Student Acceptance and Use of Internet-Based Distance Education in Saudi Electronic University (SEU): A Mixed Method Study

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The Patton College of Education of Ohio University

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This dissertation titled

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Internet-based distance education (IBDE) is fast becoming an integral part of course delivery in Saudi colleges and universities, as well as around the world. This study used relevant technology acceptance literature and the Unified Theory of Acceptance and Use of Technology Model (UTAUT) as a theoretical framework to investigate the determinants associated with Saudi students' behavioral intention (BI) to accept and use of IBDE as new learning methods in Saudi universities.

The purpose of this study is to test the determinants of the BI to accept and enroll IBDE by university students and to discover if there exist either age, gender, or their occupation differences in the acceptance of IBDE. To achieve this purpose, an exploratory sequential mixed method (ESMM) was utilized for data collection and analysis. Qualitative data were collected through interviews with seven Saudi students who enrolled in online course, and quantitative data were collected using an online survey instrument completed by 230 online students at Saudi Electronic University (SEU).

The results indicate that perceived convenience (PC), Performance expectancy (PE), perceived enjoyment (PJ), and admission requirements (AR) were all significant determinants of behavioral intention to accept and enroll in IBDE. Effort expectancy EE,
attitude toward using IBDE technology (AT), social influence (SI), and facilitating conditions (FC) were not found to be significant predictor variables. Moreover, the Saudi students showed differences in IBDE when they were compared, based on their gender and occupation. The findings also suggest an extended model of UTAUT for the acceptance and use of the IBDE, which can help the organization decision makers in Saudi Arabia in planning, evaluating and executing the use of existing IBDE.
Dedication

This dissertation is dedicated to:

My father, Youssef Al-Youssef

My mother, Jowharah Al Youssef

My wife, Reem Naji Alsaleem

My daughter, Dania,

My brothers, Abdulaziz, and Zakaria

My sisters, Reem, Hend, and Wadha

May Allah reward them for their enormous assistance
Acknowledgments

With humbleness and faith, I would like to express my ultimate gratitude to ALLAH Almighty for giving me the patience, the capacity, and the energy to complete the dissertation, in the best way I know how, for everything else he has given me in this life.

I would like to express very special thanks to Dr. Teresa J. Franklin, my dissertation committee chair and supportive advisor, for her constant support, vision, suggestions, encouragement, and thoughtful advice through the whole process of this dissertation. I would like to extend my gratitude and appreciation to my other research committee members: the dean’s representative Dr. Greg Kessler, Dr. John H. Hitchcock, and Dr. Dawn M. Bikowski for their guidance, meticulous and brilliant editing, and their ongoing sense of humor through multiple revision and the whole process of this dissertation. Their advice throughout the research was very valuable and helped me improve this piece of work. I am extremely grateful for all of time and effort they have given to me.

Special thanks goes to Saudi Electronic University SEU for allowing me to conduct my research at their institution; in particular, Dr. Abdullah Al-Najjar, the vice president of SEU, for his assistance and facilitation of administrating the research instrument and obtaining archival survey data.

I cannot express enough thanks to my special friends for their continued support and encouragement: Dr. Adil Al-Busaidi, John Haupt, and Munjed Kara-Hamoud, P.E., M.B.A. I could not have done this without their help and guidance. I would like to
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Last, but certainly not least, I would also like to extend my deepest gratitude to my parents, wife, siblings, and friends. They were always supporting and encouraging me with their best wishes during the through the years of study in the United States.
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Chapter 1: Introduction

Background of the Study

The rapid advancement of Internet technology IT has shown to be a promising tool for some educators around the world (Akir, 2002). It has now become a tool that many educators now regard as the backbone of delivering instruction for the future (Al-Arfaj, 2001). Internet technology’s wealth of integrated multimedia applications makes it the ultimate tool for many in the field of education. Because of its richness in integrating all kinds of media, it motivates users, specially students, to keep interacting with it (Shelly, Gunter & Gunter, 2012). The availability and accessibility of the Internet have made it easy for users to increase their knowledge and to learn more about any topic (Abu-Shawar, 2007; Akir, 2002).

Internet technology can enhance educational settings in many ways. It connects a huge number of networks that provide educational materials to learners and educators. Through this kind of technology, for instance, teachers can develop courseware in the form of distributed learning over the Web. They can upload class materials to the Web, which students can then access anytime and anywhere. They can assign projects to be completed by students in pairs or in small groups; students can interact with each other using e-mail or communication tools such as audio- and video-conferencing. Students in a distributed learning environment can join classmates in other cities or even other countries (Al-Jarf, 2005). They can share their projects with each other and solicit feedback. Students also might join newsgroups or listservs for communication. These new methods of instructional tools can help learners, instructors and the instructional

In addition, Internet technology can address some of the problems facing higher education institutions around the world (Al-Arfaj, 2001). For example, large numbers of online classes can be created, offering students the opportunity to attend a university, have increased access to education, and choose from a wider pool of academic institutions for their ongoing learning. Furthermore, distance education via electronic media can provide students with external sources of learning, such as libraries and other educational institutions and organizations (Al-Arfaj, 2001; Akir, 2002; Al-Zoubi & Sam, 2011; Chang, 2008; Chokri, 2012).

The demand for online courses is clearly growing in the world. For example, Chang (2008) observes that many academic institutions across the world adopt and use Internet-based distance education technologies. In the United States, for instance, 62.4% of both for-profit and nonprofit colleges and universities offered fully online and blended degree programs in the academic year 2011-2012, compared with only 33% in 2002 as reported by Allen and Seaman (2013). Such institutions believe that adoption of internet-based distance technology can enhance the educational delivery system and solve problems with higher education in the world today. With adopting information and communication technology ICT, educational institutions provide their students skills that are valuable for their careers, as well as broader and more cost-effective access to education.
The need for Internet-based distance education in Saudi Arabia. Saudi Arabia’s population is increasing rapidly. According to the Central Department of Statistics and Information Saudi Arabia (CDSI) in their website, the total population in Saudi Arabia in 2012/2013 was 29,994,272. The annual population growth rate from 2004 to 2013 in Saudi Arabia was 2.5%. The total population of Saudi citizens in 2012/2013 was 20,271,058. The total number of Saudi males was 10,181,018, or 50.2% of the total population, compared to 10,090,040 females, or 49.8% of the population. The Saudi government, particularly the Ministry of Education (MOE) and Higher Education (MOHE), identifies the population growth in Saudi Arabia as the main challenge facing their institutions. School and Universities in Saudi Arabia lack the physical capacity to accommodate all students. The MOHE and its institutions strive to make high-quality education available to all of these students (Abu-Shawar, 2007; Al-Arfaj, 2001; Alebaikan, & Troudi, 2011; Asiri, Mahmud, Abu Bakar & bin Mohd Ayub, 2012; Chokri, 2012).

Another challenge is gender segregation, which has an important impact on social life in Saudi Arabia. Al-saggaf & Williamson (2004) define the segregation of gender as “maintaining the two sexes physically, socially and psychologically segregated” (p. 155). This means that the Saudi authorities do not allow females to associate with males who are not close relatives in educational institutions (schools and universities), public places, business organizations, and social life (Alhazmi & Nyland, 2013). This segregation is prescribed by the local culture and Islamic values. For example, students in Saudi Arabia study in a gender-segregated environment from first grade until graduate school (Alhazmi
Male instructors can teach both male and female students using closed-circuit television CCTV and the Internet. However, female instructors cannot teach or interact with any male students at all. In addition, families consider direct communication between male and female students unacceptable in Saudi Arabia (Al-Jarf, 2007; Bates, 2009; Mohamed et al., 2008).

