE4	0.880		
	PE5	0.850		
Satisfaction	SS1	0.939	0.970	0.891
	SS2	0.936		
	SS3	0.943		
	SS4	0.958		
Social influence	SI1	0.955	0.968	0.911
	SI2	0.952		
	SI3	0.956		
Student Engagement	SE1	0.790	0.902	0.569
	SE2	0.771		
	SE3	0.777		
	SE4	0.742		
	SE5	0.681		
	SE6	0.762		
	SE7	0.753		

b. Discriminant validity

It is used to examine if a construct is different from other factors statistically. The average variance must be greater than the variance shared between other constructs in the model (Fornell and Larcker, 1981). The results have been presented below in table 7.

Table 7: Discriminant validity of measurement model

	AM	CUOL	CD	EE	FC	PE	SS	SI	SE
AM	0.764								
CUOL	0.713	0.945							
CD	0.467	0.368	0.800						
EE	0.647	0.669	0.462	0.839					
FC	0.649	0.645	0.549	0.787	0.771				
PE	0.741	0.830	0.384	0.720	0.702	0.866			
SS	0.750	0.912	0.340	0.684	0.669	0.843	0.944		
SI	0.616	0.715	0.391	0.623	0.584	0.714	0.730	0.954	
SE	0.702	0.755	0.426	0.701	0.665	0.742	0.762	0.667	0.754

As shown in table 7, the square roots of the average variance (diagonal values) are higher than any other correlation (off-diagonal values). For example, for the performance expectancy, the square root of the AVE is 0.866, which is higher than its correlation with any of the other latent variables, vertically (0.866 > 0.843, 0.714, 0.742) and horizontally (0.866 > 0.702, 0.720, 0.384, 0. 830, 0.741). Thus, the discriminant validity is fulfilled for each construct.

4.4.3 Cross loading

Cross loading is done when the outer loadings of the construct. It must be higher than the loadings of the other constructs (Clark,&Watson, 1995). Table 8 shows that all the loadings are greater than the correspondent cross-loadings.

Table 8: Cross loading

	AM	CUOL	CD	EE	FC	PE	SS	SI	SE
AM1	0.866	0.613	0.258	0.495	0.516	0.64	0.646	0.502	0.584
AM2	0.861	0.612	0.232	0.512	0.485	0.648	0.671	0.495	0.567
AM3	0.867	0.641	0.309	0.56	0.542	0.658	0.693	0.558	0.577
AM4	0.63	0.445	0.612	0.502	0.521	0.455	0.425	0.429	0.543
AM5	0.523	0.34	0.691	0.445	0.488	0.348	0.316	0.357	0.431
CD1	0.468	0.361	0.877	0.452	0.509	0.37	0.331	0.361	0.386
CD2	0.4	0.312	0.905	0.401	0.489	0.331	0.291	0.335	0.358
CD3	0.386	0.286	0.886	0.402	0.491	0.293	0.256	0.319	0.32
CD4	0.397	0.327	0.836	0.383	0.457	0.338	0.323	0.364	0.406
CD5	0.365	0.303	0.85	0.354	0.438	0.322	0.262	0.309	0.373
CD6	0.119	0.077	0.215	0.132	0.119	0.106	0.067	0.082	0.098
CUOL1	0.665	0.957	0.347	0.64	0.601	0.784	0.869	0.699	0.725
CUOL2	0.683	0.962	0.349	0.634	0.625	0.8	0.859	0.685	0.714
CUOL3	0.651	0.928	0.341	0.617	0.597	0.754	0.831	0.653	0.695
CUOL4	0.694	0.934	0.353	0.639	0.617	0.798	0.888	0.664	0.718
EE1	0.582	0.574	0.389	0.871	0.666	0.618	0.574	0.562	0.577
EE2	0.643	0.671	0.33	0.84	0.672	0.697	0.711	0.578	0.698

	AM	CUOL	CD	EE	FC	PE	SS	SI	SE
EE3	0.428	0.442	0.377	0.764	0.563	0.495	0.447	0.377	0.462
EE4	0.473	0.468	0.459	0.812	0.676	0.533	0.479	0.479	0.537
EE5	0.545	0.601	0.411	0.901	0.715	0.634	0.598	0.577	0.62
FC1	0.431	0.412	0.462	0.568	0.774	0.463	0.432	0.37	0.438
FC2	0.454	0.404	0.495	0.633	0.836	0.485	0.431	0.416	0.459
FC3	0.393	0.344	0.538	0.625	0.786	0.408	0.363	0.361	0.434
FC4	0.676	0.757	0.372	0.714	0.801	0.77	0.749	0.607	0.656
FC5	0.434	0.423	0.445	0.57	0.768	0.46	0.446	0.386	0.454
FC6	0.454	0.407	0.294	0.45	0.648	0.454	0.459	0.423	0.508
PE1	0.661	0.785	0.351	0.666	0.632	0.896	0.776	0.667	0.693
PE2	0.653	0.711	0.354	0.638	0.633	0.892	0.71	0.607	0.67
PE3	0.583	0.625	0.34	0.619	0.611	0.808	0.648	0.534	0.541
PE4	0.645	0.729	0.326	0.608	0.598	0.88	0.763	0.639	0.664
PE5	0.66	0.729	0.295	0.587	0.571	0.85	0.746	0.636	0.631
SE1	0.532	0.551	0.351	0.553	0.531	0.541	0.565	0.51	0.79
SE2	0.454	0.543	0.271	0.501	0.444	0.518	0.539	0.506	0.771
SE3	0.574	0.604	0.401	0.598	0.573	0.626	0.589	0.55	0.777
SE4	0.452	0.488	0.382	0.501	0.476	0.481	0.487	0.446	0.742
SE5	0.529	0.494	0.476	0.58	0.635	0.516	0.503	0.471	0.681
SE6	0.589	0.645	0.193	0.513	0.439	0.632	0.677	0.52	0.762
SE7	0.551	0.622	0.236	0.467	0.442	0.572	0.623	0.509	0.753

	AM	CUOL	CD	EE	FC	PE	SS	SI	SE
SI1	0.604	0.692	0.39	0.632	0.59	0.689	0.717	0.955	0.661
SI2	0.579	0.654	0.358	0.558	0.523	0.673	0.671	0.952	0.61
SI3	0.582	0.698	0.37	0.593	0.558	0.683	0.699	0.956	0.637
SS1	0.708	0.868	0.359	0.678	0.679	0.807	0.939	0.694	0.712
SS2	0.695	0.821	0.253	0.599	0.569	0.765	0.936	0.693	0.718
SS3	0.724	0.844	0.335	0.651	0.632	0.794	0.943	0.667	0.719
SS4	0.705	0.909	0.333	0.653	0.644	0.817	0.958	0.701	0.729

For the effort expectancy (EE) factor, the loadings of items on their own construction 0.871, 0.84, 0.764, 0.812, 0.901 are higher than 0.6 while the cross-loadings are 0.495 (AM1), 0.0.452 (CD1), 0.64 (CUOL), 0.568 (FC1). All indicator constructs confirm once again that the constructed model is in line with the condition of discriminated validity.

4.4.4. Structural Model

Hair et al., (2017) states that a structural model have to be examined using the Coefficient of Determination, coefficient of the slope of regression, t-test and p value. Smart PLS regression has been used to the goodness of fit (GoF), coefficient of determination (R^2), the effect size (f^2) and the cross-validated redundancy Q^2.

a. Coefficient of determination (R^2)

Table 9: Coefficient of determination (R^2)

Construct	R Square	R Square Adjusted	Result
Continuance use of online learning	0.724	0.723	Strong
Satisfaction	0.86	0.859	Strong

R^2 denotes coefficient of determination

As shown in table 9, the coefficient of determination (R^2) values of the endogenous variables, the continuance use of online learning and satisfaction are 0.724 and 0.86, respectively. Falk & Miller (1992) proposed, an R-square value of 0.10 as a minimum acceptable value, and Chin (1998), proposed that, the value above 0.67 described as high, while values vary between 0.33 to 0.67 are moderate. So, R^2 of the continuance use of online learning and the satisfaction described as strong (Falk &Miller (1992). (Note: No R-square was displayed for the remaining variables because they are exogenous latent factors). In our case, 72.4 % of the total variation in CUOL can be explained by PE, EE, SI, and FC and 86 % of the total variation in students 'satisfaction can be explained by CUOL, SE, AM and CD.

b. Predictive relevance (Q^2)

The predictive relevance (Q^2) is of similar contribution to the coefficient of determination. This was calculated only for endogenous constructs the models as indicated by Hair et al., (2017). The analysed structural model is predictive for the endogenous

variables if Q^2 > zero. Following the recommendation of Hait et al., (2014), Q^2 value of 0.02, 0.15 and 0.35, indicating small, medium, and high predictive relevance respectively (Hair et al., 2014). From Table 10, the value of the Stone-Geisser coefficient Q^2 for the continuance use of online learning and satisfaction is 0.642 and 0.76 respectively, indicating high predictive relevance. Q^2 >0 means that the analyzed structural model is high degree predictive relevance for the continuance use of online learning and satisfaction. Construct's continuance use of online learning and satisfaction show a large predictive relevance.

Table 10: Predictive relevance (cross-validated redundancy)

	SSO	SSE	Q² (=1-SSE/SSO)
Assessment Method	3740	3740	
Continues use of online learning	2992	1070.506	0.642
Course Design	4488	4488	
Effort Expectancy	3740	3740	
Facilitating Condition	4488	4488	
Performance Expectancy	3740	3740	
Satisfaction	2992	716.986	0.76
Social influence	2244	2244	
Student Engagement	5236	5236	

Q² denotes predictive relevance, SSE: Sum of squares of prediction errors

SSO: Sum of squares of observations.

c. Test of model fit (Goodness-of-fit)

Table 11: Results of model fit

Column1	R^2	AVE	GoF
Continues use of online learning	0.724	0.894	0.647
Satisfaction	0.86	0.891	

R^2: coefficient of determinant. GoF: goodness of fit

The overall fit and the strengths of the hypothesized paths were assessed to confirm that the model has an acceptable goodness-of -fit (table 11). This analysis has been applied to assess overall theoretical model fit with the data. For this paper work, the goodness of fit (GoF) method was applied. Tabachnick and Fidell, (2013) reported that the goodness of fit (GoF) is an essential step of assessment. A good and satisfactory structural model fit to the sample Data if obtained Results of this method are located within an acceptable range (Tabachnick and Fidell, 2013).

The GoF $(0 < GoF < 1)$ is considered the geometric mean of the average commonality and average R^2 value. To determine the GoF, this paper work applied the equation employed by Alolah et al. (2014) (Alolah, Stewart, Panuwatwanich, & Mohamed, 2014)

$$GoF = \sqrt{\overline{AVE} \times \bar{R}^2}$$

The GoF value was 0.647, which exceeded the 0.36 target recommended by Tenenhaus et al. (2005). Therefore, the suggested model had acceptable and strong overall fit, showing that it performed well equated with the standard values (Tenenhaus, Vinzi, Chatelin, & Lauro, 2005).

d. Hypotheses testing results (Path coefficient)

The path coefficient β was applied to assess the association between dependent and independent variables. Testing hypothesis results are summarized in Table 12 and illustrated in Figure 5 to present the structural connections between the underlying variables (relationship of path in the research model).

The influence of independent constructs on dependent variables includes two kinds of effects. One is the direct effect, that is, the direct causal relationship to the satisfaction with online learning, such as the continuance use of online learning, Student engagement, assessment method, course design. The other is the indirect effect, which affects the satisfaction indirectly through the influence of other variables.

In this model, Performance expectancy, effort expectancy, social influence and facilitating conditions have an indirect effect on the satisfaction through the continuance use of online learning. A significance value (P-value) lower than 0.05 indicates that the hypothesis is acceptable and vice versa. As can be demonstrated in Table 12, all direct hypotheses were supported except the second and the fourth hypotheses. Among the factors influencing satisfaction, Assessment method (β = 0.188), continuance use of online learning (β = 0.709) demonstrated the highest positive effect on students' satisfaction towards online learning experience. Supporting, H5 and H7. Results have also shown that satisfaction is influenced by student engagement (β = 0.121, P<0.001) and by the course design (β = 0.061, P<0.001) which supports H6 and H8 respectively.

Performance expectancy (β =0.585, P<0.001) and social influence (β =0.225, P<0.001) variables showed a significant positive effect on continuance use of online learning. These results provide support for hypotheses H1 and H3.

However, the effort expectancy path (β = 0.071, P > 0.05) and the facilitating condition (β = 0.047, P > 0.05) did not prove to be a substantial determinant of continuance use of online learning, H2 to H4 were not supported.

The total effect value indicates the degree of influence on the dependent variable. The greater the value of the total effect, the higher the impact on the satisfaction. Therefore, according to the results in table 12, the order of influence of each influencing factor on student's satisfaction is: continued use of online learning (0.709) > assessment method (0.188) > student engagement (0.121) > course design (-0.061). The β value for course design was found to be negative, this finding indicates that course design has a considerable influence on student's satisfaction toward online learning but in negative direction.

In summary, the performance expectancy and social influence have substantial influence on continuance use of online learning. Student engagement, assessment method, course design and continuance use of online learning have significant influence on student's satisfaction with online learning. Effort expectancy and facilitating conditions have no substantial influence on continuance use of online learning. Although the effort expectancy and facilitating conditions don't have a significance value related to the student's satisfaction.