For this reason, women in Saudi Arabia face a problem with attending traditional educational institutions (Alanazy, 2011; Al Alhareth, 2013; Hamdan, 2005; Alkhalaf, Nguyen, Nguyen & Drew, 2011). Al-Arfaj (2001), Al-Jarf (2005), and Hamdan (2012) describe challenges in Saudi cultural and religion that prevent women from attending universities or colleges, such as driving cars to attend classes, communication with university administrative and staff, and full dependence on their male relatives. In addition, some women in Saudi Arabia marry after graduating from high school and have to care for their family. For these reasons, the researchers conclude that taking classes through Internet-based distance education IBDE would appeal to female students in Saudi Arabia as an alternative learning method.

Male students, on the other hand, have positive perceptions and attitudes toward technology and use of IBDE (Al-Arfaj, 2001), as they also face educational, economic and cultural challenges when attending university as full-time students. For instance, some male students have jobs, provide support for their family, have difficulty getting re-admitted to universities, cannot complete their degree, and/or cannot obtain a good job without a degree (Al-Arfaj, 2001; Al-Kinani & Al-Besher, 2008). Pontes et al. (2012) identify several factors that prevent Saudi male students from attending universities or
colleges, including financial independence, dependents other than spouse, and full-time employment.

Finally, The Kingdom of Saudi Arabia (KSA) is the largest country in the Arabian Peninsula by land area, at approximately 2.25 million km$^2$ (CDSI, 2010). The geography of the country has posed challenges for the Saudi government as well as for Saudi students. For example, some Saudi students need to travel approximately 500-1000 kilometers (350-700 miles) to attend universities or colleges that are costly for them.

One solution to these problems is the adoption of IBDE programs in Saudi Arabian universities. For years, many Saudi universities have been trying to integrate distance learning or e-learning technology (Al-Arfaj, 2001; Albalawi, 2007; Alshwaier, Youssef & Emam, 2012; Bates, 2009). IBDE offers a good opportunity for both male and female students in Saudi Arabia to pursue their college education. In fact, several universities are trying to build virtual learning environments into their campuses.

**Internet-based distance education in Saudi Arabia.** Like the developed world, no two developing countries are identical. Their financial capabilities, cultures, and life styles differ from country to country, and, therefore, their import capabilities and annual allocations to education differ, too. For example, the development of ICT in Saudi Arabia is relatively short compared to other countries, such as the United States. Like most developing countries, the Saudi government has recognized the importance of ICT. In 2002, the Saudi government announced plans to adopt ICT across the country (Al-Khalifa, 2010). For this plan, the Saudi government has established two main goals (1) to develop a Saudi ICT infrastructure and strategy and (2) to implement ICT in higher
education (Al-Khalifa, 2010; Chanchary & Islam, 2011; Khan, Khan & Al-Abaji, 2001).

Today, the MOHE, which oversees all public and private colleges, universities and other post-secondary institutions, has already started moving toward the use of ICT in general and IBDE in its colleges and universities.

The demand for ICT and IBDE in the Saudi Arabian higher education institutions has increased rapidly (Al-Khalifa, 2010). MOHE (2011) reported that 95% of universities and colleges offer courses in an online and blended format in Saudi Arabia. For these reasons, The National Center of E-learning and Distance Learning (NCED) was established by MOHE in 2006 (Al-Khalifa, 2010, Al-Shehri, 2010, Chanchary & Islam, 2011). The main goal of the NCED is to help and develop nationwide electronic and distance education in universities and colleges, with the support and collaboration of the Open University of Malaysia and Multimedia Technology Enhancement Operation (METERO) (Al-Khalifa, 2010; Almegren, Al-Yafei & Hashem, 2007). NCED also facilitates delivery of IBDE to Saudi students. In addition, the NCED provides training programs aimed at improving the abilities and knowledge of faculty members and others interested in the area of e-learning and ICT in Saudi universities and colleges (Al-Khalifa, 2010, Al-Shehri, 2010, Chanchary & Islam, 2011).

In 2011, the king of Saudi Arabia, Abdulla bin Abdul Aziz, approved the establishment the Saudi Electronic University SEU as a developmental higher education institution that applies distance education methods in the Kingdom of Saudi Arabia. After conducting a comprehensive feasibility study, the SEU was established under the umbrella of the MOHE (Saudi Electronic University, 2011). Although, the SEU is not
the first institution of higher learning that implements open learning for teaching and learning, it is the first government supported online university. It was established to provide electronic education using ICT and the techniques of e-learning and distance learning (Saudi Electronic University, 2011). The SEU headquarters and a branch are located in the capital city of Saudi Arabia, Riyadh. The main campus offers various modern facilities and resources for faculty and students (Saudi Electronic University, 2011). Six other centers have been opened in Jeddah, Dammam and Medina, Al Jawf, Al Qasim and Asir.

The SEU is a governmental electronic institution that aims to provide an excellent and qualified modern education for all society members by using the advanced tools of ICT and online instruction. The SEU expects to build up the learning and aptitudes of Saudi and non-Saudi students to empower them to attain to their proficient objectives, enhance their productivity, and become leaders in their communities (Saudi Electronic University, 2011). In particular, the SEU hopes to achieve a number of objectives, including: offering flexible and distinguished levels of higher education by using advanced applications and technologies of online learning, providing a forum for lifelong learning to meet the needs of all members of Saudi society, and developing a center of excellence for distance education in Saudi Arabia and other countries (Saudi Electronic University, 2011).

It should be noted that SEU is accredited by local institutional accreditation in Saudi Arabia. It has achieved local program accreditation from Ministries of Higher Education and the Ministry of Civil Service in Saudi Arabia. The accreditation process
has involved a detailed examination of everything, such as university staffing and facilities, and critical assessment of the university curriculum by a team of reviewers drawn principally from other Saudi universities (Saudi Electronic University, 2011).

SEU has built relationships with international associations, such as the Distance Education and Training Council (DETC), United States Distance Learning Association (USDLA), Universal Council for Online Education Accreditation (UCOEA), and European University Quality in E-Learning (UNIQUE). It is also affiliated with international institutions in the world including Franklin University, City University of Seattle, Colorado State University-Global Campus, Ohio University, and Florida Institute of Technology (Saudi Electronic University, 2011). Moreover, SEU signed an agreement with Education First® (EF) language teaching institutes to provide students in their preparatory year with an excellent program to enhance their English skills through the Internet (Saudi Electronic University, 2011). SEU works with these organizations and institutions in many ways, including providing courses, collaborating on new curricula, validating programs, and sharing expertise.

The SEU teaching and learning model is essentially a form of blended learning method. A blended learning course involves a combination of a face-to-face component (25%) and high tech delivery methods of online learning (75%) using virtual classrooms, video-conferencing, and instruction facilitated through Blackboard® (worldwide learning management system) (Saudi Electronic University, 2011). To support this type of learning, all centers are equipped by using multimedia and computer laboratories in other Saudi universities. The SEU students should master the skills of self-learning,
information technology, and English. To help the students acquire these necessary skills, the SEU provides five courses in the prep-year program that are taken by undergraduate students in the first semester of their enrollment. These courses include proficiency in English, Mathematics, Computing, Academic skills, and Communication skills (Saudi Electronic University, 2011). To pass proficiency in English, the SEU students need to achieve 83 or more in STEP that is sponsored by the National Center for Assessment Tests, 5.5 or more in International English Language Testing System (IELTS), 500 or more in Test of English as a Foreign Language (TOEFL®). These scores are required because the English language is the medium of instruction in SEU programs. To pass any of the non-English courses, students need to obtain at least a 60 percent for their total grade (Saudi Electronic University, 2011). Students, who cannot complete the prep-year program after three attempts, will not be allowed to register and continue in SEU.

With the help of its partners, SEU offers both graduate and undergraduate degree programs. The SEU offers bachelor degrees in administration and financial sciences, information and technology, and health sciences; and one master degree in business administration MBA (Saudi Electronic University, 2011). To gain admission as undergraduate students at SEU, students must hold an official high school certificate or an equivalent, and pass a prep-year program. To be accepted in graduate college in SEU, students must hold a bachelor's degree from a recognized university, a minimum GPA of 3.00/5.00 or equivalent grades, achieve 500 or more on the TOEFL, or 83 or more on the STEP, or 5.0 or more on the IELTS® (Saudi Electronic University, 2011). Students also must sign a commitment to pay the university tuition fees for each unit of study. The
university tuition for the academic year is $34.50 per semester credit hour for undergraduate degree programs and $266 per credit hour for graduate degree programs (Saudi Electronic University, 2011).

According to registries for the academic year 2012/2013, SEU has between 5,300 and 6,000 male and female students. The majority of these students are enrolled in bachelor degree programs, but the master degree student population is growing steadily as of 2013. Male students currently constitute 47% of the whole population, with female students comprise the remaining 53%. Undergraduate information and technology accounts for 40 percent of total enrollments, health sciences for 31 percent, and administration and financial sciences for 28 percent. Table 1 illustrates SEU students’ enrollment in 2012/2013 (Statistical summary, 2013).

Table 1

<table>
<thead>
<tr>
<th>Major</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
<th>%</th>
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<tr>
<td>Administrative &amp; Financial</td>
<td>840</td>
<td>662</td>
<td>1502</td>
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<tr>
<td>Information Technology</td>
<td>985</td>
<td>1139</td>
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<tr>
<td>MBA</td>
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<td>70</td>
<td>70</td>
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</tr>
<tr>
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<td>2842</td>
<td>2488</td>
<td>5330</td>
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<tr>
<td>%</td>
<td>53.4%</td>
<td>46.6%</td>
<td>100%</td>
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Statement of the Problem

Internet-based distance education IBDE is fast becoming an integral part of course delivery in Saudi colleges and universities, as well as around the world. Research to date in Saudi Arabia has tended to focus on perceptions and attitudes of students, rather than other factors that stem from the society as a whole; these factors may significantly play an important role in the diffusion of IBDE. As a result, the main factors that may have the most influence in IBDE diffusion need further exploration. Identifying the factors and sub-factors that influence the adoption of IBDE is significant, in that it helps to enhance existing practices on teaching and learning for the Saudi government and educational institutions.

Purpose of the Study

This study utilizes Exploratory, Sequential, Mixed-Methods (ESMM) to investigate Saudi students’ acceptance and use of Internet-based distance education IBDE. The main aim of this study was to explore and examine the factors influencing Saudi students’ decisions regarding their acceptance and use of IBDE, as well as to determine which factors have more of an impact on the adoption of this technology as a new learning method in Saudi universities. More specifically, the primary purpose of this study (Creswell & Plano Clark, 2011; Creswell, 2009; Teddlie & Tashakkori, 2009) was to develop an understanding of factors or sub-factors that might influence Saudi students’ acceptance and use of IBDE. In addition, understanding the factors that prevent or encourage student participation in IBDE will facilitate decisions on the use of IBDE in the Saudi education system.
The first phase of this work was a qualitative study to investigate and explore in-depth the factors or sub-factors influencing Saudi students’ decisions regarding their acceptance and use of IBDE. The second phase was to construct a quantitative survey that addressed how selected internal and external variables or factors derived from the qualitative phase serve as predictors to students’ decisions regarding their acceptance and use of IBDE. The Unified Theory of Acceptance and Use of Technology (UTAUT) model by Venkatesh, Morris, Davis, and Davis (2003) was used in the quantitative analysis.

Research Questions

Based on the theoretical foundation and statement of the problem, the main research question that framed the research were:

1. What factors or sub-factors might influence Saudi students’ decisions toward enrolling and continuing an IBDE as a new learning method in Saudi universities?

2. Which factors are more significant predictors of the acceptance and use of IBDE as a new learning method in Saudi universities?

Based on the results obtained from the above qualitative questions, the following questions were also explored and expanded:

1. Are the UTAUT Model and the additional variables, such as perceived enjoyment, perceived convenience and an admission requirement, significant predictors of SEU students’ behavioral intention to accept and use IBDE as a new learning method in Saudi universities?
2. Is there a statistically significant difference between male and female Saudi students on the behavioral intention (BI) to accept and use IBDE as a new learning method in Saudi universities?

3. Is there a statistically significant difference between Saudi students’ occupation and their BI to accept and use IBDE as a new learning method in Saudi universities?

4. Is there a statistically significant relationship between the students’ age and their BI to accept and use IBDE as a new learning method in Saudi universities?

**Significance of the Study**

This study may have the following significance regarding the implementation of IBDE in Saudi Arabia:

1. The findings may identify the specific factors influencing Saudi students’ decisions regarding their acceptance and use of IBDE, as perceived by SEU students.

2. This study may reveal possible motivational factors for the success of IBDE in Saudi Arabia, as perceived by SEU students.

3. This study may produce valuable information about the factors influencing students, both male and female, enrolled at SEU as online students through IBDE.
4. The results of this study will in general help decision makers in Saudi Arabia and in particular, the higher education institutions, to find solutions to issues that may enhance IBDE in Saudi Arabia.

5. The results of this study may provide guidance in developing professional training programs on the use of IBDE by Saudi faculty members.

6. The findings of this study may provide valuable information about enhancing IBDE courses in Saudi Arabia.

Research Approach

As mentioned earlier, exploring and examining the factors influencing Saudi students’ decisions regarding their acceptance and use of IBDE was the main focus in this study. To achieve this objective, ESMM was utilized for data collection and analysis (Creswell & Plano Clark, 2011; Creswell, 2009; Teddlie & Tashakkori, 2009). This type of mixed method starts with qualitative data collection and analysis and ends with quantitative analysis. In the first phase, the researcher used qualitative data to explore and identify a set of factors and sub-factors and to expand the initial research model that might contribute to and influence Saudi students’ acceptance and use of IBDE.

In the second phase, the researcher developed and piloted a survey instrument to use in a quantitative research phase. The result from the qualitative research helped the researcher to develop the survey instrument. In the third and final phase, the researcher used quantitative research to test and generalize the initial findings. This phase included the study population, sample and sampling procedure, data collection procedure, and statistical procedure that were used for data analysis. Using results from the qualitative
and quantitative analysis, the researcher suggested a set of factors or sub-factors that influence Saudi students’ decisions regarding enrolling and continuing in IBDE.

**Theoretical Framework**

Numerous theories have been developed to explain individuals’ adoption and use of ICT. In the current study, UTAUT are among the theories used as a theoretical framework. Developed by Venkatesh, Morris, Davis, and Davis (2003), UTAUT, as theoretical framework, tries to explain and investigate why people choose to use certain technology and how they develop their pattern of behavior when using such technology. UTAUT builds and develops upon eight previous theories/models from social psychology and sociology (see appendix L). Venkatesh et al.’s (2003) conceptual model represented four variable sets, or factors, of intention to use a new ICT: performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC).