Table 12: Path coefficient of the research hypothesis

Hypothesis	Relationship	Std. β	Std.Error	T.value	P-value	Decision
H1	PE →CUOL	0.585	0.04	14.503	0.000	Supported**
H2	EE → CUOL	0.071	0.039	1.846	0.065	Not supported
H3	SI → CUOL	0.225	0.036	6.293	0.000	Supported**
H4	FC → CUOL	0.047	0.034	1.41	0.159	Not supported
H5	CUOL → SS	0.709	0.029	24.558	0.000	Supported**
H6	SE → SS	0.121	0.027	4.488	0.000	Supported**
H7	AM → SS	0.188	0.03	6.281	0.000	Supported**
H8	CD → SS	-0.061	0.017	3.58	0.000	Supported**

Significant P** <0.01, P<0.05

Hypotheses	Results
H1: Performance expectancy will have a significant positive influence on students' continuance use of online learning.	Supported, accepted
H2: Effort expectancy has a positive impact on continuance used of online learning system.	Not Supported, Rejected
H3: Social influence has a positive effect on continuance use of online learning system.	Supported, accepted
H4: Facilitating condition will have a significant influence on students' continuance intention to use online learning	Not Supported, Rejected
H5: Continuance use of online learning, will have a positive influence on students' satisfaction and acceptance of online learning	Supported, accepted
H6: Students' engagement has a positive impact on students 'satisfaction with online learning	Supported, accepted
H7: Assessment Method has a positive influence on student' satisfaction with online learning	Supported, accepted
H8: course design will positively influence students 'satisfaction with online learning	Supported, accepted
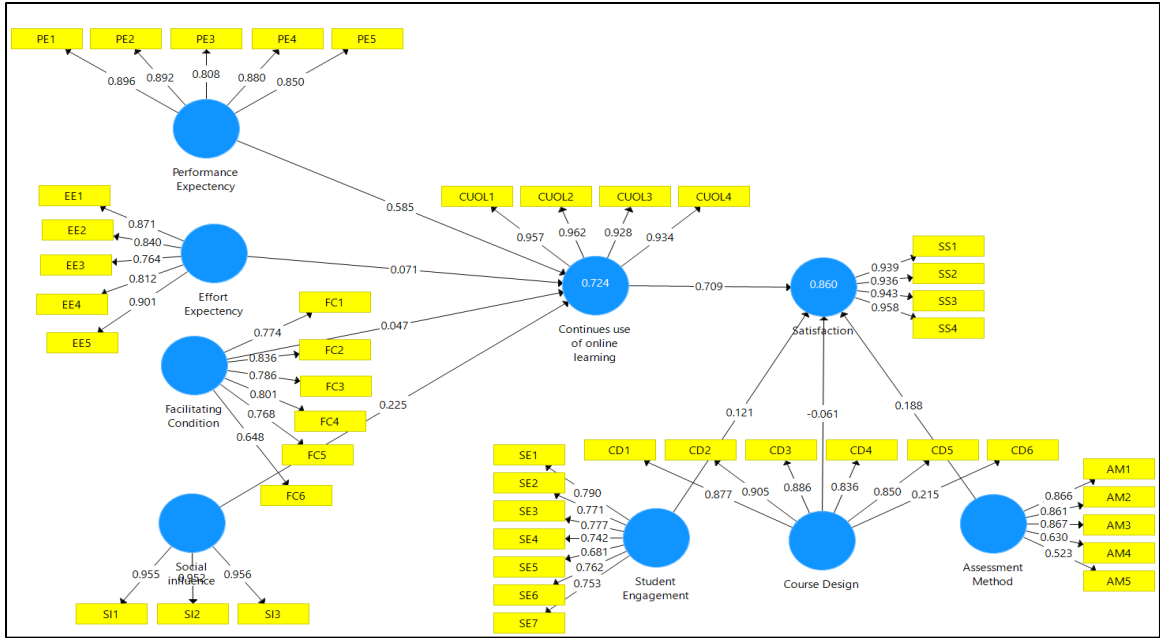
Figure 5: The path diagram and the measurement model.

The number inside the construct shows coefficient of determination (R^2); and the number between construct and indicator is the loading factor of each indicator. The label inside the indicator symbol shows the indicator code for each corresponding construct.

e. Effect Size

Hair et al., (2017) suggested that the significance of a relationship between constructs is measured using the f^2 statistics. The p value should be lesser than the level of significance to show a valid impact (Hair, Hult, Ringle, & Sarstedt, 2017). The values of (0.02), (0.15), (0.35) correspond to a small, medium, and high size effect respectively.

To evaluate the level of effect that performance expectancy, effort expectancy, facilitating condition, and social have on continuance use of online learning and the level of effect that student engagement, assessment method, course design and continuance use of online learning have on students 'satisfaction with online learning, the effect size, f^2 is calculated and the results are presented in table 13.

For the continuance use of online learning, the effect size of effort expectancy, facilitating condition and social influence is 0.006, 0.003 and 0.085 respectively. These findings show that the effect of these 3 variables on the continuance use of online learning is a small sized effect. The effect size of performance expectancy is 0.424. This result indicates that the effect of the performance expectancy on the continued use of online learning is a large sized effect

For the students' satisfaction: The effect size of assessment method, course design and student engagement is 0.101, 0.002 and 0.038 respectively. These results suggest that the impact of these 3 variables on students 'satisfaction is a small sized effect. The effect size of continuance use of online learning is 1.305. This result indicates that the effect of the continued use of online learning on students 'satisfaction is a large sized effect.

Table 13: Effect size Results

	f^2 (Continues use of online learning)	f^2 (Satisfaction)
Assessment Method		0.101
Continues use of online learning		1.305
Course Design		0.02
Effort Expectancy	0.006	
Facilitating Condition	0.003	
Performance Expectancy	0.424	
Satisfaction		
Social influence	0.085	
Student Engagement		0.038

4.5. Analysis of the moderator in the model ANOVA

Based on the modified model, the study conducts multigroup analysis of the user's gender, age, and education level. For the difference analysis for each moderator, the independent sample t-test and one-way analysis of variance (ANOVA) are used. ANOVA analysis were developed to assess the variations between different elements based on demographic variables, such as gender, age, and education level in perception of college students' satisfaction with online learning.

4.5.1. Role of gender

One-way analysis of variance (ANOVA) test was employed to understand whether the two genders differ in their attitude towards online learning. Therefore, this study verifies the moderating role of gender by the independent sample t-test. First, the Levene's Test is performed.

Table 14: ANOVA Test by Gender

Construct		Sum of Squares	Mean Squares	F	P-value (Sig.)
Performance expectancy	Between Groups	15.575	15.575	10.107	.002
Effort expectancy	Between Groups	16.443	16.443	14.515	.000
Social influence	Between Groups	2.493	2.493	1.543	.215
Facilitating conditions	Between Groups	53.027	53.027	2.344	.126
Students' engagement	Between Groups	23.272	23.272	.605	.437
Assessment method	Between Groups	45.845	45.845	2.073	.150
Course design	Between Groups	51.585	51.585	2.245	.134
Continuance use of online learning	Between Groups	93.744	93.744	4.246	.040
students' satisfaction	Between Groups	32.063	32.063	1.530	.216

One-way analysis of variance (ANOVA) test was run to understand whether the two genders differ in their attitude towards online learning. Thereafter, this study verifies the moderating role of gender by the independent sample t-test. First, the Levene's Test is performed. The results of the homogeneity test of variance (F-test) are used to determine whether the variance has homogeneity of variance. If the significance p value of the F-test

is greater than 0.05, the variance is homogeneous. On the contrary, a value less than 0.05 indicates the variance is non-homogeneous.

According to the data shown in table 14 above, for the Social influence, facilitating conditions, Student engagement, assessment method, course design and satisfaction, the significance value p of the F test is greater than 0.05, so the variance is homogeneous. Then, the significance p value of the t-test for performance expectancy, effect expectancy, and continuance use of online learning is less than 0.05, indicating the difference between the groups is statistically significant. This result indicates that there was a significant variation between the two genders on performance expectancy, effect expectancy, and continuance use of online learning.

Table 15: Group statistics (gender)

Construct	Gender	N	Mean	Std. Deviation	Std. Error
PE	Female	633	3.1924	1.25060	.04971
	Male	118	3.5881	1.19036	.10958
EE	Female	632	3.6696	1.08881	.04331
	Male	118	4.0763	.92114	.08480
CUOL	Female	632	10.2409	4.66505	.18557
	Male	118	11.2119	4.87752	.44901

According to Data in table 14 and 15, gender has a significant influence on PE, EE and CUOL. It can be seen that the mean difference between the two groups is negative and equal to -0.395, -0.406, -0.971, for the performance expectancy, effort expectancy and continuance use of online learning, respectively. A negative value indicates that the mean value for these items selected by the female is lower than that for the items selected by the male. So, males suppose that online learning are more useful to them and satisfy their needs

for accomplishing gain in learning performance, and they are more willing to continue to use the learning system in the near future.

Eventually, It can be determined that the gender has a considerable moderating effect on the performance expectancy, effort expectancy and Continuance use of online learning.

4.5.2. Role of age

One-way analysis of variance is used to verify whether there is any statistically substantial variation between the mean of two or more independent groups (Almquist, Ashir, & Brännström, 2014). The homogeneity test of variance is performed, and the results are shown in Table 16.

Table 16: ANOVA Test by Age

Construct		Sum of Squares	Mean Squares	F	Sig.
Performance expectancy	Between Groups	38.677	12.892	8.514	.000
Effort expectancy	Between Groups	17.924	5.975	5.269	.001
Social influence	Between Groups	43.715	14.572	9.314	.000
Facilitating conditions	Between Groups	148.466	49.489	2.194	.087
Students' engagement	Between Groups	1429.628	476.543	12.982	.000
Assessment method	Between Groups	331.512	110.504	5.070	.002
Course design	Between Groups	171.307	57.102	2.496	.059
Continuance use of online learning	Between Groups	659.647	219.882	10.284	.000
students' satisfaction	Between Groups	287.841	95.957	4.643	.003

The significance p values for performance expectancy, effect expectancy, social influence, Student engagement, assessment method, continuance use of online learning, course design and satisfaction are less than 0.05, indicating the difference between the groups is statistically significant. This result indicates that there was a significant difference for respondents of different ages in performance expectancy, effect expectancy, social influence, Student engagement, assessment method, continuance use of online learning, course design and satisfaction. No significant difference has been found for facilitating condition. In the following, only the items with significant differences are discussed.

Multiple comparisons of different age groups are performed to analyses the moderating role of age. When the p value is greater than 0.05, the LSD method is used to test whether there is a significant difference in age between items (Almquist et al., 2014). The findings of multiple comparisons are summarized in Table 17.

For the Performance expectancy (PE), by analyzing the data, it can be found that there are significant differences between the age group 18–20, and the two age groups: the age group 31–45 and the age group 45 or more. The p values are 0.000 and 0.03, respectively. It should be kept in mind that a p value less than 0.05 indicates that there is a substantial difference between the age groups. The corresponding mean differences are -0.573 and -0.594, respectively, clearly, both mean differences are negative. The negative values indicate that the mean values for the items selected by the age group 18–20 are lower than the mean values for the items selected by both the age groups 31-45 and 45 and more. This suggests that both age groups 31-45 and 45 and more believe that use of online learning can fulfil their learning needs and improve their job and tasks performance,

compared to the age group 18–20. There is no substantial variation among the other age group 21-30.

For the Effort expectancy (EE), results found that there are significant differences between the age group 18-20 and the age groups 31-45. The p value is 0.012, and the mean difference is -0.27. this negative value indicates that the age group 31-45 more confirm the same perception where they believes that it is straightforward and easy going for them to use online learning. There is no significant difference between the other age groups 21-30 and 45 or more.

For the Social influence, by analyzing the data, it can be found that there are considerable differences between the age group 18–20 and the two groups: the age groups 21-30 and 31-45. The p values are 0.001 and 0.000, the mean difference is -0.366 and -0.642, respectively. This indicates that both the age groups 21-30 and 31-45 more suppose that if people around them (family/friends/colleagues) use online learning they will also try to use. These age groups value the experience and the recommendation of their friends, instructors, or family.

For the Facilitating condition, results from table 17, found that there are substantial differences only between the age group 21-30 and the age groups 31-45. The p value is 0.011, and the mean difference is -1.168. This means that the age group 31-45 believes that they can get better assistance and support regarding how to use of online learning compared to the age group 18-20, 21-30, and 45 or more.

For the continuance use of online learning, it can be found that there are significant differences between the age group 18–20 and the two age groups: the age groups 31-45

and 45 or more. The p values are 0.000 and 0.005, and the mean difference are -2.207 and – 2.927, respectively. These data indicate that both the age group 31-45 and 45 or more suppose that they be prepared to use online learning in the near future again compared to the age group 18–20.

For the students' engagement, results found that there is significant difference between the age group 18-20 and the age groups 31-45. The p value is 0.000, and the mean difference is -3.51. This negative value indicates that the age group 31-45 more believes that it is very important to them if online learning system motivates and engages them in the process of learning.

For the Assessment method, by analyzing the data, it can be found that there are considerable differences between the age group 21-30 and the two groups: the age groups 31-45 and 45 or more. The p values are 0.000 and 0.034, the mean difference is -1.605 and -2.182, respectively. This indicates that both the age groups 31-45 and 45 or more suppose that if the assessment method used by the institute is effective, this will help them accomplish positive learning outcomes.

For the Course design, results found that there is significant difference between the age group 31-45 and the age groups 21-30. The p value is 0.016 and the mean difference is 1.11. this value indicates that the age group 31-45 more believes that it is essential to them if the online course is well-constructed and organized.

For the students 'satisfaction, by analyzing the data, it can be found that there are significant differences between the age group 31-45 and the two groupings: the age groups 18-20 and the age group 21-30. The p values are 0.001 and 0.002, the mean difference is

1.536 and 1.353, respectively. This indicates that the age groups 31-45 will be more comfortable with the online learning experience and believe that the online learning system successfully met their expectations.

The above analysis, indicate that the age group 31– 45 has the greatest influence among the four groups, for the dimensions of PE, EE, SI, CUOL, SE, AM, CD and SS. This indicates that the age group 31–45 holds very positive opinions on the use of online learning.

Table 17: Multiple Comparisons for age using LSD

Dependent Variable	(I) Age Category	(J) Age Category:	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
PE	18-20	21-30	-.10702	.10396	.304	-.3111	.097
		31-45	-.57320*	.12382	.000	-.8163	-.330
		45 or More	-.59486*	.27352	.030	-1.1318	-.057
	21-30	18-20	.10702	.10396	.304	-.0971	.311
		31-45	-.46618*	.11904	.000	-.6999	-.232
		45 or More	-.48784	.27139	.073	-1.0206	.044
	31-45	18-20	.57320*	.12382	.000	.3301	.8163
		21-30	.46618*	.11904	.000	.2325	.6999
		45 or More	-.02166	.27960	.938	-.5706	.5272
	45 or More	18-20	.59486*	.27352	.030	.0579	1.1318
		21-30	.48784	.27139	.073	-.0449	1.0206
		31-45	.02166	.27960	.938	-.5272	.5706
EE	18-20	21-30	.13097	.09006	.146	-.0458	.3078
		31-45	-.27046*	.10723	.012	-.4810	-.0599
		45 or More	-.18449	.23672	.436	-.6492	.2802
	21-30	18-20	-.13097	.09006	.146	-.3078	.0458
		31-45	-.40143*	.10300	.000	-.6036	-.1992
		45 or More	-.31546	.23484	.180	-.7765	.1456
	31-45	18-20	.27046*	.10723	.012	.0599	.4810
		21-30	.40143*	.10300	.000	.1992	.6036
		45 or More	.08597	.24195	.722	-.3890	.5609
	45 or More	18-20	.18449	.23672	.436	-.2802	.6492
		21-30	.31546	.23484	.180	-.1456	.7765
		31-45	-.08597	.24195	.722	-.5609	.3890
SI	18-20	21-30	-.36671*	.10567	.001	-.5742	-.1593
		31-45	-.64282*	.12586	.000	-.8899	-.3957
		45 or More	-.45520	.27803	.102	-1.0010	.0906
	21-30	18-20	.36671*	.10567	.001	.1593	.5742
		31-45	-.27611*	.12100	.023	-.5136	-.0386
		45 or More	-.08850	.27586	.748	-.6300	.4531