The UTAUT model was selected as the theoretical framework for this dissertation’s research because it is quite new and quickly growing in the field of technology adoption research studies within several contexts. It is a model that can explain user’ behavioral intention adoption and use of any kind of ICT tools: it can “explain more of the variance in BI compared to the other eight theoretical models, such as TAM at 40%” (Venkatesh et al., 2003, p. 471). As mentioned above, this conceptual model builds upon the eight previous theories from social psychology and sociology, thus it is very comprehensive and measures individuals’ BI in different ways (see appendix H). Therefore, this model includes more than one factor affecting the user’ intention
Venkatesh et al. (2003) validated the UTAUT survey instrument with four variable sets (factors) of BI to adopt use ICT (see appendix D). Finally, few research studies have adopted this model in the Middle East in general and in Saudi Arabia in particular (Al Ghamdi & Dasgupta 2012; Nassuora, 2012).

Thus, Using UTAUT Model, the researcher set out to determine the reasons why Saudi students accept and use Internet-based distance education IBDE.

**Delimitations/Limitations of the Study**

The delimitations of this study are as follows:

1. This study focused on the factors influencing SEU students’ decisions regarding their acceptance and use of IBDE in Saudi Arabia. The results of this study will not be generalizable to any country other than Saudi Arabia.
2. The study was confined only to SEU located in Riyadh, Jeddah, and Dammam.
3. The participants of this study included only full-time students who are currently enrolled in the College of Administration and Financial Sciences, the College of Computer and Informatics, and the College of Health Sciences at SEU. It will not include undergraduate and graduate students from other colleges/universities in Saudi Arabia.

The limitations of this study are as follows:

1. Since the study was limited to SEU students, it cannot be assumed that its findings apply to universities, K-12 students, or other programs in Saudi Arabian universities.
2. The study was geographically limited to Saudi Arabia.

3. Because of the interpretative nature of the qualitative research, the researcher may introduce his bias into the analysis of the result.

4. For data collection, English and Arabic language were used to write the interview questions and survey instrument. In addition, students’ responses were translated from Arabic to English for interpretation and reporting.

Terminology Definitions

The following terms were used and defined herein to provide the reader with a full understanding of this research study:

Acceptability: “The demonstrable willingness within a user group to employ information and communication technology for the task it is designed to support” (Dillon & Morris, 1996, p. 4). This study defines students’ acceptance as the extent to which students are willing to accept and use IBDE for academic purposes.

Admission requirement (AR): Admission requirement (AR) is defined as the minimum standards that students must meet in order to be a student in a college or university. Many online degree programs have no specific entry requirements; others have the same requirements as the institution’s regular programs.

Attitude toward use (AT): Venkatesh et al. (2003) defined attitude toward technology, as “user’s feeling, positive or negative, about performing the targeted behavior of using a new product” (p. 456). This study defines attitude as Saudi students’ feelings and perceptions toward their acceptance and use of IBDE.
**Behavioral intention (BI):** Venkatesh et al. (2003) defined BI as “The degree to which a user has formulated conscious plans to perform or not perform some specified future behavior” (p. 457). This term refers to students’ decisions regarding their future acceptance and use of IBDE in this study.

**Blended learning:** Moore and Kearsley (2013) defined blended learning as “a combining of face-to-face (f2f) learning and computer-mediated delivery in planned learning” (p. 305). In this study, this term refers to a combination of 25% traditional education and 75% computer-mediated delivery.

**Effort expectancy (EE):** Venkatesh et al. (2003) defined EE as “The degree of ease associated with the use of information Systems” (p. 450). In this study, this term refers to the degree to which Saudi students believe that the IBDE tools would be free of effort.

**Electronic learning (eLearning):** eLearning deals with the use ICT to access and deliver educational content outside the traditional classroom at any time and from anywhere

**Facilitating condition (FC):** Venkatesh et al. (2003) defined FC as “The degree to which user believes that the organization and technical infrastructure exists to support use of new technology systems” (p. 452). In this study, this term refers to the degree to which Saudi students perceive that the organization supports their acceptance and use of IBDE for academic purposes.
**Distance education/learning:** The delivery of educational or training material to the learner anytime and anywhere through multiple sources of communication and telecommunication tools.

**Information and communication technology (ICT):** “The electronic and non-electronic technologies and infrastructure systems used to create, store, manipulate, retrieve, and communicate or disseminate information” (Elsaadani, 2013, p. 215). In this study, this term refers to a variety of technological tools and resources provided via communication and telecommunication tools used by students to learn or study in an education environment.

**Internet-based distance education (IBDE):** Ally (2004) defined IBDE as “The use of communication and telecommunication tools to access learning tools; to interact with content, teachers, and other learners; and to obtain support during the learning process, in order to obtain and construct knowledge and personal meaning, and to develop the learning experience” (p. 215). This study defines IBDE as a course where up to 75% of the content and interaction is delivered via telecommunication tools, correspondence, or equivalent mechanisms, with the instructors and students physically separated from each other in time and place (Allen & Seaman, 2008).

**Job relevance:** “User’s perception regarding the degree to which the target system is relevant to his or her job” (Venkatesh & Davis, 2000, p. 191). In this study, this term refers to the degree to which the users perceive that using IBDE is relevant to their jobs.
Learning management systems (LMS): “Internet-based software allowing instructors to manage materials distribution, assignments, communications and other aspects of instruction for their courses” (Abu-Shawar, 2007, p. 14).

Ministry of Higher Education (MOHE): A Saudi government organization that oversees all public and private colleges, universities and other post-secondary institutions in Saudi Arabia.

Mixed method research (MM): According to several scholars (Creswell & Plano Clark, 2011; Creswell, 2009; Teddlie & Tashakkori, 2009) Mixed method design is collecting, analyzing, and mixing or integrating multiple methodology data, quantitative and qualitative, in a single investigation for gaining in-depth knowledge on the research problem.

Output quality: It refers to the extent to which a student believes that using IBDE would be performed his or her job tasks well.

Perceived convenience (PC): Chang, Yan, and Tseng (2012) defined PC as “A level of convenience toward time, place and execution that one feels during the participation in new systems” (p. 812). In this study, this term refers to Saudi students’ perception of the extent of time, effort, and place related to using IBDE.

Perceived enjoyment (PJ): Venkatesh (2000) defined PJ as “The extent to which the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use” (p. 351). In this study, this term refers to the degree to which Saudi students enjoy using IBDE for teaching and learning.
**Performance expectancy (PE):** Venkatesh et al. (2003) defined PE as “The degree to which the individual expects that using the new technology will help him or her to attain gains in job performance” (p. 447). In this study, this term refers to the extent to which a Saudi student believes that using IBDE would enhance his or her learning performance.

**Exploratory sequential mixed method (ESMM):** The mixed-methods sequential exploratory design consists of two distinct phases: qualitative followed by quantitative (Creswell et al. 2003). In this design, a researcher first collects and analyzes the qualitative data. Second in the sequence, the quantitative data are collected and analyzed. Then, the qualitative results obtained in the first phase are generalized (Creswell et al. 2003).

**Social influence (SI):** Venkatesh et al. (2003) defined SI as “The degree to which user perceives the importance that others believe that he or she should use the new technology or systems” (p. 451). In this study, this term is defined as the extent to which students receive social pressure to accept and use IBDE for academic purposes.

**Usability:** The ease with which students can access IBDE courses so they can locate the materials and documents they need to facilitate learning.