Dependent Variable	(I) Age Category	(J) Age Category:	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
SI	31-45	18-20	.64282*	.12586	.000	.3957	.8899
		21-30	.27611*	.12100	.023	.0386	.5136
		45 or More	.18762	.28421	.509	-.3703	.7456
	45 or More	18-20	.45520	.27803	.102	-.0906	1.0010
		21-30	.08850	.27586	.748	-.4531	.6300
		31-45	-.18762	.28421	.509	-.7456	.3703
CUOL	18-20	21-30	-.26463	.39107	.499	-1.0324	.5031
		31-45	-2.20723*	.46564	.000	-3.1214	-1.2931
		45 or More	-2.92749*	1.02795	.005	-4.9455	-.9095
	21-30	18-20	.26463	.39107	.499	-.5031	1.0324
		31-45	-1.94260*	.44729	.000	-2.8207	-1.0645
		45 or More	-2.66285*	1.01977	.009	-4.6648	-.6609
	31-45	18-20	2.20723*	.46564	.000	1.2931	3.1214
		21-30	1.94260*	.44729	.000	1.0645	2.8207
		45 or More	-.72026	1.05063	.493	-2.7828	1.3423
	45 or More	18-20	2.92749*	1.02795	.005	.9095	4.9455
		21-30	2.66285*	1.01977	.009	.6609	4.6648
		31-45	.72026	1.05063	.493	-1.3423	2.7828
SE	18-20	21-30	-.38553	.51186	.452	-1.3904	.6193
		31-45	-3.51925*	.60966	.000	-4.7161	-2.3224
		45 or More	-2.16996	1.34672	.108	-4.8138	.4738
	21-30	18-20	.38553	.51186	.452	-.6193	1.3904
		31-45	-3.13372*	.58609	.000	-4.2843	-1.9831
		45 or More	-1.78443	1.33621	.182	-4.4076	.8388
	31-45	18-20	3.51925*	.60966	.000	2.3224	4.7161
		21-30	3.13372*	.58609	.000	1.9831	4.2843
		45 or More	1.34929	1.37665	.327	-1.3533	4.0518
	45 or More	18-20	2.16996	1.34672	.108	-.4738	4.8138
		21-30	1.78443	1.33621	.182	-.8388	4.4076
		31-45	-1.34929	1.37665	.327	-4.0518	1.3533

Dependent Variable	(I) Age Category	(J) Age Category:	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
FC	18-20	21-30	.35189	.40123	.381	-.4358	1.1396
		31-45	-.81677	.47880	.088	-1.7567	.1232
		45 or More	.33235	1.05565	.753	-1.7401	2.4047
	21-30	18-20	-.35189	.40123	.381	-1.1396	.4358
		31-45	-1.16866*	.46036	.011	-2.0724	-.2649
		45 or More	-.01954	1.04741	.985	-2.0758	2.0367
	31-45	18-20	.81677	.47880	.088	-.1232	1.7567
		21-30	1.16866*	.46036	.011	.2649	2.0724
		45 or More	1.14912	1.07951	.287	-.9701	3.2684
	45 or More	18-20	-.33235	1.05565	.753	-2.4047	1.7401
		21-30	.01954	1.04741	.985	-2.0367	2.0758
		31-45	-1.14912	1.07951	.287	-3.2684	.9701
AM	18-20	21-30	.71487	.39439	.070	-.0594	1.4891
		31-45	-.89077	.47154	.059	-1.8165	.0349
		45 or More	-1.46759	1.03767	.158	-3.5047	.5695
	21-30	18-20	-.71487	.39439	.070	-1.4891	.0594
		31-45	-1.60564*	.45345	.000	-2.4958	-.7154
		45 or More	-2.18246*	1.02957	.034	-4.2037	-.1612
	31-45	18-20	.89077	.47154	.059	-.0349	1.8165
		21-30	1.60564*	.45345	.000	.7154	2.4958
		45 or More	-.57682	1.06152	.587	-2.6607	1.5071
	45 or More	18-20	1.46759	1.03767	.158	-.5695	3.5047
		21-30	2.18246*	1.02957	.034	.1612	4.2037
		31-45	.57682	1.06152	.587	-1.5071	2.6607
CD	18-20	21-30	.09573	.40450	.813	-.6984	.8898
		31-45	-1.01991*	.48163	.035	-1.9654	-.0744
		45 or More	-1.26786	1.06325	.233	-3.3552	.8195
	21-30	18-20	-.09573	.40450	.813	-.8898	.6984
		31-45	-1.11565*	.46265	.016	-2.0239	-.2074
		45 or More	-1.36359	1.05479	.196	-3.4343	.7071

Dependent Variable	(I) Age Category	(J) Age Category:	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
CD	31-45	18-20	1.01991*	.48163	.035	.0744	1.9654
		21-30	1.11565*	.46265	.016	.2074	2.0239
		45 or More	-.24794	1.08671	.820	-2.3813	1.8854
	45 or More	18-20	1.26786	1.06325	.233	-.8195	3.3552
		21-30	1.36359	1.05479	.196	-.7071	3.4343
		31-45	.24794	1.08671	.820	-1.8854	2.3813
SS	18-20	21-30	-.18310	.38404	.634	-.9370	.5708
		31-45	-1.53650*	.45917	.001	-2.4379	-.6351
		45 or More	-1.52372	1.01044	.132	-3.5074	.4599
	21-30	18-20	.18310	.38404	.634	-.5708	.9370
		31-45	-1.35340*	.44155	.002	-2.2202	-.4866
		45 or More	-1.34062	1.00255	.182	-3.3088	.6275
	31-45	18-20	1.53650*	.45917	.001	.6351	2.4379
		21-30	1.35340*	.44155	.002	.4866	2.2202
		45 or More	.01278	1.03366	.990	-2.0165	2.0420
	45 or More	18-20	1.52372	1.01044	.132	-.4599	3.5074
		21-30	1.34062	1.00255	.182	-.6275	3.3088
		31-45	-.01278	1.03366	.990	-2.0420	2.0165

*. The mean difference is significant at the 0.05 level.

b. Dunnett t-tests treat one group as a control, and compare all other groups against it.

4.5.3. Role of education level

The same test method is applied for the moderating role of education level. The homogeneity test of variance is performed, and the results are shown in Table 18.

Table 18: ANOVA Test by Education Level

Construct		Sum of Squares	Mean Squares	F	Sig.
Performance expectancy	Between Groups	19.800	6.600	4.287	.005
Effort expectancy	Between Groups	10.567	3.522	3.080	.027
Social influence	Between Groups	49.998	49.998	32.215	.000
Facilitating conditions	Between Groups	76.377	25.459	1.124	.339
Students' engagement	Between Groups	740.464	246.821	6.559	.000
Assessment method	Between Groups	258.050	86.017	3.929	.008
Course design	Between Groups	57.384	19.128	.831	.477
Continued use of online learning	Between Groups	389.655	129.885	5.974	.001
Students 'satisfaction	Between Groups	333.484	111.161	5.395	.001

The significance p values for performance expectancy, effect expectancy, social influence, Student engagement, assessment method, continuance use of online learning, and satisfaction are less than 0.05, indicating the difference between the groups is statistically significant. As presented in table 18, this end result indicates that there was a considerable difference for respondents of different education levels in performance expectancy, effect expectancy, social influence, Student engagement, assessment method, continuance use of online learning, and satisfaction. the LSD method is used to test whether there is a significant variation among different education levels for the constructs.

It can be noticed in table 19 that there are substantial differences for respondents of different education levels in the following items: PE, EE, SI, CUOL, AM, SE, and SS

For performance expectancy, by analyzing the data, it can be found that there are substantial differences between the bachelor level, and the education level: the high Diploma level. The p value is 0.000, of which is less than 0.05, and the mean difference is -0.390. This indicates that the High Diploma level group more believes that use of online learning can fulfil their learning needs and improve their job and tasks performance, compared to the other education level group.

For effort expectancy, by analyzing the data, it can be found that there are significant differences between the bachelor level, and the education level: the high Diploma level. The p value is 0.006, and the mean difference is -0.262. This indicates that the High Diploma level group more believes that it is simple and straightforward to use online learning and they can easily adapt the online learning experience.

For the Social influence, by analyzing the data, it can be found that there are substantial differences between the bachelor level, and the education level group: the high Diploma level. The p value is 0.001, and the mean difference is -0.363. This indicates that the high Diploma education level group more value the recommendations of people around them and if people around them (family/friends/colleagues) use online learning they will also try to use it.

For the continuance use of online learning, it can be found that there are major differences between the Bachelor level and the three education level groups: High Diploma, High school or less and postgraduate. The p values are 0.000, 0.003, 0.01 and the

mean difference are -1.466, – 1.358 and -1.644, respectively. These data indicate that the High Diploma, High school or less and postgraduate more suppose that they will be more eager to use online learning in the near future again compared to the Bachelor level.

For the students 'engagement, it can be found that there are significant differences between the Bachelor level and the three education level groups: High Diploma, High school or less and postgraduate. The p values are 0.000, 0.019, 0.012 and the mean difference are -2.244, -1.402 and -2.124, respectively. these values indicate that High Diploma, High school or less and postgraduate believes that it is very important to them when online learning system motivates and engages them in the process of learning.

For the Assessment method, it can be found that there are substantial variations amongst the Bachelor level and the three education level groups: High Diploma, High school or less and postgraduate. The p values are 0.006, 0.024, 0.017 and the mean difference are -1.145, – 1.029 and -1.548, respectively. This indicates that High Diploma, High school or less and postgraduate suppose that if the assessment method used by the institute is effective, this will help them accomplish positive learning outcomes.

For the students 'satisfaction, by analyzing the data, it can be found that there are significant differences between the Bachelor level and the three education level groups: High Diploma, High school or less and postgraduate. The p values are 0.006, 0.024, 0.017 and the mean difference are -1.145, – 1.029 and -1.548, respectively. This indicates that High Diploma, High school or less and postgraduate will be more satisfied with the online learning experience and believe that the online learning system successfully met their expectations

For the Course design, and for the facilitating condition, results found that there is no significant difference between the education level group.

Based on the above evaluation, it can be explored that the High Diploma education level stands out from the four education groups for the dimensions of PE, EE, SI. CUOL, SE. AM and SS, and both the high school level group and the postgraduate level group stands out for the dimension of SE, AM, CUOL and SS.

Table 19: Multiple Comparisons for Educational level using LSD

Dependent Variable	(I) Education Level	(J) Education Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
PE	Bachelor	High Diploma	-.39038*	.11031	.000	-.6069	-.178
		High School or less	-.15261	.12039	.205	-.3890	.0837
		Postgraduate	-.24949	.17008	.143	-.5834	.0844
	High Diploma	Bachelor	.39038*	.11031	.000	.1738	.6069
		High School or less	.23777	.13007	.068	-.0176	.4931
		Postgraduate	.14089	.17706	.426	-.2067	.4885
	High School or less	Bachelor	.15261	.12039	.205	-.0837	.3890
		High Diploma	-.23777	.13007	.068	-.4931	.0176
		Postgraduate	-.09687	.18351	.598	-.4571	.2634
	Postgraduate	Bachelor	.24949	.17008	.143	-.0844	.5834
		High Diploma	-.14089	.17706	.426	-.4885	.2067
		High School or less	.09687	.18351	.598	-.2634	.4571
EE	Bachelor	High Diploma	-.26213*	.09514	.006	-.4489	-.074
		High School or less	-.06212	.10382	.550	-.2659	.1417
		Postgraduate	-.26337	.14663	.073	-.5512	.0245
	High Diploma	Bachelor	.26213*	.09514	.006	.0754	.4489
		High School or less	.20001	.11211	.075	-.0201	.4201
		Postgraduate	-.00124	.15261	.993	-.3008	.2984
	High School or less	Bachelor	.06212	.10382	.550	-.1417	.2659
		High Diploma	-.20001	.11211	.075	-.4201	.0201
		Postgraduate	-.20125	.15817	.204	-.5118	.1093
	Postgraduate	Bachelor	.26337	.14663	.073	-.0245	.5512
		High Diploma	.00124	.15261	.993	-.2984	.3008
		High School or less	.20125	.15817	.204	-.1093	.5118
SI	Bachelor	High Diploma	-.36318*	.11239	.001	-.5838	-.145
		High School or less	-.12057	.12266	.326	-.3614	.1202
		Postgraduate	-.31744	.17329	.067	-.6576	.0227

Dependent Variable	(I) Education Level	(J) Education Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
SI	High Diploma	Bachelor	.36318*	.11239	.001	.1425	.5838
		High School or less	.24261	.13252	.068	-.0175	.5028
		Postgraduate	.04574	.18040	.800	-.3084	.3999
	High School or less	Bachelor	.12057	.12266	.326	-.1202	.3614
		High Diploma	-.24261	.13252	.068	-.5028	.0175
		Postgraduate	-.19687	.18697	.293	-.5639	.1702
	Postgraduate	Bachelor	.31744	.17329	.067	-.0227	.6576
		High Diploma	-.04574	.18040	.800	-.3999	.3084
		High School or less	.19687	.18697	.293	-.1702	.5639
CUOL	Bachelor	High Diploma	-1.46698*	.41481	.000	-2.2813	-.656
		High School or less	-1.35858*	.45267	.003	-2.2472	-.469
		Postgraduate	-1.64452*	.63933	.010	-2.8996	-.384
	High Diploma	Bachelor	1.46698*	.41481	.000	.6526	2.283
		High School or less	.10840	.48881	.825	-.8512	1.060
		Postgraduate	-.17754	.66541	.790	-1.4838	1.128
	High School or less	Bachelor	1.35858*	.45267	.003	.4699	2.242
		High Diploma	-.10840	.48881	.825	-1.0680	.8512
		Postgraduate	-.28594	.68965	.679	-1.6398	1.069
	Postgraduate	Bachelor	1.64452*	.63933	.010	.3894	2.896
		High Diploma	.17754	.66541	.790	-1.1288	1.488
		High School or less	.28594	.68965	.679	-1.0679	1.638
FC	Bachelor	High Diploma	-.43735	.42340	.302	-1.2685	.3938
		High School or less	.01247	.46205	.978	-.8946	.9195
		Postgraduate	-1.03597	.65257	.113	-2.3171	.2451
	High Diploma	Bachelor	.43735	.42340	.302	-.3938	1.265
		High School or less	.44981	.49893	.368	-.5297	1.423
		Postgraduate	-.59863	.67919	.378	-1.9320	.7347
	High School or less	Bachelor	-.01247	.46205	.978	-.9195	.8946
		High Diploma	-.44981	.49893	.368	-1.4293	.5297
		Postgraduate	-1.04844	.70393	.137	-2.4303	.3335

Dependent Variable	(I) Education Level	(J) Education Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
FC	Postgraduate	Bachelor	1.03597	.65257	.113	-.2451	2.311
		High Diploma	.59863	.67919	.378	-.7347	1.930
		High School or less	1.04844	.70393	.137	-.3335	2.433
SE	Bachelor	High Diploma	-2.24458*	.54537	.000	-3.3152	-1.17
		High School or less	-1.40261*	.59521	.019	-2.5711	-.231
		Postgraduate	-2.12404*	.84087	.012	-3.7748	-.473
	High Diploma	Bachelor	2.24458*	.54537	.000	1.1739	3.312
		High School or less	.84196	.64307	.191	-.4205	2.104
		Postgraduate	.12054	.87540	.891	-1.5980	1.831
	High School or less	Bachelor	1.40261*	.59521	.019	.2341	2.571
		High Diploma	-.84196	.64307	.191	-2.1044	.4205
		Postgraduate	-.72143	.90729	.427	-2.5026	1.057
	Postgraduate	Bachelor	2.12404*	.84087	.012	.4733	3.778
		High Diploma	-.12054	.87540	.891	-1.8391	1.590
		High School or less	.72143	.90729	.427	-1.0597	2.506
AM	Bachelor	High Diploma	-1.14553*	.41597	.006	-1.9622	-.329
		High School or less	-1.02903*	.45399	.024	-1.9203	-.138
		Postgraduate	-1.54859*	.64991	.017	-2.8245	-.277
	High Diploma	Bachelor	1.14553*	.41597	.006	.3289	1.962
		High School or less	.11650	.49049	.812	-.8464	1.074
		Postgraduate	-.40306	.67591	.551	-1.7300	.9239
	High School or less	Bachelor	1.02903*	.45399	.024	.1378	1.923
		High Diploma	-.11650	.49049	.812	-1.0794	.8464
		Postgraduate	-.51956	.69995	.458	-1.8937	.8545
	Postgraduate	Bachelor	1.54859*	.64991	.017	.2727	2.825
		High Diploma	.40306	.67591	.551	-.9239	1.730
		High School or less	.51956	.69995	.458	-.8545	1.893
SS	Bachelor	High Diploma	-1.49508*	.40406	.000	-2.2883	-.701
		High School or less	-1.04317*	.44089	.018	-1.9087	-.177
		Postgraduate	-1.38849*	.62253	.026	-2.6106	-.1664