**Unified theory of acceptance and use of technology (UTAUT):** This study defines UTAUT as a model to explain why people choose to use certain technology and how they develop their pattern of behavior when using such technology.
Organization of the Chapters

This dissertation is organized into five chapters: introduction, review of the literature, methodology, results, and conclusions and recommendations.

Chapter 1 covers the background of the problem, the overall purpose of the study, the research question, the significance, the limitations, and definition of terms. The chapter concludes with the organization of the chapters.

Chapter 2 reviews the literature on the adoption and use of IBDE and distance learning, specifically in higher education.

Chapter 3 discusses the methodology, or the research design used to collect and analyze data for this study. This chapter includes an introduction, population, sample description, instrument, data collection procedure, and data analysis procedure.

Chapter 4 describes the qualitative data obtained from the interviews and the quantitative findings from the survey.

Chapter 5 summarizes and interprets the findings and suggests recommendations for future best practices and research.

Chapter Summary

This chapter provides an introduction to the study. The chapter includes the statement of the problem, the purpose of the study, research questions, significance of the study, research approach, theoretical framework, delimitation and limitation of the study, definition of terms, and the organization of the study.
Chapter 2: A Review of Related Literature

The purpose of this research study was to investigate and examine factors influencing Saudi students’ decisions regarding acceptance and use of IBDE, and which factors have more impact on the adoption of this technology as a new learning method in Saudi universities. The literature review in this study focuses on (1) distance education/distance learning, (2) Internet-based distance education IBDE, (3) the learning theories, (4) research on the acceptance and use of IBDE in the world, (5) research on the acceptance and use IBDE in the Arab region of the world and (6) factors that motivate students to accept and use IBDE for learning.

Distance Education/Distance Learning

Distance learning began in the 18th century, when teacher and student used exchange mail as a form of schooling environment (Farnsworth & Bevis, 2006). There are various groups of educational scholars, each of whom has developed its own definition of distance education or distance learning. There is no real agreement as to an accurate definition of distance education or distance learning. For example, Ko and Rossen (2010), in their glossary in Teaching Online, a Practical Guide, defined the term of distance education as:

Distance education/Distance learning is a process that traditionally included courses taught through the mail, by DVD, or via telephone or TV, or telecommunication tools that does not involve face-to-face classroom setting in which teacher and students are in the same location at the same time. (p. 399)
Shelly, Cashman, Gunter, and Gunter (2006) described distance-education (DE) as “the distribution of education and instruction from one place to another place; the learning takes place at this other location” (p. 294). Jones (2003) defined distance education as “distributed education resources and activities in a synchronous communication (real-time) or asynchronous communication (self-paced) format” (p. 2). In yet another definition, Morrison and Khan (2003) mentioned that distance learning is an approach that utilizes technology and instructional design principles to design and facilitate student-centered electronic learning environments to anyone, anywhere, and anytime. The Ohio Learning Network’s annual report of e-learning (2007) defined distance learning as “different delivery modes such as online, blended, technology-enhanced, interactive video, television TV, CD, DVD, and correspondence” (p. 4). Finally, İşman, Dabaj, Altinay, and Altinay (2004) defined distance education as “the process that educators, organizers of technical and administrative levels, and students are actively involved in to create meaningful learning and teaching activities in the comfort of a home atmosphere” (p. 4).

Currently, distance education uses modern information and communication technology ICT as a media radically changing the way distance learners communicate with their instructors and with each other. ICT integration into distance learning, such as the use of the Internet, has fostered closer relationships among learners. It has helped to build learning communities that are equivalent to those normally found in traditional classrooms (Akir, 2002).
**History of distance education.** The history of distance education can be organized into several eras. The first generation of distance education methods can be described as involving the use of correspondence or independent education (McIsaac & Gunawardena, 2000). Correspondence education is an alternative mode of teaching and learning for non-resident students, primarily adults, who receive learning materials (lessons and exercises) through postal services (mail) and, upon completion, return them for analysis and grading (Naidu, 2007). As an alternative mode of education, correspondence education developed in many countries, including Canada, Australia, New Zealand, South Africa, and various European and Asian nations (Naidu, 2007). In the United States, the University of Chicago was the first university to establish a correspondence education program, in the 1890s (McIsaac & Gunawardena, 2000). In the Arab region, The Beirut Arab University established the first correspondence education program in the 1960s (Al-Harthi, 2005).

In the second generation of distance learning, the correspondence mode of learning began to change when radio and television became popular during World War I in the 1950s (Naidu, 2007). During the second generation of distance education, instructors found new delivery systems to deliver education to their students. For example, they frequently used combinations of various communication media, including printed materials, audio materials, audio-visual materials, recorded audiotaped telephone conferences, and computer programs (McIsaac & Gunawardena, 2000, Naidu, 2007).

In 1969, the British Open University in the United Kingdom developed and began designing learning materials supported by a variety of new technologies, such as print-
based instruction, telephone, radio, and television. These course materials were delivered through these technologies on a large scale to undergraduate, graduate, and associate degree seeking students (McIsaac & Gunawardena, 2000).

Broadcast media (radio and television) distinguished the third generation of distance education. The use of instructional radio failed during the years between the World Wars, especially during the 1930s (McIsaac & Gunawardena, 2011). On the other hand, instructional television was viewed as an important type of instructional media, developed for teaching and learning during the 1930s (McIsaac & Gunawardena, 2011).

Audio conferencing was another important broadcast media, which used public telephones (Murphy, 2005). Audio conferencing can be defined as a synchronous communication media that allows verbal discussion (Murphy, 2005). The first institution to use audio conferencing for education in the world was the University of Wisconsin in 1965 (Murphy, 2005).

During the late 1960s, education scholars found that satellite communication was another important form of media that could be used to deliver education to many students throughout the world. Satellites allowed students and teachers to receive any course directly at their home (Akir, 2006). There were some advantages of using satellites for delivering instructional television, among them, for example, “high-quality video, a variety of course availability, simplicity of use, and no geographical restrictions” (Murphy, 2005, p. 28).

Finally, the fourth generation of distance education can be described as using a variety of media, such as compact discs or CD, electronic libraries, multimedia, and the
Internet (McIsaac & Gunawardena, 2011, Ziad, 2002). This generation of distance education began during the 1990s.

Clearly, distance learning has passed through a number of overlapping stages with no distinct lines of separation between them. We can present these stages as follows (Akir, 2002; McIsaac & Gunawardena, 2011; Murphy, 2005): learning through mail correspondence, in which the educational material is sent by a certain educational organization or by the teacher to the learner without any interaction between them; learning through radio or other audio resources; using television or video as learning resources, which are more developed than radio, since they use sound and motion picture technology while transmitting information; distance learning through interactive radio and television. This technology is based on interaction between the teacher and the learner through sound and pictures; and digital technology through computers and the Internet, which nowadays is the main technology on which distance learning is based (Akir, 2006).

**Types of distance education.** McIsaac and Gunawardena (2011) indicated that there are five types of distance education or distance learning: (1) Correspondence learning conducted through regular postal services; (2) Broadcasting courses, in which learning materials are delivered through radio and television instruction; (3) Teleconferences and videoconferences, in which students collaborate with their colleagues through telephone or television instruction; (4) Courses conducted on the basis of computer-assisted instruction; (5) Internet-based distance education, in which contents are delivered via the Internet environment (McIsaac & Gunawardena, 2011, p. 3)
In this study, the researcher focused on Internet-based distance education IBDE. The researcher reviewed the definition of Internet-based distance education IBDE, the popular tools and applications used in IBDE, the students’ perspectives regarding the advantages and weaknesses of IBDE compared with face-to-face learning, and the challenges of adopting IBDE for academic purpose.

**Internet-based Distance Education IBDE**

Internet technology is one of the most advanced tools that can serve education (Akir, 2005). It connects a huge number of networks that provide educational materials to learners and teachers. Through the Internet, courseware that is actually a form of distributed learning over the Web can be developed. Through distributed learning, students can join other classmates in other cities or even countries. Online instructors can upload class materials to the Web, which students can access anytime and anywhere. They can share their projects with each other to receive feedback. Students can join news groups or listservs for live communication (McIsaac & Gunawardena, 2011; Murphy, 2005). These new methods of instructional tools help learners, instructors, and the instructional process in general.

In the United States, for example, advances in the Internet and computer technologies have led to an increase in the number of educational institutions that offering fully online degree programs and courses. In the academic year 2011-2012, about 62.4% of both for-profit and nonprofit colleges and universities offered fully online degree programs, compared with 33% in 2002 (Sloan Consortium, 2013, p. 11-15). In 2012, an approximately 7 million students were enrolled in at least one online course.
through colleges or universities, up to 9.3% from the previous year (Sloan Consortium, 2013, p. 11-15). According to the report, in 2012, 77% of responses from over 2,800 academic leaders found that the online learning outcomes for online courses are the same as the face-to-face courses compared to 57.2% in 2003 (Sloan Consortium, 2013, p. 11-15).

**What is Internet-based distance education IBDE?** One of the most popular learning environments thus far in the information age has been IBDE (Gasaymeh, 2009). IBDE efforts and experiments presently receive enormous attention across the world. IBDE is a non-traditional way of teaching and learning. Scholars do not agree on one consistent definition of IBDE, but it can be implemented in the form of open education, distance education, virtual distributed learning, network learning, computer assisted learning, and Web-based learning. Below are the various definitions of Internet-based distance education, as reported in the previous studies.

There are various terms used interchangeably with Internet-based distance education IBDE, including e-learning, web-based learning, Internet-based training, advanced distributing learning (ADL), computer-assisted instruction, online learning, and virtual learning (Khan, 2005). IBDE is the mix of electronic media such as the Internet, intranet, extranets, and hypertext used to deliver instruction to learners (Grenzky & Maitland, 2001). Ally (2004) defined IBDE as the use of communication and telecommunication technology to access and interact with learning environment (content, teachers, and other learners), and to obtain support form instructors during the learning
procedure in order obtain and construct knowledge and personal meaning and to develop the learning experience.

As a type of distance education, IBDE employs ICT tools and computer technology for interacting between instructor and students. Alzamil (2006) asserts that IBDE refers to any educational system that is planned, prepared, implemented and evaluated using electronic recourses and is delivered to the learner through the use of information communication technology (ICT). In fact, traditional learning paradigms are expanded into new dynamic learning models when using ICT (Akir, 2006). Educators must remember that these technologies are only tools that should never replace a good plane and strategy of teaching. In addition, it should help them to enhance teaching and learning.

**Popular tools and applications for IBDE.** The use ICT and computer technology as teaching and learning tools is expanding rapidly into the field of education (Akir, 2006). In the past, broadcast TV and instructional television were used. Following are some examples of the current technologies used in Internet-based distance education:

*World Wide Web (W3).* W3 is a worldwide hypertext system that uses the technology of Internet as its transport mechanism (Akir, 2006). User, who use hypertext system, tries to navigate world by clicking hyperlinks, which display another document. Most Web documents are created using HTML. Integrating different forms of multimedia, the Web has turned into a perfect medium for distributing content on the Internet (Mcisaac & Gunawardena, 2000). Akir (2006) defined the W3 as “a body of
software and set of protocols and conventions that make it possible for people on the Internet to search for, retrieve, browse, and add information” (p. 82). Ko and Rossen (2010) describe the W3 as an Internet location that allows users to share common protocols, allowing displays of graphics, text, video and audio as well as the sharing of hyperlinks between one site and another. Internet Explorer, Firefox, Google Chrome, and Safari are the most popular free software programs (browsers) that support and deliver the World Wide Web. The W3 provides several application tools that are used in IBDE.

The W3 and the Internet are new significant technology that can be used for many purposes including teaching/learning. Akir (2006) summarized some of the uses and benefits of the W3 as an IBDE tool as follows: it can be used to deliver electronic copies of learning materials; it can be used to collaborate on group projects, share information, and organize group presentations between online learners; it can be used as an excellent tool to provide access to an extensive variety of information in the world; for example, libraries use the W3 to deliver electronic materials to patrons. It also can be used as a social environment for learning, such as by using Facebook to share information. Lastly, it allows educators to use a variety of tools that support learning materials, such as text, graphics and animation.

**Learning management systems (LMS).** LMSs, also known in higher education as Course Management Systems (CMSs), are becoming fundamental tools for distance learning in many colleges and universities around the world. They can be used to offer a diverse set of self-paced, blended or fully online classes that are facilitated by an instructor. LMSs play an increasingly significant role on university and college
campuses as new service paradigms for teaching and learning to discover in a variety of distributed educational settings (Akir, 2006).

Narwani and Arif (2008) describe the term LMSs as “a most commonly used systems that design, organize, and provide access to education materials for students, instructors, and administrators” (p. 59). With no need for HTML (Hypertext Markup Language) or java programming, LMSs assist instructors in creating, interacting, storing, distributing, and managing content online (Akir, 2006). A consistent description of LMS found in the current literature. For example, Carliner (2005) stated that LMS provides the structure and tools to develop online course content and enable instructors to effectively facilitate and manage the teaching of and communication with enrolled students.

There are several LMSs available, such as Blackboard®, Desire2Learn®, Moodle®, and Sakai®, to name just a few. Though these tools vary in their characteristics and features, in general, they all focus on learners and teachers. LMSs have altered many forms of social interaction and have had great influence on the educational environment (Chang, 2008).

Specifically, LMSs offer functions to assist in improving online learning; they contain user-friendly interfaces, simple and useful course planning, communication, and learning evaluation and management tools (Akir, 2006; Chang, 2008). Akir (2006) Chang (2008), and Petherbridge (2007) provided some of uses and benefits of LMSs as IBDE tools, such as it includes content creation and management tools, for example, HTML editors and file managers. It also contains synchronous and asynchronous communication tools, for example, discussion forums, e-mail, chat and whiteboards. It
may comprise assessment tools, for example, assignment submission, testing, and online grade books. Finally, it may comprise students’ management tools; for example, student profiles and tracking information.

By using LMS, instructors and learners can expand their classroom through connections with professionals around the world, access to educational resources prior to attending class, and opportunities for communication and collaboration with others outside the context of the classroom (Al-Jarf, 2005; Petherbridge, 2007).

**Electronic mail (e-mail).** E-mail is an asynchronous communication tool that is probably the most widely used mode of communication in IBDE (Gasaymeh, 2009). Akir (2002) identified some unique benefits to the use of e-mail in IBDE, stating the following: “Students can communicate with their instructors anytime and anywhere; it is minimizing the number of face-to-face meetings with students and their instructors; it allows teachers sending any announcements to students (individual or group announcements) to make sure the announcements are being read; and it improves the delivery of learning materials; e-mail allows attaching learning materials files such as presentation files, graphics files, or any type of files that support courses” (p. 2).