Dependent Variable	(I) Education Level	(J Education Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
SS	High Diploma	Bachelor	1.49508*	.40406	.000	.7019	2.2883
		High School or less	.45191	.47583	.343	-.4822	1.3860
		Postgraduate	.10660	.64775	.869	-1.1650	1.3782
	High School or less	Bachelor	1.04317*	.44089	.018	.1776	1.9087
		High Diploma	-.45191	.47583	.343	-1.3860	.4822
		Postgraduate	-.34531	.67134	.607	-1.6633	.9726
	Postgraduate	Bachelor	1.38849*	.62253	.026	.1664	2.6106
		High Diploma	-.10660	.64775	.869	-1.3782	1.1650
		High School or less	.34531	.67134	.607	-.9726	1.6633
CD	Bachelor	High Diploma	-.06482	.42662	.879	-.9023	.7727
		High School or less	.62873	.46658	.178	-.2872	1.5447
		Postgraduate	-.15144	.65777	.818	-1.4427	1.1399
	High Diploma	Bachelor	.06482	.42662	.879	-.7727	.9023
		High School or less	.69355	.50394	.169	-.2958	1.6829
		Postgraduate	-.08662	.68478	.899	-1.4309	1.2577
	High School or less	Bachelor	-.62873	.46658	.178	-1.5447	.2872
		High Diploma	-.69355	.50394	.169	-1.6829	.2958
		Postgraduate	-.78017	.71036	.272	-2.1747	.6144
	Postgraduate	Bachelor	.15144	.65777	.818	-1.1399	1.4427
		High Diploma	.08662	.68478	.899	-1.2577	1.430
		High School or less	.78017	.71036	.272	-.6144	2.174

*. The mean difference is significant at the 0.05 level.

4.5.4. Role of Nationality

The same test method is applied for the moderating role of Nationality The homogeneity test of variance is performed, and the results are presented in Table 20.

Table 20: ANOVA Test by Nationality

Construct		Sum of Squares	Mean Squares	F	Sig.
Performance expectancy	Between Groups	46.118	46.118	30.740	.000
Effort expectancy	Between Groups	4.136	4.136	3.599	.058
Social influence	Between Groups	49.998	49.998	32.215	.000
Facilitating conditions	Between Groups	73.508	73.508	3.253	.072
Students' engagement	Between Groups	829.576	829.576	22.174	.000
Assessment method	Between Groups	580.560	580.560	27.127	.000
Course design	Between Groups	1.792	1.792	.078	.780
Continued use of online learning	Between Groups	493.855	493.855	22.922	.000
students' satisfaction	Between Groups	621.561	621.561	30.827	.000

The significance p values for performance expectancy, social influence, Student engagement, assessment method, continuance use of online learning, and satisfaction are less than 0.05, indicating the difference between the groups is statistically significant. This result indicates that there was a significant difference for respondents of different nationalities in performance expectancy, social influence, Student engagement, assessment method, continuance use of online learning, and satisfaction.

Table 21: Group statistics (Nationality)

	Nationality	N	Mean	Std. Deviation	Std. Error
PE	Non-Qatari	243	2.8963	1.09202	.07005
	Qatari	508	3.4260	1.28341	.05694
EE	Non-Qatari	243	3.6263	.99551	.06386
	Qatari	507	3.7850	1.10676	.04915
SI	Non-Qatari	243	2.8861	1.17023	.07507
	Qatari	508	3.4377	1.28028	.05680
FC	Non-Qatari	243	20.0878	4.42184	.28366
	Qatari	507	20.7567	4.90412	.21780
SE	Non-Qatari	243	19.0606	5.48047	.35157
	Qatari	508	21.3071	6.39783	.28386
AM	Non-Qatari	241	12.8697	4.23463	.27278
	Qatari	508	14.7543	4.80044	.21299
CD	Non-Qatari	243	21.4623	4.25270	.27281
	Qatari	507	21.5667	5.04073	.22387
CUOL	Non-Qatari	242	9.2180	4.33231	.27849
	Qatari	508	10.9537	4.78168	.21215
SS	Non-Qatari	243	8.7706	4.19773	.26928
	Qatari	506	10.7164	4.62391	.20556

From the table 21 below, it can be seen that the mean difference between the two groups (Qatari and non-Qatari) is negative and equal to -0.53, -0.551, -0.668, -2.2465, -1,88, -1.735, -1.946 for performance expectancy, social influence, facilitating condition, Student engagement, assessment method, continuance use of online learning, and satisfaction, respectively. A negative value indicates that the mean value for these items selected by the Non-Qatari is lower than that for the items selected by the Qatari. So, Qatari suppose that online learning are more useful to them and satisfy their needs for accomplishing gain in learning performance, and they are more willing to continue to use the learning system in the near future. They are more influenced by people around them and they believe that their engagement and the assessment method are very important to them and they more believe that the online learning system successfully met their

expectations. There is no substantial distinction between Qatari and non-Qatari students in effort expectancy and course design.

Chapter 5: DISCUSSION

The goal of the study is to verify the relevance of the extended UTAUT model for understanding student acceptance and satisfaction of online learning in higher educational institutions in Qatar. This research paper suggests an extension to the UTAUT model and then applies that to investigate student acceptance of online learning in higher education Qatar.

This paper contributes to student's satisfaction with online learning experiences in higher education in Qatar by verifying the approval model in a certain online learning atmosphere. The model was extended to include course design, student engagement, and assessment method constructs as main determinants of student satisfaction with online learning. The findings found that performance expectancy, social influence (indirect influence), were important elements of continued use of online learning

As well as, the results showed that, continued use of online learning, course design, assessment method and student engagement were significant determinants of students satisfaction with online learning. However, Effort expectancy and facilitating conditions proved not to have a significant effect on the continued use of online learning

5.1. Influence of performance expectancy on the continuance use of online learning

The results of this research paper discovered that performance expectancy has a substantial influence on students' continued use of online learning. The construct has the highest predictor and exhibits the maximum weight on the students' continued use of online learning.

The results, however, prove the hypothesis that if university students understand that online learning systems are useful and productive for performing their academic tasks and activities, they will continue to use the system and they will be more satisfied. This is in fact in accordance with the study that reported the original development of the UTAUT model (Venkatesh et al., 2003) and with a range of researches that have used the basic UTAUT model to assess the behavioural intention (BI) to use an online learning (Venkatesh, Thong, & Xu, 2012; Alrawashdeh, Muhairat & Alqatawnah, 2012; Mahande & Malago, 2019; Usoro, Echeng, & Majewski, 2013; Alshehri, Smith, & Rutter, 2019).

5.2. Influence of social influence on the continuance use of online learning

 Outcome of this research paper found that, the social influence element had a substantial influence on continued use of online learning. The social influence construct is the second highest predictor of continuance use of online learning after performance expectancy.

 This indicates that students are highly motivated by families, colleagues, friends, relatives and teachers about the effectiveness and success of online learning.

 The study finding is consistent with numerous numbers of studies, who demonstrated a considerable correlation between social influence and Continued use of online learning (Khechine, Pascot, & Bytha, 2014; North-Samardzic & Jiang, 2015; Šumak., Polančič, & Heričko, 2010).

 While in other research paper, the outcomes show that there is no substantial relationship and Social influence is not influential in determining use of online learning system. (Alshihri, Drew, & AlGhamdi, 2013; Almaiaih, & Alyoussef, 2019).

One explanation is that there is a possibility that the influence diverges from one scociaty compared to another (Almaiaih, & Alyoussef, 2019). The study results reveal that university students in Qatar will accept the online learning if their relatives, peers, and instructors emphasize on the importance to use the online learning.

5.3. Influence of effort expectancy on the continuance use of online learning

The finding of this research paper found that, effort expectancy had no significant impact on the continued use of online learning.

The study results supported previous studies (Alshehri, Smith, & Rutter, 2019; Šumak, Polančič, & Heričko, 2010; Al-Gahtani, Hubona, & Wang, 2007; Chen, 2011) who established that there was no considerable correlation between effort expectancy and behavioral intention (CUOL)

However, it came in contrary to findings from other studies in which effort expectancy was very influential and had a significant impact in determining the continuance use of online learning (Wang & Shih, 2009; Kollmann & Kayser, 2010; Alrawashdeh et al., 2012; Usoro et al., 2013).

A research paper by Alharbi et al., 2017 proposed that when users are already familiar with an online learning tool, the impact of effort expectancy on behavioral intention declines (Alharbi, Papadaki, & Dowland, 2017).

Nowadays, the advancement of technology in the country of Qatar have helped users and university students in particular, to consider online learning to be easy, more convenient and less complex.

5.4. Influence of facilitating condition on the Continuance use of online learning

The outcomes of previous research paper proved that FC had a significant positive effect on Students Continued use of online learning (Salloum, & Shaalan, 2018; Olasina, 2019).

However, our study indicated that, FC did not significantly influence Students Continuance use of online learning.

This outcome was in accordance with, Ain et al. (2015) and Alshehri et al., 2019 who proved that there is no influence of facilitating condition on the Continuance use of online learning (Ain, Kaur, & Waheed, 2015; Alshehri, Smith, & Rutter, 2019). On the contrary, some findings of multiple studies found that that facilitating condition is a direct influence of behavioral intention (Venkatesh et al. (2012); Šumak., Polančič, & Heričko, 2010; North-Samardzic & Jian, 2015) and is significant on candidate intention to use (Wang & Lo, 2012; Rodrigues, Sarabdeen & Balasubramanian, 2016).

Furthermore, our study finding supported Venkatesh et al., (2003), who predicted that when PE and EE variables are present, the FC variable turn out to be nonsignificant in determining an intent to continued use technology (Venkatesh, Morris, Davis, & Davis, 2003). The reason behind that, is the level of awareness of the current internet users toward technologies.

5.5. Influence of assessment method on students' satisfaction

The results showed that assessment method has a significant effect on students' satisfaction. These results suggest that when online assessments offer immediate feedback and the opportunity to take self-assessment tests in courses, this motivates the students to

use the online learning system and enhances their satisfaction with online learning experience. This result is consistent with other research that has showed that assessment method has a significant effect on actual use (Wright, 2003; Almaiah & Alyoussef, 2019).

5.6. Influence of student engagement on students' satisfaction

In this research, student engagement was hypothesized to be a substantial element driving students' satisfaction. Our findings indicate Student Engagement, demonstrated positive effects on students 'satisfaction. These results suggest that when students are more engaged and motivated in their courses, they are expected to be satisfied with the online learning experience (Gray & Diloreto, 2016).

Jaggars and Xu (2016) concluded that, the strong level of engagement between, students and instructors in a course, is positively associated to students overall satisfaction with an online course.

In addition to that considering the most sufficient aspects of class engagement, teachers can successfully design lessons and practical activities that will contribute in boosting student level of interaction and participation (Jennings & Angelo, 2006; Mandernach et al., 2011).

5.7. Influence of course design on students' satisfaction

The findings of this report indicated that, the course design has negative influence on student's satisfaction, which is quite surprising.

This result is inconsistent with one of the studies done by Almaiaih and Alyoussef, (2019) and Wright (2017), who supported that, if the course design contains the main information,

objectives and a detailed course layout, the students will be more satisfied with their online learning experience (Almaiaih, & Alyoussef, 2019, Wright, 2017).

The reason behind that might be the type of questions or items demonstrated on the survey, or because students think that course delivery will matter as long as the instructor have the pedagogical skills

5.8. Influence of continuance use of online learning on students' satisfaction

The results indicated that continued use of online learning has a significant positive effect on students' satisfaction. The construct has the highest predictor and demonstrates the highest weight on the student's satisfaction with online learning experience. This end result is consistent with a number of study findings that reveal that user satisfaction is positively correlated to continued use of online learning (Roca, Chiu, & Martinez, 2006; Kaewkitipong, Chen, & Ractham, 2016; Hong et al., 2017; Ouyang et al., 2017).

5.9. Influence of gender, age, and educational level

The gender has a considerable moderating impact on the performance expectancy, effort expectancy and continued use of online learning. Male students suppose that online learning is more useful to them and help them accomplish their learning needs than female students.

As per male perceptions, the online learning is simple to use and effortless, and they are eager to use it again in the near future. This outcome was in line with countless research results (e.g., Bandyopadhyay & Fraccastoro, 2007; Venkatesh et al., 2003), which supported that, gender has a moderating influence on the correlation amongst the

independent factors performance expectancy (PE), and effort expectancy (EE), and the dependent variable, continuance use of online learning.

For performance expectancy, the effect was stronger for men (Venkatesh & Morris, 2000), while our results came in contrary to findings from other studies in which for the effort expectancy and continuance use of online learning the effects of gender were more salient for women (Cheng, Yu, Huang, Yu, & Yu, 2011; Venkatesh & Morris, 2000).

The age group 31-45 took the most very positive attitude on the use of online learning experience. This finding was consistent with that of Chyung (2007) and DiBiase & Kidwai (2010) who reported that, adult users spend greater time browsing and communicating online, more than younger students. In general, the adult students scored more time logged into online learning platforms conducting tests compared to the younger students (Chyung, 2007; DiBiase & Kidwai, 2010). It has been noticed from the previous studies, that adult professionals emphasized on the support needed in the job context, known as facilitating conditions (FC) (Hall & Mansfield, 1975).

The High diploma education level group was also considered positive to the use of online learning and they stood out from different education groups for the dimensions of the Performance expectancy, Effort expectancy, Social influence, Continuance use of online learning, Students' engagement, Assessment method, and students' satisfaction. While the high school level group and postgraduate group stood out for the dimension of continuance use of online learning, Students' engagement, Assessment method, and Students' satisfaction.

It can be noticed that the, age group 31-45, and the high Diploma and postgraduate education level have the most significant association with online learning experience, and the reason behind that, this age and education level groups of students, have more life and work responsibilities they need to perform, therefore, the online learning is considered as a helpful mode of studying, to maintain their studying beside their life responsibilities.

Results also indicate that Qatari students suppose that online learning are more useful to them and satisfy their needs for accomplishing gain in learning performance, and they are more willing to continue to use the learning system in the near future. They are more influenced by people around them and they believe that their engagement and the assessment method are very important to them and they more believe that the online learning system successfully met their expectations. The explanation is, because of the large number of Qatari respondents who were exposed to the survey link through the email announcement sent out to the Community college student (CCQ). Therefore, the Qatari were the prominent group (67.6%).