E-mail can be used for many purposes including teaching and learning. E-mail is used for questions and answers, feedback and assessment. Intelligent and organized use of e-mail can help achieve great value within the teaching and learning process. Through e-mail, educators can stimulate students’ thinking abilities and negotiate certain concepts and learning goals with the students (Gasaymeh, 2009).
Discussion bulletin boards. Discussion bulletin boards or Internet forums are popular modes of asynchronous communication (Akir, 2006). A discussion bulletin board is “an asynchronous software program that allows one to post messages and permits others to reply to your message” (Ko & Rossen, 2010, p. 399). The term Discussion bulletin board is used interchangeably with discussion forum, e-bulletin board, conference area, Web forum, discussion group, interactive message, and news group (Bikowski & Kessler, 2002; Ko & Rossen, 2010). Discussion bulletin boards are excellent IBDE tools that enhance communication and collaboration between students and their instructors (Ziad, 2006).

There are some benefits of using a discussion bulletin board in distance education. For example, they encourage learners to discuss certain issues together and learn from each other. Discussion boards can help students realize the collaborative mode of learning, since forums enable learners to work together to debate and argue about certain learning issues. They can collaborate by discussing projects and work together to solve certain problems for those projects (Bikowski & Kessler, 2002).

Audio and video conferencing. One of the biggest problems with asynchronous tools, such as electronic mail or discussion boards, is that students and instructors are unable to see and hear each other’s gestures and expressions (Hu & Wong, 2006). Audio and video conferencing has become a viable option for distance learning to enhance communication between students and their instructors. Audio and video conferencing is “a synchronous (real-time) software program that allows one-to-one or even group audio and video communication” (Ko & Rossen, 2010, p. 368). The term audio and video
conferencing is used interchangeably with videoconference or video teleconference. Audio and video conferencing is an excellent IBDE tool that enhances real two-way communication.

There are some benefits of using videoconferencing in Internet-based distance education. For example, videoconferencing allows instructors to keep in touch with their students, allows instructors to bring guest lecturers to class from other institutions, allows participating in thesis defenses at other campuses, and enables a high level of interaction between instructors and their students (Ko & Rossen, 2010). Currently, there are many available programs that support audio and video conferencing services, such as Skype®, Centra®, and IVocalize®, that instructors can use in distance education.

Wiki. Ko & Rossen (2010) defined a Wiki as “software which allows for the collaborative creation and editing of content in Web page format without knowledge of programming code” (p. 11). Wiki is a short word form of the Hawaiian, Wiki-Wiki, which means “fast” or “quick” (Richardson, 2010). Wikiwikiweb is the first wiki created by Ward Cunningham in 1995 (Kessler, 2009). Leuf and Cunningham (2001) described Wiki as “an easy online database that could possibly work and play” (p. 4). Encyclopedia, Wikipedia, Wikispaces, and the Peanut Butter Wiki are famous examples of the wiki format. Wiki is a great IBDE tool for enhancing collaborative writing (Kessler, 2009).

Franklin and Thankachan (2012) identified some unique benefits for using Wiki in IBDE. These include allowing students to develop and create their own Web sites and share information with their colleagues. Moreover, Wiki allows students to write, revise
and submit their projects or assignments. It also allows teachers to check their students’ work and help them when they have trouble staying on target and suggest other resources or ideas based on what other students have found.

A wiki is a wonderful collaborative tool in distance education. It allows group users to build, edit and gain equal access to the most recent version of the document. Wikis allow students, teachers, and researchers to collect data from any group in the world. Wikis allow students to collaboratively review and evaluate courses they have taken during the academic year (Chiu, Chen, Wu & Chen, 2010; Kessler, 2009; Richardson, 2010).

**Strengths of Internet-based distance education.** Many educational institutions around the world are moving toward the use of Internet-based distance learning for the delivery of instruction in traditional classes as well as in online classes. For this purpose to be fulfilled, the perception must exist that using Internet-based distance learning provides both benefits and drawback for learners (Akir, 2006; Young and Norgard, 2006).

The published literature and Web pages indicated both strengths and weaknesses inherent to using IBDE. Among the strength aspects in the literature were that IBDE provides convenience and the flexibility, encourages interaction between students and instructors, improves performance, improves collaborative learning, provides more learning opportunities, and creates a positive learning experience.

**Convenience and the flexibility.** Important advantages that online education has over face-to-face education are convenience and flexibility. A review of the literature
revealed that the majority of articles about online learning courses focused on the flexibility and convenience of online courses. For example, Young and Norgard’s (2006) questioned 913 undergraduate and graduate students taking online courses concerning their reasons for taking them. They found that the most common reason students take online courses is convenience and flexibility for their time and place. The results also showed that students’ family and job responsibilities, as well as their distance from university campus, made IBDE a convenient option and would allow them the flexibility to continue with their education in the midst of their hectic lives (Young & Norgard, 2006).

In addition, many students noted that online learning courses could be substantial time savers and make their life much easier. In a study conducted by Song, Singleton, Hill, and Koh’s (2006), it was found that 76 graduate learners reported flexibility of completing learning activities anytime and anywhere as the most helpful attribute of online learning.

Al-Arfaj (2001) found that the majority of male and female undergraduate students enrolled at King Faisal University in Saudi Arabia who participated in the survey examining their perceptions toward Internet-based distance education found that Web-based learning offered them a convenient way of learning not available in traditional or face-to-face classroom. Students in this study mentioned that Web-based learning offers them more privacy and security, saves time, and offers them an easy way to communicate any time and from any place with their instructors and classmates.
In two female institutions of higher education in Saudi Arabia, Alaugab (2007) surveyed Saudi women (130 female instructors and 500 students) to explore their attitudes toward using IBDE for teaching and learning, to investigate the most important benefits and barriers of implementing online instruction. The researcher reported that student and faculty access to a home computer, home Internet access, and student English language skills were the most important benefits of implementing online instruction.

**Internet-based distance education interaction.** Interaction in distance education is most critical factor to ensure an effective learning environment. In online environment, interaction between students-to-instructors, students-to-students, and students-to-content is much different from the interaction that occurs in traditional classes. Wanger (1994) defined the interaction as “mutual activities that occur when one or more pair of objects and events influences one another” (p. 8). Akir (2002) defined the interaction as “the degree in which members of a learning community interact either to finish a certain task or as a result of the development of a certain social relationship among the learners” (p. 1).

Many studies on advantage of online learning classes have been conducted over the years. From the literature, a substantial number of articles have been published identifying interaction between students and instructors. Vonderwell’s (2003), for instance, interviewed 17 females and 5 males who were pre-service teachers concerning their perceptions about online course experiences. All interviewee of this study pointed out that the environment of online courses gave them the opportunity to ask more
questions to the instructor, and all mentioned that they worry about the way other
students perceive or think of them when asking questions in the face-to-face classrooms.

In Saudi Arabia, Al-Fahad (2009) surveyed 113 female undergraduate students at
King Saud University KSU to discover their attitudes and experiences regarding the
effectiveness of using IBDE tools for teaching and learning. The researcher concluded
that using IBDE tools enhanced the interaction between instructors and students as well
as interaction among students. The researcher also stated that by using this kind of
technology for teaching and learning has added positive social elements to the benefits of
e-learning.

Al-Arfaj (2007) suggested that using IBDE functions in higher education such as
e-mail, discussion boards, and the Internet for teaching and learning would improve the
interaction and communication between online learners and their instructors.