CHAPTER 6: CONCLUSION

6.1. Conclusion

This research paper seeks to identify and investigate the main constructs that influence students' satisfaction with online learning in higher in Qatar. An extended UTAUT model based on the incorporation of new determinants such as; course design, student engagement and assessment method, were used to detect the most significant elements that affect students 'satisfaction with online learning experience in higher education in Qatar.

The results show that student's engagement, assessment method, course design and continued use of online learning are the most substantial elements of students 'satisfaction with online learning. In addition, the results emphasized that performance expectancy and social influence had a major influence on continued use of online learning (indirect influence on students 'satisfaction through the continuance use of online learning). However, effort expectancy and facilitating condition have no considerable impact on continued use of online learning).

In this work, 72.4 % of the total difference in continued use of online learning can be described by performance expectancy, social influence, effort expectancy and facilitating condition. In addition, 86 % of the total variation in students 'satisfaction can be explained by continuance use of online learning, student's engagement assessment method and course design. In addition, it can be verified that all Statistics components and model's parameters value of UTAUT theory are reasonable and predictive in a Qatari context. The UTAUT's constructs were sufficient to explain students' satisfaction and acceptance of online learning in higher education in Qatar. By extending the UTAUT to

include three new factors, a more comprehensive theoretical perspective of students' satisfaction with online learning in the Qatari context was provided.

Moreover, the moderating effects of age, gender, education level and nationality were also explored. It was found that male more suppose that online learning was useful to them and satisfied their needs for accomplishing gain in learning performance, and they found the online learning experience easy to use and they are more willing to continue to use the learning system in the near future. The age group 31-45 have the most very positive attitude on the use of online learning experience, and they stood out from different age groups for the dimensions of performance expectancy, effort expectancy, social influence, facilitating conditions, and continuance use of online learning, Students' engagement, Assessment method, course design and students 'satisfaction.

The High diploma education level group was also positive to the use of online learning and they stood out from different education groups for the dimensions of the Performance expectancy, Effort expectancy, Social influence, Continuance use of online learning, Students' engagement, Assessment method, and Students' satisfaction. While the high school level group and postgraduate group stood out for the dimension of continuance use of online learning, Students' engagement, Assessment method, and Students' satisfaction.

Qatari students suppose that online learning is more useful to them and satisfy their needs for accomplishing gain in learning performance, and they are more willing to continue using the online learning system in the near future. They are more influenced by people around them and they more believe that their engagement and the assessment

method are very important to them and the online learning system successfully met their expectations.

6.2. Practical Implications

The results of this study offer many academic institutions contributions in understanding factors affecting student's satisfaction with online learning in Qatar. The findings definitely provide insight into how colleges and universities in Qatar can effectively improve online students' experience with online learning Qatar. The results indicate that student's satisfaction with online learning is strongly associated with AM Assessment method, CD course design, SI, and Student Engagement. As a result, academic institutions in Qatar can utilize the findings derived from this study to enhance current online learning systems, as well as develop new strategies that meet Students needs and expectations within the online learning experience. In addition to that, the outcomes of this research can be future reference for academic institutions or for upcoming academic researchers are interested in the context of Qatar or in different context , or to figure out other issues related to online learning and factors that would affect students acceptance and satisfaction with online learning.

The study negotiates that there were few researches exist in that have attempted to adopt the UTAUT model in the context of online learning satisfaction in the country of Qatar. Further, this research demonstrated the lack of theoretical models that explore and analyses the factors that could associate with online learning acceptance and use of on and use.

Moreover, this research presented a conceptual model to shed the light on the shortness and provide a better explanation and understating to the factors affecting

student's overall satisfaction and the relationships between them. This conceptual model was tested and validated in Chapters 4. In the context of this research, the proposed model could be used as reference by higher educational organizations and ministry of education and higher education that seek to implement and adopt online learning.

Thus, the result of this research could serve as a decision-making tool to support educational institutions in Qatar and other organizations in their efforts to implement and diffuse online learning in the context of teaching and training.

Furthermore, it is essential to improve the assessments method that could be implemented during the online learning experience, which is important to cater all students' styles and way of learning.

Moreover, this study will work alongside with policies issued by the ministry of education and higher education (MOHE) and their strategic plan toward achieving a successful experience with online learning, the study has made a halfway through this experience, they can build future research on the current study. Since this study respondents and feedback were collected from four different universities and colleges around Qatar with total of 751 respondents, the outcome can be generalized among students in Qatar. Qatari were the prominent group (67.6%) and non-Qatari (32.4%). This is considered as good representation for the real society data, because it is very near to the actual population (World Population Review, 2019).

6.3. Limitations

Although this study contributes theoretically and practically to this field, however, it has some limitations, we need to mention to be considered by future researchers.

First, the sampling distribution was not balanced based on gender, as most of the participants were female respondents, and male students were not well presented. According to the research findings, the majority (n=633, 84.3%) were female students and only (n=117, 15.7%) were male respondents.

Second major limitation is, students with disability, as this study did not identify the factors that could help students with disabilities, enjoy the experience of online learning. Therefore, future studies can focus on this group of students and indicate the factors that could contribute and enhance their satisfaction with online learning.

Third important limitation of this study is, the context in terms of location and period. The study was limited to Qatar and examined student's overall satisfaction during the time of the pandemic. Thus, the study findings might not be applicable to other countries, and other periods, such as; after the COVID-19 pandemic. Thus, future longitudinal studies can be conducted to have better validation of the research model

Forth, the ministry of education and higher education issued a survey for all higher educational institutions in Qatar about *Perceptions of Online Learning in Higher Education,* simultaneously with this study survey. The purpose of ministry survey was to investigate online teaching and learning among students and faculty at universities in Qatar during and since the COVID-19 pandemic, therefore, many institutions rejected to share the Survey of our study with their students, otherwise we could have received larger number of respondents.

Finally, It has been noticed that, a good number of participants withdrew from completing the survey after finishing the demographic questions, the reason behind that,

was, the number of the research variables were more than what current internet users expect and willing to answer.

6.4. Future Studies

With reference to the research conclusion, discussion, and research limitations which were mentioned previously, a list of future studies, are suggested to be performed either inside or outside Qatar, to test the context influence. First, new researchers can focus on the three main variables, which are SE, AM, and CD where can present variety of assessment methods and course design that would highly effect on students 'satisfaction and acceptable experience of online learning.

New researchers are encouraged to use the same conceptual model in different GCC countries to build a wide range of comparison between these countries and to demonstrate best practices. Furthermore, examining factors beyond what we examined would be beneficial from theoretical and practical perspectives. As well as, future researchers can run factor analysis test to minimize the number of variables used in this study and reduce any constrains.

Moreover, we recommend using a qualitative research methods, as further investigation and studies will help academic institutions in Qatar to explore variety of variables that affect student's overall satisfaction with online learning, thus, will affect in opening a good chance for household education ensuring a quality learning and education.

REFERENCES

Abdullah, F., and Ward, R. (2016). Developing a General Extended Technology Acceptance Model for Online learning (GETAMEL) by analysing commonly used external factors. *Computers in Human Behavior*, 56, 238–56.

Abrami, P.C., and Bures, E. M. (1996). Computer-supported collaborative learning and distance education. *American Journal of Distance Education*, 10(2), 37–42.

Abubakar, F. M., and Ahmad, H. B., (2013). The moderating effect of technology awareness on the relationship between UTAUT constructs and behavioural intention to use technology: A conceptual paper. *Australian Journal of Business and Management Research*, 3(2), 14–23.

Adedoyin, O. B., and Soykan, D. (2020) Covid-19 pandemic and online learning: the challenges and opportunities, *Interactive Learning Environments*, DOI: 10.1080/10494820.2020.1813180.

Ain, N., Kaur, K., and Waheed, M. (2015). The influence of learning value on learning management system use. *Information Development*, 32(5), 1306–1321.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211.

Akir, O., Howe, T., and Senian Malie, S., (2012). Teaching and learning enhancement through outcome-based education structure and technology online learning support, *Procedia - Social and Behavioral Sciences*, 62, 87–92.

Al Adwam, A., Al Adwan, A., and Smedly, J. (2013). Exploring students' acceptance of online learning using Technology Acceptance Model in Jordanian universities. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 9 (2), 4–18.

Aldowah, H., Al-Samarraie, H., and Ghazal, S., (2019). How course, contextual, and technological challenges are associated with instructors' individual challenges to successfully implement online learning: A developing country perspective, *IEEE Access*, 7, 48792–48806.

Al-Fraihat, D., Joy, M., Masa'deh, R., and Sinclair, J., (2020). Evaluating online learning systems success: An empirical study, *Computers in Human Behaviour*, 102, 67–86.

Al-Gahtani, S. S., Hubona, G. S., and Wang, J. (2007). Information technology (IT) in Saudi Arabia: Culture and the acceptance and use of IT. *Information & Management*, 44(8), 681–691.

Alharbi, N., Papadaki, M. and Dowland, P., (2017). The impact of security and its antecedents in behaviour intention of using e-government services", *Behaviour & Information Technology*, 36(6), 620–636.

Aliaga, M. and Gunderson, B. (2000). *Interactive statistics*. Pearson Education, Saddle River.

Allen, I. E., and Seaman, J. (2011). *Going the Distance: Online Education in the United States*.

Allen, I. E., and Seaman, J. (2014). Grade Change: Tracking Online Education in the United States. Babson Survey Research Group.

AlMaiah, M. A., Al Amri, M. M., AlRahmi, W. M. (2019) Applying the UTAUT Model to Explain the Students' Acceptance of Mobile Learning System in Higher Education, *IEEE Access*, 7, 174673–174686

AlMaiah, M. A., and AlYoussef, I. Y. (2019). Analysis of the Effect of Course Design, Course Content Support, Course Assessment and Instructor Characteristics on the Actual Use of Online learning System, *IEEE Access*, 7, 171907–171922.

AlMaiah, M. A., and Mulhem, A. (2019). A conceptual framework for determining the success factors of Online learning system implementation using Delphi technique. *Journal of Theoretical and Applied Information Technology*, 96 (17), 1–15.

Almquist, Y. B., Ashir, S., and Brännström. L. (2014). *A guide to quantitative methods.* Stockholm: CHESS.

Alolah, T., Stewart, R. A., Panuwatwanich, K., and Mohamed, S. (2014). Determining the causal relationships among balanced scorecard perspectives on school safety performance: case of Saudi Arabia. Accident Analysis and Prevention, 68, 57–74. doi: 10.1016/j.aap.2014.02.002.

Al-Rahmi, W. M., Yahaya, N., Aldraiweesh, A. A., Alamri, M. M., Aljarboa, N. A., Alturki, U., and Aljeraiwi, A.A. (2019). Integrating technology acceptance model with innovation diffusion theory: An empirical investigation on students' intention to use Online learning systems, *IEEE Access*, 7, 26797–26809.

Alrawashdeh, T. A., Muhairat, M. I., and Alqatawnah, S. M. (2012). Factors affecting

acceptance of web-based training system: Using extended UTAUT and structural

equation modelling. *International Journal of Computer Science, Engineering and*

Information Technology (IJCSEIT), 2(2), 45–54.

Alshehri, A., Smith, S., and Rutter, M. J. (2019). An Implementation of the UTAUT

Model for Understanding Students' Perceptions of Learning Management

Systems: A Study Within Tertiary Institutions in Saudi Arabia, *International*

Journal of distance education Technologies, 17(3), 1–24.

Alshehri, M., Drew, S., AlGhamdi, R. (2013). Analysis of citizens acceptance for e-

government services: Applying the UTAUT model, Presented to the IADIS

International Conferences Theory and Practice in Modern Computing and Internet

Applications and Research 2012, 69–76.

https://arxiv.org/ftp/arxiv/papers/1304/1304.3157.pdf.

AlWadhi, S., and Morris, A. (2008) The Use of the UTAUT Model in the Adoption of E-

Government Services in Kuwait, Conference: 41st Hawaii International

Conference on Systems Science (HICSS-41 2008), Proceedings, Waikoloa, Big

Island, HI, USA

Anderson, J. C., and Gerbing, D. W. (1988). Structural equation modeling in practice: A

review and recommended two-step approach. *Psychological Bulletin*, 103(3),

411–423. doi:10.1037/0033-2909.103.3.411

Angus, S. D., and Watson, J. (2009). Does regular online testing enhance student learning in the numerical sciences? Robust evidence from a large data set. *British Journal of Educational Technology*, 40(2): 255–272.

Bagozzi, R. P. (2007). The Legacy of the Technology Acceptance Model and a Proposal for a Paradigm Shift. *Journal of the Association for Information Systems*, 8(4), 244–254.

Bakerson, M. and Rodriguez-Campos, L. (2006). The evaluation of internet usage within the graduate-level classroom. *The International Journal of Learning*, 13, 15–72

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52(1), 1–26.

Bandyopadhyay, K. and Fraccastoro, K. A., (2007). The Effect of Culture on User Acceptance of Information Technology, *Communications of the Association for Information Systems*, 23(19), 23–29.

Bates, T. (2005). *Technology, online learning and distance education*. London; New York.

Bedggood R and Donovan J . (2012). University performance evaluations: What are we really measuring? *Studies in Higher Education*, 37(7), 825–842.

Bellaaj, M., Zekri, I., and Albugami, M. (2015). The continued use of online learning system: An empirical investigation using UTAUT model at the University of

Tabuk. *Journal of Theoretical and Applied Information Technology,* 72(3), 464–474

Benbasat, I., and Barki, H. (2007). Quo vadis, TAM? *Journal of the Association for Information Systems*, 8(4), 211–218.

Berrocoso, J.V., Garrido-Arroyo, M. D. C., Videla C.B., and Cevallos M. B. M., (2020). Trends in Educational Research about online learning: A Systematic Literature Review (2009–2018), *Sustainability*, 12(12), 5153.

Bouhnik, D., and Marcus, T. (2006). Interaction in distance online learning courses. *Journal of the American Society for Information Science and Technology*, 57(3), 299–305.

Brady, A. M. (2005). Assessment of Learning with Multiple-choice Questions. *Nurse Education in Practice*, 5, 238–242.

Brookhart, S. M. (1997). The Relationship of Classroom Assessment to Student Effort and Achievement in the College Classroom: Pilot Study Technical Report. American Educational Research Association Conference Proceedings, Chicago, IL

Buchanan, T., Sainter, P., Saunders, G.,. (2013). Factors affecting faculty use of learning technologies: implications for models of technology adoption. *Journal of Computing in Higher Education*, 25(1), 1–11.

Butorac, M., Nebic, Z and Nemcanin, D. (2001). "Blended Online learning in Higher Education: Research on Students' Perspective". *Issues in Information Science and information Technology*, 8, pp.409–429.

Chawinga, W. D., and Zozie, P. A. (2016). Increasing access to higher education through open and distance learning: Empirical findings from Mzuzu University, Malawi, The International Review of Research in Open and Distributed Learning, 17(4), 125–143.

Chen, J.-L. (2011). The effects of education compatibility and technological expectancy on e-learning acceptance. *Computers & Education*, 57(2), 1501–1511.

Chin, W. W. (1998). Issues and opinions on structural equation modelling. *MIS Quarterly*, 22(1), 7–16.

Chiu, C., Hsu, M., and Sun, S. (2005). Usability, quality, value and e-learning continued decisions. *Computers & Education*, 45, 399–416.

Cho, W., Schmelzer, C.D., and McMahon, P. S. (2002). Preparing hospitality managers for the 21st century: The merging of just-in-time education, critical thinking, and collaborative learning. *Journal of Hospitality & Tourism Research*, 26(1), 23–37.

Chuttur, M. (2009). Overview of the Technology Acceptance Model: Origins, Developments and Future Directions. Sprouts: *Working Papers on Information Systems*, 9, 1–23. doi:10.1021/jf001443p

Clark, L. A., and Watson, D., (1995) Constructing validity: Basic issues in objective scale development. Psychological Assessment,7(3), 309–319.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Mahwah, NJ: Lawrence Erlbaum.

Compeau, D. R., and Higgins, C. A. (1995). Computer self-efficacy: Development of a measure and initial test. *MIS Quarterly*, 19, 189–211.

Cramp, A., and Lamond, C. (2016). Engagement and kindness in digitally mediated learning with teachers. *Teaching in Higher Education*, 21(1), 1-12.

Creswell, J. W. (2008). *Educational Research: Planning, conducting, and evaluating quantitative and qualitative research*. New Jersey: Pearson: Merrill Prentice Hall.

Dancey, C.P., Reidy, J., (2004). Statistics Without Maths for Psychology, Edition: 3rd

Davis, F. D. (1989). Perceived usefulness, perceived ease of use and user acceptance of information technology. *MIS Quarterly*, 13, 319–340.

Davis, F. D., Bagozzi, R. P., and Warshaw, P. R. (1989). User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science*, 35(8), 982–1003.

Davis, F. D., Bagozzi, R. P., and Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology*, 22, 1111–1132.

DeLone, W.H., and McLean, E.R. (1992). Information Systems Success: The quest for the dependant variable. *Information Systems Research*, 3(1), 60–95.

Draper, S. W. (2009). Catalytic Assessment: Understanding how MCQs and EVS can Foster Deep Learning. *British Journal of Educational Technology*. 40, 285–293.

Dutton, J., Dutton, M., and Perry, J. (2001). Do online students perform as well as lecture students? *Journal of Engineering Education*, 90(1), 131–136.

Dwivedi, Y. K., Rana, N. P., Jeyaraj, A., Clement, M., Williams, M. D. (2019). Re-examining the unified theory of acceptance and use of technology (UTAUT): Towards a revised theoretical model, *Information Systems Frontiers*, 21(3), 719–734.

Falk, R. F., and Miller, N. B. (1992). *A Primer for Soft Modeling*. Akron, OH: University of Akron Press.

Fichman, R. G. (1992). Information Technology Diffusion: A Review of Empirical Research. In Proceedings of the thirteenth international conference on Information systems ICIS '92, Dallas, Texas, USA.

Field, A. (2009). *Discovering statistic using SPSS* (3rd ed.). London: SAGE Publications Ltd.

Finch, D., and Jacobs, K. (2012). Online education: Best practices to promote learning. Proceedings of the Human Factors and Ergonomics 56th annual meeting.

Fishbein, M., and Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addision-Wasely.

Fisher, R., Perényi, Á., and Birdthistle, N. (2018). The positive relationship between flipped and blended learning and student engagement, performance and satisfaction, *Active Learning in Higher Education*, DOI:10.1177/1469787418801702.

Flynn, J. L. (1992). Cooperative learning and Gagne's events of instruction: A syncretic view. *Educational Technology*, 53–60.

Fornell, C., and Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), 39–50.

Fornell, C., and Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50.

Garcia, R. Falkner, K., and Vivian, R. (2018) Systematic literature review: Self-Regulated Learning strategies using online learning tools for Computer Science. *Computers & Education*, 123, 150–163.

Garrison, D. R., Anderson, T., and Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education, *The Internet and Higher Education*, 2(2-3), 87–105.

Garrison, D. R., and Kanuka, H., (2004). Blended learning: Uncovering its transformative potential in higher education. *The Internet and Higher Education* 7(2), 95–105.

Ghazal, S., H. Al-Samarraie, H., Aldowah, H., (2018). I am still learning: Modeling LMS critical success factors for promoting students' experience and satisfaction in a blended learning environment, *IEEE Access*, 6, 77179–77201.

Gikandi, J.W., Morrow, D., and Davis, N. E. (2011) Online formative assessment in higher education: A review of the literature. *Computers & Education*, 57, 2333–2351.

Grace, D., Weaven, S., Bodey, K., Ross, M., and Weaven, K. (2012). Putting student evaluations into perspective: The Course Experience Quality and Satisfaction Model (CEQS). *Studies in Educational Evaluation*, 38(2), 35–43. doi:10.1016/j.stueduc.2012.05.001

Gray, J. A., and Diloreto, M. (2016). The Effects of Student Engagement, Student Satisfaction, and Perceived Learning in Online Learning Environments, *NCPEA International Journal of Educational Leadership Preparation*, 11(1).

Guerrero-Roldán, A.-E.; Noguera, I. (2018) A model for aligning assessment with competences and learning activities in online courses. Internet High. Educ. 38, 36–46.

Hair, J. F. J., Anderson, R. E., Babin, B. J., and Black, W. C. (2010). Multivariate data analysis : a global perspective. In Walkiria S. Schlindwein and Mark Gibson (eds.) *Pharmaceutical Quality by Design: A Practical Approach*. https://doi.org/10.1002/9781118895238.ch8

Hair, J. F., Hult, G. T. M., Ringle, C. M., and Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling*. 1st Edition. Thousand Oaks: Sage.

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling. 2nd Edition*. Thousand Oaks: Sage.

Halverson, L. R., Graham, C. R., Spring, K. J., Drysdale, J. S., and Henrie, C. R. (2014). A thematic analysis of the most highly cited scholarship in the first decade of blended learning research. *The Internet and Higher Education*, 20, 20–34.

Hamzat, S., and Mabawonku , I., (2018). Influence of Performance Expectancy and Facilitating Conditions on use of Digital Library by Engineering Lecturers in universities in South-west, Nigeria, *Library Philosophy and Practice* (e-journal). 1620.

Hancock, K. J., and Zubrick, S. R. (2015). Children and young people at risk of disengagement from school. Commissioner for Children and Young People, Western Australia.

Hatlevik, O. E., and Arnseth, H. C. (2012). ICT, teaching and leadership: How do teachers experience the importance of ICT-supportive school leaders. *Nordic Journal of Digital Literacy*, 7(1), 55–69.

Hew, K. F. (2016) Promoting engagement in online courses: What strategies can we learn from three highly rated MOOCS. *British Journal of Educational Technology*, 47, 320–341.

Hong, J., Tai, K., Hwang, M., Kuo, Y., Chen, J. (2017). Internet cognitive failure relevant to users' satisfaction with content and interface design to reflect continued intention to use a government e-learning system. *Computers in Human Behavior*, 66, 353–362.

Horn, M., and H. Staker. 2011. *The rise of K–12 blended learning*. Innosight Institute. http://www.innosightinstitute.org/innosight/wp-content/uploads/ 2011/01/The-Rise-ofK-12-Blended-Learning.pdf.

Hu, S., and McCormich, A. C., (2012). An Engagement-Based Student Typology and Its Relationship to College Outcomes. *Research in Higher Education*, 53 (7), 1–17.

Jaggars, S. S., and Xu, Di, (2016). How do online course design features influence student performance? *Computers &Education*, 95, 270-284

Jennings, J. M., Angelo, T. (Eds.) (2006). *Student engagement: Measuring and enhancing engagement with learning*. Proceedings of the Universities Academic Audit Unit, New Zealand.

Johnson, S. D., Aragon, S. R., Shaik, N., and Palma-Rivas, N. (2000). Comparative analysis of learner satisfaction and learning outcomes in online and face-to-face learning environments. *Journal of Interactive Learning Research*, 11(1), 29–49.

Jong, D., and Wang, T.-S. (2009). Student Acceptance of Web-based Learning System. In Proceedings of the 2009 International Symposium on Web Information Systems and Applications (WISA'09), 8, 533–536.

Jordan, S. (2009). Assessment for Learning: Pushing the Boundaries of Computer-based Assessment. *Practitioner Research in Higher Education*, 3, 11–19

Kaewkitipong, L., Chen, C. C., and Ractham, P. (2016). Using social media to enrich information systems field trip experiences: Students' satisfaction and continued intentions. *Computers in Human Behavior*, 63, 256–263.

Khechine, H., Pascot, D., and Bytha, A. (2014). UTAUT Model for Blended Learning: The Role of Gender and Age in the Intention to Use Webinars. *Interdisciplinary Journal of Online learning and Learning Objects*, 10, 33–52.

Kocaleva, M., Stojanovic, I., Zdravev, Z., (2015) I.J. Model of online learning Acceptance and Use for Teaching Staff in Higher Education Institutions, *Modern Education and Computer Science*, 4, 23–31

Kollmann, T. and Kayser, I., (2010). A comprehensive approach to citizen engagement in e-democracy, in Ruhode, E. (Ed.), 6th International Conference on e-Government – ICEG2006, Academic Conferences and Publishing International, Cape Town, 54–62.

Lee, J. (2014). An Exploratory Study of Effective Online Learning: Assessing Satisfaction Levels of Graduate Students of Mathematics Education Associated with Human and Design Factors of an Online Course. *International Review of Research in Open and Distributed Learning*, 15 (1), 111–132. https://doi.org/10.19173/irrodl.v15i1.1638

Lei, J., and Zhao, Y. (2007). Technology uses and student achievement: A longitudinal study. *Computers & Education*, 49(2), 284–296.

Leidner, D. L., and Jarvenpaa, S. L. (1995). The use of information technology to enhance management school education: a theoretical view. *MIS Quarterly*, 19, 265–291.

Leung, S. F., Mok, E. and Wong, D. (2008). The Impact of Assessment Methods on the Learning of Nursing Students. *Nurse Education Today*, 28: 711–719

Liao, C., Chen, J., and Yen, D. (2007). Theory of planning behavior (TPB) and customer satisfaction in the continued use of e-service: An integrated model. *Computers in Human Behavior*, 23, 2804–2822.

Mahande, R.D., and Malago, J.D., (2019) An online learning acceptance evaluation through UTAUT model in a postgraduate program, *Journal of Educators Online*, 16(2), 1–10.

Mandernach, B. J., Donnelli-Sallee, E., and Dailey-Hebert, A. (2011). Assessing course student engagement. In R. Miller, E. Amsel, B. M. Kowalewski, B.B. Beins, K. D. Keith, and B. F. Peden (Eds.), Promoting Student Engagement: Techniques and Opportunities (277–281). Society for the Teaching of Psychology, Division 2, American Psychological Association.

Marchewka,J. T., Liu, C., and Kostiwa, K., (2007). An application of the UTAUT model for understanding student perceptions using course management software. *Communication of the IIMA*, 7(2), 93–104.

Masika, R. and Jones, J. (2016). Building student belonging and engagement: Insights into higher education students' experiences of participating and learning together. *Teaching in Higher Education*, 21(2), 138–150.

Mayer R. E. (2020) Searching for the role of emotions in e-learning, *Learning and Instruction,* 70, 101213.

Mažgon, J., Kovač Šebart, M., and Štefanc, D. (2015). The Role and Use of E-Materials in Vocational Education and Training: The Case of Slovenia. *The Turkish Online Journal of Educational Technology*, 14(4), 157–164.

Moore, M. G. (1993). Theory of transactional distance. In D. Keegan (Ed.), *Theoretical principles of distance education* (pp. 22–38). London: Routledge.

Moore, M., and Kearsley, G. (2012). *Distance education: A systems view of online learning.* Wadsworth.

Mtebe, J. S., and Raisamo, R. (2014) A model for assessing learning management system success in higher education in sub-Saharan countries. *Electronic Journal of Information Systems in Developing Countries*, 61(1) 1–7.

Neuhauser, C. (2002). Learning style and effectiveness of online and face-to-face instruction. *American Journal of Distance Education*, 16(2), 99–113.

North-Samardzic, A., and Jiang, B. (2015). Acceptance and use of MOODLE. In Proceedings of the 21st Americas Conference on Information Systems AMCIS pp.1–10.

Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill. Publisher: Pearson Prentice Hall, ISBN: 9780131249417.

O'Flaherty, J., and Phillips, C. (2015). The use of flipped classrooms in higher education: A scoping review. *The Internet and Higher Education*, 25, 85–95.

Olasina, G. (2019) Human and social factors affecting the decision of students to accept online learning, *Interactive Learning Environments*, 27(3), 363–376.

Osuji. U.S.A, (2012). The use of e-assessments in the Nigerian higher education system, *Turkish online Journal of Distance Education*, 13(4), 1–13.

Ouyang, Y., Tang, C., Rong, L., Yin, C., Xiong, Z. (2017). Task-technology fit aware

expectation-confirmation model towards understanding of MOOCs continued

usage. In Bui, T., Sprague, R. (Eds.), Proceedings of the 50th Hawaii international

conference on system sciences (pp. 174–183). University of Hawaii at Manoa.

Ozkan, S., Kanat, IE.(2011). e-Government adoption model based on theory of planned

behavior: Empirical validation. *Government Information Quarterly*, 28(4), 503–

13.

Palencia, G., and Muljana, P.S., (2019). The Effects of Online Course Design on Student

Course Satisfaction. *American society for engineering*, paper ID 27805.

Park, S. (2009). An Analysis of the Technology Acceptance Model in Understanding

University Students' Behavioural Intention to Use online learning. *Education*

Technology & Society, 12(3), 150–162.

Paul, P.J.B., (2013). Applying the UTAUT to Understand Factors Affecting the Use of

English Online learning Websites in Taiwan, *SAGE Open*, 3(4), 1–12.

Picciano, A., and J. Seaman. 2009. *K–12 online learning: A 2008 follow-up of the survey*

of U.S. school district administrators. Needham, MA: Sloan Consortium.

http://www.sloanconsortium.org/publications/survey/pdf/k-12_online_

learning_2008.pdf.

Piccoli, G., Ahmad, R., and Ives, B. (2001). Web-based virtual learning environments: a

research framework and a preliminary assessment of effectiveness in basic IT

skill training. *MIS Quarterly*, 25(4), 401–426.

Qingfei, M., Shaobo, J., and Gang, Q. (2008). Mobile Commerce User Acceptance Study in China: A Revised UTAUT Model. *Tsinghua Science and Technology*, 13(3), 257–264.

Radovan, M., and Dinevski, D. (2012). Digitalne razlike in e-izobraževanje [Digital divide and e-education]. *Andragoška Spoznanja*, 18(4), 37–44.

Rahman N.S.A., Rosman, A.N., Sahabudin, N.A., (2020). Students' Continued of Using Online learning System: A Review of Conceptual Frameworks. 2020 IOP Conf. Ser.: Mater. Sci. Eng. 769.

Revythi, A., and Tselios, N. (2019) Extension of technology acceptance model by using system usability scale to assess behavioral intention to use online learning, *Education and Information Technologies*, 24(4), 2341–2355.

Roca, J. C., Chiu, C., and Martínez, F. J. (2006). Understanding e-learning continued intention: An extension of the Technology Acceptance Model. *International Journal of Human-Computer Studies,* 64, 683–696.

Rodrigues, G., Sarabdeen, J., and Balasubramanian,S. (2016). Factors that influence consumer adoption of e-government services in the UAE: A UTAUT model perspective, *Journal of Internet Commerce*, 15(1), 18–39.

Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.). New York: Free Press

Rosenberg, M. J. (2001). *Online learning: Strategies for delivering knowledge in the digital age*, McGraw-Hill.

Russell, T. L. (1999). *No significant difference phenomenon*. Raleigh, NC: North
Carolina State University.

Salloum S. A. S. (2018) *Investigating students' acceptance of online learning system in higher educational environments in the UAE: Applying the extended technology acceptance model (TAM),* Ph.D. dissertation, British University of Dubai.

Sheikh, Z., Islam, T., Rana, S., Hameed, Z., and Saeed, U. (2017). Acceptance of social commerce framework in Saudi Arabia. *Telematics and Informatics*, 34(8), 1693–1708. doi:https://doi.org/10.1016/j.tele.2017.08.003.

Song, S. M (2010), E-learning: Investigating students' acceptance of online learning in hospitality programs. Ph.D. dissertation, Iowa State University.

Suki N.M., (2019). Structural relationships in the embedding of role-play games in a class for Japanese language proficiency: Towards a Unified View, *Technology, Knowledge and Learning*, 24(1), 65–87.

Sullivan, G. M., and Feinn, R. (2012). Using effect size - or why the p value is not enough. *Journal of Graduate Medical Education*, 4(3), 279–282.

Šumak., Polančič, G., and Heričko, M. (2010). An empirical study of virtual learning environment adoption using UTAUT. In 2nd International Conference on Mobile, Hybrid, and On-Line Learning, (pp. 17–22)

Sun, P.C., Tsai, R.J. Finger, G., Chen, Y.Y., Yeh, D. (2008). What drives a successful online learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & Education*, 50, 1183–1202

Tabachnick, B. G., and Fidell, L. S. (2013). *Using Multivariate Statistics: International Edition.* London, U.K.: Pearson.

Taylor, S., and Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research*, 6, 144–176.

 Tchouba, J. K. Tarus, D. Gichoya, and A. M. Muumbo, (2015). Challenges of implementing online learning in Kenya: A case of Kenyan public universities, *International Review of Research in Open and Distance Learning*, 16 (1).

Tenenhaus, M., Vinzi, V. E., Chatelin, Y. M., and Lauro, C. (2005). PLS path modeling. *Computational Statistics & Data Analysis*. 48(1), 159–205.

Teo, T. (2011). Assessing the cross-cultural validity study of the Online learning Acceptance Measure (ElAM): A structural equation modeling approach. *The International Journal of Educational and Psychological Assessment*, 8, 43–53.

Thomas, T.D., Singh. L., and Gaffar, K., (2013) The utility of the UTAUT model in explaining mobile learning adoption in higher education in Guyana, *International Journal of Education and Development using Information and Communication Technology* (IJEDICT), 9 (3) 71–85.

Thompson, R. L., Higgins, C. A., and Howell, J. M. (1991). Personal computing: Toward a conceptual model of utilization. *MIS Quarterly*, 15, 124–143.

Usoro, A., Echeng, R., and Majewski, G. (2013). A Model of Acceptance of Web 2.0 in learning in higher education: a case study of two cultures. *GSTF Journal on Computing*, 3.

Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478.

Venkatesh, V., Thong, J. Y. L., and Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *Management Information Systems Quarterly*, 36(1), 157–178.

Wallace, R. M. (2000), Online learning in higher education: A review of research on interactions among teachers and students. *Education, Communication & Information*, 3, 241–281.

Wang, T.-H. (2014) Developing an assessment-centered online learning system for improving student learning effectiveness. *Computers & Education*, 73, 189–203

Wong, K.-T.; Hamzah, M.S.G, Goh, P.S.C., and Yeop, M.A. (2016). Blended Online learning Acceptance as Smart Pedagogical Tools: An Initial Study in Malaysia. *The Turkish Online Journal of Educational Technology*, 15(4), 25–31.

Wright, C.R., (2003). Criteria for evaluating the quality of online courses, *Alberta Distance Educational Training Association*, 16(2), 185–200.

Wu, J.-H. Tennyson R. D., and Hsia T.-L, (2010) A study of student satisfaction in a blended online learning system environment, *Computers & Education*, 55 (1) 155–164.

Yeap, J., A. L., Ramayah, T., Soto-Acosta, P. (2015). Factors propelling the adoption of m-learning among students in higher education. *Electronic Markets*, 26(4), 323–338

APPENDICES

APPENDIX A: English Survey

Factors Affecting Students Satisfaction with Online Learning in Higher Education in Qatar

Survey

Dear Respondent:

This research is being conducted as part of my graduation project requirements in the MBA program at the College of Business and Economics, Qatar University. This survey will address the relationship between student satisfaction with online learning and eight predictor variables (i.e., course design, assessment method, student engagement, performance expectancy, social influence, effort expectancy, facilitating conditions, and continuous use of online learning) in higher education in Qatar. Therefore, we have adapted this questionnaire in order to collect data about students' perceptions about the factors affecting their satisfaction with online learning experience.

Your answers to the questions in this survey are essential to the completion of this study. The information collected will be kept strictly confidential. You are not required to disclose any confidential information and the survey will be completely anonymous. The information will be stored on a secured password-protected laptop and only the researcher will have access to it. The data will not be used for any other purpose in the future. All data will be permanently destroyed after five years. By clicking on the provided research questionnaire link you give your full informed consent to participate in this research study. Answering this survey will only take 10 to 15 minutes. The time and effort you spend in answering this survey are highly appreciated. Your participation in this survey is voluntary, where you can skip any question or withdraw at any time. unwillingness to participate in the study and/or withdrawal from the study will not in any way interfere with the student-instructor relationship or affect student's course grades assessment. Similarly, participation in the study will not in any way interfere with the student-instructor relationship or affect students' course grades assessment. If you are less than 18 years old, please do not take the survey. This study is approved by Qatar University Internal Review Board (QU-IRB) under the approval No.: …………………….. If you have any questions related to ethical compliance of the study you may contact them at QU-IRB@qu.edu.qa. There are no associated risks or harms involved through participating in this survey.

If you have any questions about this research, feel free to contact me and/or my supervisor at this email addresses: Alaa Abuhuzaima (aa099647@qu.edu.qa) and Emad Abu-Shanab

tick "Yes" ☐ **, if not tick "No"** ☐

Section 1: General information
 Please select the appropriate choice of the following:

1- **Age Category**

18-20	21-30	31-45	45- or More
☐	☐	☐	☐

2- **Gender**

Male	Female
☐	☐

3- **Education Level**

High School or less	High Diploma	Bachelor	Postgraduate
☐	☐	☐	☐

4- **Nationality**

Qatari	Non-Qatari
☐	☐

Institutional Review Board
(IRB)
APPROVED

Section 2: Please indicate the degree to which you agree or disagree with the following statements using the following scale:

1= Strongly Disagree, 2=Disagree, 3= Neutral, 4=Agree, 5=Strongly Agree

	Performance Expectancy (PE)	1	2	3	4	5
1	I find online learning useful for my studies.					
2	Using online learning increases my chances of achieving Tasks.					
3	I can save time when I use online learning.					
4	In online learning I am more focused on the task required					
5	If I use online learning, I will increase my chances of getting better grades.					
	Effort Expectancy (EE)	1	2	3	4	5
1	I find online learning easy to use					
2	My interaction with online learning is clear and understandable.					
4	Learning to operate an online learning application does not require much effort					
5	I have the proper training to use online learning effectively					
6	I find online learning flexible and easy to use					
	Social Influence (SI)	1	2	3	4	5
1	People who are important to me think that I should use online Learning.					
2	People who influence my behavior think that I should use online learning.					
3	People whose opinions I value, think that I should use online learning.					
	Facilitating Conditions (FC)	1	2	3	4	5
1	I have the necessary resources to use online learning					
2	I have the necessary knowledge to use online learning.					
3	I have the proper ICT (information and communication technology) skills to effectively use online learning					
4	I feel comfortable using online learning					
5	My university has supported the use of online learning					
6	My University has provided training for me to use online learning					
	Student Engagement (SE)	1	2	3	4	5
1	I frequently interact with my instructor during online learning					
2	I discuss with my colleagues what I learn during online learning, outside lecture time					
3	I complete my readings as assigned during online learning.					
4	I participate in chat sessions during online learning					
5	I think the instructor effective online teaching skills, will increase student interaction					

		1	2	3	4	5
6	I think "student to student' interaction in online learning, is more efficient than in face to face class					
7	I think class discussions are more effective in online learning, than in face to face classes					
Assessment Methods (AM)		**1**	**2**	**3**	**4**	**5**
1	I find it easy to concentrate on the questions when doing an online exam					
2	Preparation for exams is easier in online learning					
3	Online assessments are appropriate for my major subject areas.					
4	I find it important that courses in online learning are assessed using variety of Methods					
5	I find it important to me that course assessment methods for online courses are clearly described.					
Course Design (CD)		**1**	**2**	**3**	**4**	**5**
1	I think It is important to have online-course contents appropriately structured and designed based on the objectives of the course					
3	I find it important to have a user-friendly online course delivery system for students.					
4	I think that online course activities must be designed to get the best out of students					
5	I find it important to communicate through online course with other colleagues from the group.					
6	I find it important to regularly receive feedback about my work from online-course teacher.					
7	I find it important that online course, provides mandatory and optional study material in digital form.					
Continuous use of Online learning		**1**	**2**	**3**	**4**	**5**
1	I intend to continue using online learning in the future.					
2	I will always try to use online learning					
3	I plan to enroll in online courses more in the future					
4	I enjoy using online learning					
Student Satisfaction		**1**	**2**	**3**	**4**	**5**
1	I am satisfied with my overall experience in online learning					
2	I feel online learning is effective as in face to face learning					
3	Online learning meets my expectations					
4	I would recommend online learning for others					

Please share any other Suggestions or Comments you may have?

………

………

………

Thank You for Taking The Time to Participate in This survey

APPENDIX B: Arabic Survey

العوامل التي تؤثر على مدى رضا طلاب الجامعات والتعليم العالي في قطر عن التعليم الالكتروني

الاستبيان

أعزائي المشاركين:

نود دعوتكم للمشاركة في هذه الدراسة البحثية والتي تعتبر متطلب أساسي ضمن متطلبات درجة الماجستير في إدارة الأعمال في كلية الإدارة والاقتصاد في جامعة قطر، تحت عنوان (العوامل المؤثرة على مدى رضا طلاب الجامعات والتعليم العالي في قطر عن التعليم الالكتروني) والتي حصلت على الموافقة من قبل لجنة المراجعة الداخلية في جامعة قطر   QU-IRB (board) تحت الرقم .... ولمزيد من الاستفسار حول الامتثال الأخلاقي لهذه الدراسة يمكنكم التواصل مع اللجنة عبر البريد الالكتروني الموضح qu-irb@qu.edu.qa.

تهدف الدراسة الى تقييم العوامل المؤثرة على رضا طلاب الجامعات والتعليم العالي في قطر عن التعليم الالكتروني والتي خاضها الطلاب في ظل جائحة كورونا، حيث تمت الاستعانة بعدة عوامل لقياس رضا الطلبة ومنها توقع الأداء، وتوقع الجهد، والتأثيرات الاجتماعية، والظروف التسهيلية، واستمرارية استخدام التعليم الالكتروني، وتصميم المقرر، وتفاعل الطلاب، وطرائق الاختبارات.

يجب التنويه الى ان المشاركة في هذه الدراسة البحثية تطوعية، إلا أنه من شأنها أن تساهم في تعزيز وتطوير نظام التعليم الالكتروني في الجامعات داخل دولة قطر مستقبلا، وتتطلب الإجابة على هذا الاستبيان ما بين 15-10 دقيقة أو أقل. المعلومات التي سيتم جمعها ستبقى سرية وآمنة للغاية حيث لا يمكن سوى للباحثين في هذه الدراسة الوصول إليها. كما ان المشاركة في البحث تطوعية وغير مطلوب منكم تزويدنا بأية معلومات تدل على هويتكم. ولن يتم إعادة استخدام البيانات لأي غرض آخر في المستقبل كما انه لا يصاحب هذا الاستبيان اي مخاطر، ويمكنكم الانسحاب في أي وقت كما يمكنكم الامتناع عن اجابة اي سؤال ايضا. من خلال النقر على رابط الاستبيان فإنكم تمنحون موافقتكم الكاملة على المشاركة في هذه الدراسة البحثية. يرجى الملاحظة انه يمكنك المشاركة في حال كان عمرك 18 سنة وأكثر.

إذا كان لديكم أي أسئلة، يمكنكم الاتصال بمشرف المشروع الدكتور عماد ابوشنب ، كلية الإدارة والاقتصاد ،جامعة قطر عبر البريد الالكتروني الموضح (eabushanab@qu.edu.qa) او على رقم الهاتف 4403 5077 او التواصل معي عبر البريد الالكتروني aa099647@qu.edu.qa. يرجى الإشارة إلى أنكم قد قرأتم وفهمتم ووافقتم طواعية على المشاركة. إذا كنتم ترغبون في المشاركة، يرجى الضغط على زر التالي.

شكرا لوقتكم الثمين

الباحث

آلاء أبوحزيمة

Institutional Review Board
(IRB)
APPROVED

القسم الأول: المعلومات العامة

يرجى اختبار الاجابة المناسبة:

1- الفئة العمرية

45 وأكثر	45-31	30-21	20-18
☐	☐	☐	☐

2- الجنس

أنثى	ذكر
☐	☐

3- المستوى التعليمي

دراسات عليا	بكالوريوس	دبلوم	ثانوية أو أقل
☐	☐	☐	☐

4- الجنسية

غير قطري	قطري
☐	☐

Institutional Review Board
(IRB)
APPROVED

القسم الثاني: يرجى الإشارة إلى أي مدى توافق أو لا توافق على اي من العبارات التالية :

1- غير موافق بشدة   2- غير موافق   3- محايد   4- موافق   5- موافق بشدة

	توقع الأداء	1	2	3	4	5
1	I find online learning useful for my studies. أجد أن التعليم الالكتروني مفيد لدراستي					
2	Using online learning increases my chances of achieving Tasks. استخدام التعليم الالكتروني يعمل على زيادة فرصي في إنجاز المهام					
3	I can save time when I use online learning. استخدام التعليم الالكتروني يعمل على توفير وقتي					
4	In online learning I am more focused on the task required في التعليم الالكتروني اقوم بالتركيز أكثر على المهام المطلوبة والموكلة الي					
5	If I use online learning, I will increase my chances of getting better grades. استخدام التعليم الالكتروني يزيد من فرص حصولي على درجات أفضل					
	توقع الجهد	1	2	3	4	5
1	I find online learning easy to use أجد ان التعليم الالكتروني سهل الاستخدام					
2	My interaction with online learning is clear and understandable. التفاعل مع التعليم الالكتروني مفهوم وواضح بالنسبة الي					
4	Learning to operate an online learning application does not require much effort تعلم تشغيل واستخدام نظام التعليم الالكتروني لا يتطلب مجهود					
5	I have the proper training to use online learning effectively لدي التدريب الكافي لاستخدام التعليم الالكتروني بطريقة فعالة					
6	I find online learning flexible and easy to use أجد ان التعليم الالكتروني مرن وسهل الاستخدام					
	التأثيرات الاجتماعية	1	2	3	4	5
1	People who are important to me think that I should use online Learning. الأشخاص المهمين بالنسبة إلي ، يعتقدون أنه يجب علي استخدام التعليم الالكتروني					
2	People who influence my behavior think that I should use online learning. الأشخاص المؤثرين علي يعتقدون أنه يجب علي استخدام التعليم الالكتروني					
3	People whose opinions I value, think that I should use online learning. الأشخاص الذين أقدر آرائهم يعتقدون انه يجب علي استخدام التعليم الالكتروني					
	الظروف التسهيلية	1	2	3	4	5
1	I have the necessary resources to use online learning لدي الموارد الضرورية لاستخدام التعليم الالكتروني					
2	I have the necessary knowledge to use online learning. لدي المعرفة الضرورية لاستخدام التعليم الالكتروني					
3	I have the proper ICT (information and communication technology) skills to effectively use online learning					

		1	2	3	4	5
	لدي المهارات التكنولوجية الضرورية لاستخدام التعليم الالكتروني					
4	I feel comfortable using online learning أشعر بارتياح عند استخدام التعليم الالكتروني					
5	My university has supported the use of online learning تدعم الجامعة استخدام التعليم الالكتروني					
6	My University has provided training for me to use online learning وفرت الجامعة التدريب اللازم لاستخدام التعليم الالكتروني					
	تفاعل الطلاب	**1**	**2**	**3**	**4**	**5**
1	I frequently interact with my instructor during online learning أتفاعل/اشارك باستمرار مع استاذ المقرر اثناء التعليم الالكتروني					
2	I discuss with my colleagues what I learn during online learning, outside lecture time خارج أوقات المحاضرة، أتناقش مع زملائي في ما تم تعلمه خلال التعليم الالكتروني					
3	I complete my readings as assigned during online learning. انتهي من القراءات الموكلة الي اثناء التعليم الالكتروني					
4	I participate in chat sessions during online learning أشارك في المحادثات اثناء التعلم الالكتروني					
5	I think the instructor effective online teaching skills, will increase student interaction اعتقد ان مهارات استاذ المقرر الفعالة في التعليم الالكتروني تزيد من نسبة تفاعل الطلبة					
6	I think "student to student' interaction in online learning, is more efficient than in face to face class أعتقد ان تفاعل الطلاب مع بعضهم البعض في التعليم الالكتروني أكثر فاعلية من التواصل المباشر					
7	I think class discussions are more effective in online learning, than in face to face classes أعتقد أن المناقشات الصفية أكثر فاعلية اثناء التعليم الالكتروني					
	طرق التقييم	**1**	**2**	**3**	**4**	**5**
1	I find it easy to concentrate on the questions when doing an online exam أجد سهولة في التركيز على اسئلة الاختبارات اثناء التعليم الالكتروني					
2	Preparation for exams is easier in online learning التحضير للاختبارات في التعليم الالكتروني أسهل					
3	Online assessments are appropriate for my major subject areas. الاختبارات في التعلم الالكتروني مناسبة لتخصصي					
4	I find it important that courses in online learning are assessed using variety of Methods أعتبر انه من الضروري ان يتم تقييم الطلبة في التعليم الالكتروني بطرق متنوعة					
5	I find it important to me that course assessment methods for online courses are clearly described. أعتقد انه من الضروري ان يتم شرح طرق تقييم الطلاب في التعليم الالكتروني بطريقة واضحة					

تصميم المقرر	1	2	3	4	5
1	I think It is important to have online-course contents appropriately structured and designed based on the objectives of the course أعتقد أنه من المهم أن يكون محتوى المقرر الالكتروني منظم ومصمم بشكل مناسب بناءً على أهداف المقرر					
3	I find it important to have a user-friendly online course delivery system for students. أعتقد انه من الضروري ان يكون نظام شرح وتقديم المقرر الالكتروني سهل للطلاب					
4	I think that online course activities must be designed to get the best out of students أعتقد انه من الضروري ان تكون الأنشطة الخاصة بالمقرر الالكتروني مصممة لتحقيق أقصى استفادة للطلاب					
5	I find it important to communicate through online course with other colleagues from the group. أعتقد انه من الضروري ان يتم التواصل مع الزملاء من نفس المجموعة بسهولة في المقرر الالكتروني					
6	I find it important to regularly receive feedback about my work from online-course teacher. أعتقد انه من الضروري الحصول على تغذية راجعة من قبل استاذ المقرر، في المقرر الالكتروني					
7	I find it important that online course, provides mandatory and optional study material in digital form. اعتقد انه من الضروري ان يتَم توفير مصادر دراسية اجبارية واختيارية في المقرر الالكتروني على شكل رقمي					
استمرارية استخدام التعليم الالكتروني	1	2	3	4	5
1	I intend to continue using online learning in the future. انوي الاستمرار في استخدام التعليم الالكتروني في المستقبل					
2	I will always try to use online learning سأحاول دائما استخدام التعليم الالكتروني					
3	I plan to enroll in online courses more in the future أخطط للالتحاق بالمقررات الالكترونية بشكل اكبر في المستقبل					
4	I enjoy using online learning انا استمتع باستخدام التعليم الالكتروني					
رضا الطالب	1	2	3	4	5
1	I am satisfied with my overall experience in online learning انا راض عن تجربة التعليم الالكتروني					
2	I feel online learning is effective as in face to face learning اشعر ان تجربة التعليم الالكتروني ذات كفاءة وفاعلية تشابه التعليم وجها لوجه					
3	Online learning meets my expectations التعليم الالكتروني يحاكي توقعاتي					
4	I would recommend online learning for others سأقوم بترشيح استخدام التعليم الالكتروني للآخرين					

يرجى المشاركة في حال كان هناك مقترح اضافي

....
....
....

شكرا على مساهمتكم في تعبئة الاستبيان

Institutional Review Board
(IRB)
APPROVED

APPENDIX C: QU-IRB

Qatar University Institutional Review Board QU-IRB
QU-IRB Registration: IRB-QU-2020-006, QU-IRB, Assurance: IRB-A-QU-2019-0009

October 4th, 2020

Dr. Emad Abu Shanab
College of Business and Economics
Qatar University
Tel.: 4403 5077
Email: eabushanab@qu.edu.qa

Dear Dr. Emad Abu Shanab,

Sub.: Research Ethics Expedited Approval
Ref.: Student, Alaa Abuhzaima/ e-mail: aa099647@student.qu.edu.qa
Project Title: "Factors Affecting Students Satisfaction with Online Learning in Higher Education in Qatar"

We would like to inform you that your application along with the supporting documents provided for the above project, has been reviewed by the QU-IRB, and having met all the requirements, has been granted research ethics **Exemption** based on the following category(ies) listed in the Policies, Regulations and Guidelines provided by MoPH for Research Involving Human Subjects:

Exemption Category 1: Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.
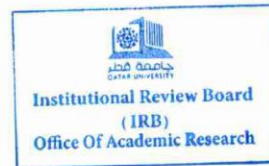
Documents Reviewed: QU-IRB Application Human Subject- V 5, QU-IRB Application Material Check List-Alaa, Proposal V 5a, Alaa survey Edited v 15, Review Forms, responses to IRB queries and updated documents.

Please note that exempted projects do not require renewal; however, any changes/modifications to the original submitted protocol should be reported to the committee to seek approval prior to continuation.

Your Research Ethics Approval Number is: **QU-IRB 1380-E/20**. Kindly refer to this number in all your future correspondence pertaining to this project. In addition, please submit a closure report to QU-IRB upon completion of the project.

Best wishes,
Dr. Mohamed Emara

Vice Chair, QU-IRB

Institutional Review Board
(IRB)
Office Of Academic Research

Qatar University-Institutional Review Board (QU-IRB), P.O. Box 2713 Doha, Qatar
Tel +974 4403-5307 (GMT +3hrs) email: QU-IRB@qu.edu.qa

APPENDIX D: Community College Survey Distribution approval

Fwd: "المشاركة في دراسة عن" العوامل التي تقيس مدى رضا الطلبة عن خاصية التعلم عن بعد

Ameera Nasser Al-Saadi <Ameera.Nasser@ccq.edu.qa>
To Alaa Abdulraouf Abuhuzaima

Reply   Reply All   Forward   ...
Sun 11/8/2020 8:53 AM

(i) You forwarded this message on 11/8/2020 4:17 PM.

Translate message to: Arabic   Never translate from: English

From: Planning & Institutional Effectiveness Dept <Oie@ccq.edu.qa>
Date: 8 November 2020 at 8:34:58 AM GMT+3
To: CCQAllStudents < CCQAllStudents@ccq.edu.qa>
Subject: "المشاركة في دراسة عن" العوامل التي تقيس مدى رضا الطلبة عن خاصية التعلم عن بعد

طلبة كلية المجتمع في قطر الأعزاء
السلام عليكم و رحمة الله و بركاته، تحية طيبة وبعد ،،،

تقوم طالبة ماجستير من جامعة قطر بإجراء دراسة عن " العوامل التي تقيس مدى رضا الطلبة عن خاصية التعلم عن بعد". يرجى
مساعدتها على استكمال الدراسة من خلال تعبئة الاستبيان الذي يستغرق حوالي 10 دقائق باستخدام الرابط التالي :

للمشاركة في تعبئة الاستبيان باللغة العربية يرجى الضغط على الرابط ادناه
https://forms.gle/xx3kXLeQdiHWiCze8

If you want to participate and fill the English survey, please click the link below
https://forms.gle/H489MvqRR2wdfyY77

APPENDIX E : Doha institute survey distribution approval

RE: MBA Questionnaire

IR — Institutional Review Board <irb@dohainstitute.edu.qa>
To Alaa Abdulraouf Abuhuzaima

↩ Reply   ↩ Reply All   → Forward

Sun 11/8/2020 1:0

ⓘ You replied to this message on 11/8/2020 1:53 PM.

🔤 Translate message to: Arabic   Never translate from: English

Dear Alaa,

Hope you are well.

We apologize for the delay.

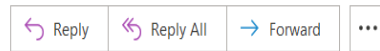We sent your request to the communication department today so as to send it to the students of the institute.

Thank you,
DI-IRB

APPENDIX F: Weill Cornell Survey distribution approval

Re: [EXTERNAL] MBA Survey Distribution

AR Amal Robay <amr2018@qatar-med.cornell.edu>
To Alaa Abdulraouf Abuhuzaima; Manju Varghese

↩ Reply   ↩ Reply All   → Forward   ...

Thu 11/5/2020 12:44 PM

ⓘ You replied to this message on 11/5/2020 1:48 PM.

Translate message to: Arabic   Never translate from: English

Dear Alaa,
Thank you for sharing the documents. I've sent my approval for distribution to the Dean's office and communication.

All the best with your research and MBA

Regards

Amal

Dr. Amal Robay, PhD, CHRC, CCRP
Director- Research Compliance
Assistant Research Professor of Genetic Medicine

Weill Cornell Medicine-Qatar
Education City, Qatar Foundation
PO Box 24144 Doha, Qatar
T: +974-4492-8494

amr2018@qatar-med.cornell.edu
www.qatar-weill.cornell.edu

APPENDIX G: VCU news letter Survey distribution

(International Association of Universities and Colleges in Art, Design and Media).
DATES: 5 – 16 July 2021, in Venice, Italy
Application Deadline: 15 November 2020

DATES:
5 - 16 July 2021, in Venice, Italy

APPLICATION DEADLINE:
15th of November 2020

european_cultural_academy
study@europeanculturalacademy.com

www.europeanculturalacademy.com/
deltamaja

ACCELERATE KNOWLEDGE OF THE PAST TO TOMORROW - DELTA MAJA

SUMMER STUDIO

Venice is perhaps the most distinguished built environment the world has ever seen. Join the two-week studio in Venice during the Architecture Biennale 2021.

The Studio uses the roots, the history to open hidden cultural codes embedded in the history of Venice, Vincenza and Padova. It combines knowledge of the legacy of Palladio, Vitruvius, Leonardo etc. bridging it with the Venice Biennale.

We mobilise the next generation of talented Master and PhD students and recent graduates to share knowledge and experience with advanced scholars and professionals in Art, Design, Media and Architecture.

The course is organised in collaboration with Dr. Kärt Summatavet, University of Tartu with endorsement from Cumulus.
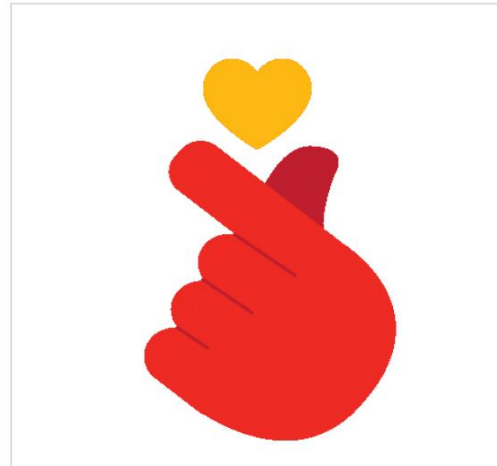
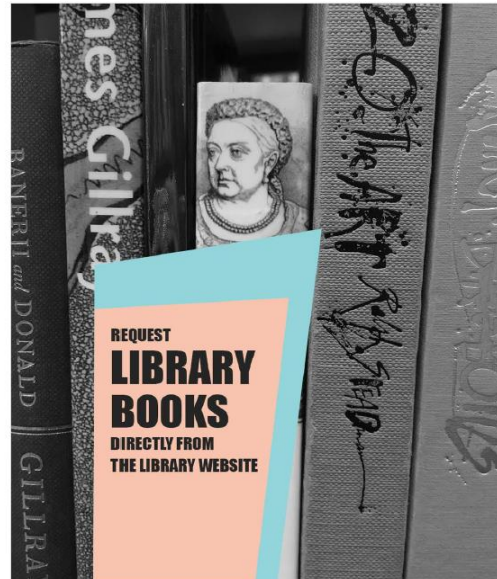### MBA Graduation project Survey - Survey for the VCU-Q Students!

The information collected in this survey will help in future decisions done by the higher institution in Qatar in order to adopt the online learning method or not

Factors Affecting Students Satisfaction with Online Learning in Higher Education in Qatar
Dear Respondent: This research is being conducted as part of my graduation project requirements in the MBA program at the College of Business and Economics, Qatar University. This survey will address the relationship between student satisfaction with online learning and eight predictor variables (i.e., course design, assessment method, student engagement, performance expectancy, social influence, effort expectancy, facilitating conditions, and continuous use of online learning) in higher education in Qatar.

GOOGLE DOCS

DROP BY AND SAY HELLO TO THE NEW ASSISTANT DEAN OF STUDENT AFFAIRS !

Click here to schedule a meeting

Dr. Katherine Wildman
Welcome to my scheduling page. Please follow the instructions to add an event to my calendar.
CALENDLY

REQUEST
LIBRARY BOOKS
DIRECTLY FROM
THE LIBRARY WEBSITE