Learning performance. The effectiveness of online learning is the key factor in
its integration in education (Akir, 2006; Al-Arfaj, 2001). If online learning does not
result in the greatest learning outcomes for students, then the perceived value of online
learning will decrease dramatically (Al-Arfaj, 2001; Swan, 2003). Therefore, many
studies have been conducted to investigate whether or not online learning is effective in
achieving learning goals. Studies, such as Al-Arfaj (2001); İşman, Dabaj, Altinay, &
Altinay, (2004); and Valenta et al., (2001), using both large-scale surveys and case study
approaches have overwhelmingly shown that the majority of students who participated in
IBDE classrooms score higher than students in traditional face-to-face classrooms.
Al-Arfaj (2001) conducted a study at King Faisal University in Saudi Arabia, in which he demonstrated that students have a positive attitude toward online learning. Moreover, Al-Arfaj believed that Web-based learning improves academic achievement, research skills, and writing skills, and extends learning to outside of the classroom.

Lim Chiu Yiong, Sam and Wah, (2008) surveyed 112 students to examine the acceptance of IBDE among distance learners at the Open University branch campus in Kuching, Sarawak, Malaysia. A cross-sectional survey was used in this study to attain an important data. The findings indicated that IBDE improves student learning outcomes and supports the interaction with peers and teachers. The researchers pointed out that the IBDE would be one of the pillars of universities and colleges.

Sinclaire (2011) noted that the online learning environment is a most important tool for higher education in the future. It can enhance “students’ satisfaction, interaction and communication, course design, the learning environment, and individual student factors of computer self-efficacy and the ability to control an individual learning pace” (p. 8).

More recently, Ali (2012) conducted a study to evaluate Saudi nursing students’ satisfaction with their IBDE experience at King Khalid University in Saudi Arabia. The researcher pointed out that students’ attitudes towards computers, students’ computer anxiety, flexibility, content and technology quality, perceived usefulness and ease of use of systems, diversity in assessment, and students perceived interaction with others in online courses were critical factors affecting students’ satisfaction with online learning.
In addition, the researcher found that 38.5% of participants were satisfied with their online learning experience.

**Improved collaborative learning.** An IBDE environment gives students the opportunity to collaborate and communicate with their colleagues. The Internet provides excellent tools for online instructors to improve collaboration with their online learners. For example, social media, such as blogs and wikis, encourages online learners to share knowledge and interact in a community in order to debate with one another and to increase collaborative learning (Wilkinson, 2011). Duffy and Bruns (2006), in their article, focused on examining the educational potentials of blogs, wikis and Real Simple Syndication (RSS). They also found that using social media in an IBDE course engaged students and encouraged them to interact and collaborate with their classmates and instructors.

To improve collaboration and cooperation in online learning, instructors should encourage and allow learners to share advice and real life experience. In a qualitative study, Wheeler and Wheeler (2007) interviewed learners to obtain their perspectives about using social technology to enhance learning in higher education. The researchers found that most students reported that their academic writing skills improved through the use of social network technology tool, such as wikis, blogs and RSS. Some students stated that using social technology in IBDE improved the quality of their writing skills and their ideas, improved their grammar, allowed them to share reflections, and allowed other students to read their writing and make comments. Yin (2012), in his quantitative study of the effectiveness of collaborative online learning among undergraduate students,
reported that collaborative online learning was enhancing the performance of IBDE students.

Zhu (2012) surveyed 163 Chinese and 208 Flemish students majoring in educational sciences to explore their satisfaction, performance, and knowledge construction through online discussions between students of diverse cultural backgrounds. The study found significant cultural differences in online communication learning environments. The study confirmed that online learning could enhance the ability of students to learn collaboratively and to construct knowledge through online discussions.

**More learning opportunities.** IBDE offers more learning opportunities for students in higher education. It allows students to overcome the problem of course conflicts. It also allows students to take different courses in different universities around the world. Moreover, IBDE gives students the opportunity to find majors of their interest that are unavailable on the local campuses and allows them to enroll in universities by freeing them from conflicts with their responsibilities, such as their family and their job (Al-Arfaj, 2001; Cavanaugh, 2001; Iqbal & Yaqub, 2007; Minou, 2010).

**Positive learning experience.** Attitudes toward online learning are an important factor in the eventual academic achievement of a student. Yee, Luan, Ayub, and Mahmud (2009) defined learner attitudes as being the learners’ impressions about performing a behavior. This suggests that students’ feelings, positive or negative, toward enrolling in online learning activities through using ICT will influence their performance with regards to using e-learning for study. Moreover, different learners have different
attitudes toward e-learning. Ong and Lai (2006) stated that understanding learners’ attitudes could help to determine which students utilize the Internet-based distance learning.

Brown and Kulikowich (2004) conducted an experimental study in which graduate students registered for a statistics course unaware that a specific section was to be offered through either distance education or traditional lecture format. Students in the distance education and traditional groups were not found to vary in test performance or attitudes about the course. Those students in the distance education group were three times more likely to indicate that they would enroll in a future distance education course than those in the traditional group. Calloway and Murray (2003) and Osei (2010) found similar results in their studies. Students who use an online learning classroom score higher than students in a traditional classroom. Liaw, Huang, and Chen (2007) also found that students’ attitudes and other factors such as self-paced learning, teacher-led instruction, and multimedia content are major factors that may affect students’ attitudes toward online learning. For these factors, the researchers found that students who take online classes have positive perceptions and attitudes regarding e-learning.

Alaugab (2007) surveyed 130 female instructors and 500 students at the Girls’ Studying Center at Imam University in Riyadh City and the Girls’ Education College in Buraidah City. The main purpose of this study was to explore Saudi women attitudes toward the adoption of Internet for teaching and learning, the most important benefits and barriers for implementing online instruction. The finding of this study revealed that both faculty and students have a positive attitude toward adopting online instruction. Another
important finding was that students had a significantly better positive attitude towards implementing online instruction \((M = 4.00, SD = 0.93)\) than faculty \((M = 3.80, SD = 0.98)\).

**Weaknesses of Internet-based distance education.** As in any other educational environment, online learning has strengths and weaknesses. Most of the studies have been carried out to explore learners’ perspectives of the weaknesses of using Internet for teaching and learning. The weaknesses documented included the fact that IBDE delays immediate feedback from the instructor, it may lack of a sense of community and cause feelings of isolation, it increases workload for the instructor, it sometimes involves technical problems, and it can sometimes cause increased costs for the students. These are the most common challenges in the students’ online learning experiences (Al-Arfaj, 2001; Al-Fahad, 2009; Alzamil, 2006; Koh & Hill, 2009; Battaglino, Haldeman & Laurans, 2012; Valenta, Therriault, Dieter, & Mrtek, 2001; Vonderwell, 2003; Wheeler & Wheeler, 2007). There are several unique drawbacks of IBDE:

**Delay of immediate feedback.** Three qualitative studies specifically examined the level of student reflection about enrolling in online course. Petrides (2002), for example, conducted a study to obtain students’ perspectives toward adopting and enrolling in Internet for learning. After a qualitative analysis of the student discussion forum, the researcher reported that several participants found feeling a lack of immediacy of the responses in the online context in comparison to what would typically occur in traditional face-to-face class discussion. Another researcher (Bertea, 2005) evaluated the main disadvantage of adopting Web-based distance education for teaching and learning.
The participants of this study complained about the lack of immediacy feedback from the instructor, feeling frustrated as a result. Vonderwell (2003) found a similar result, where participants commonly reported that a disadvantage of not having the teacher in the classroom was a delay in immediate responses or communication.

**Feelings of isolation and lack of a sense of community.** Feelings of being isolated can be an important disadvantage of online learning. Some students who are familiar to learning from other students in traditional education setting feel they are missing out on the important part of learning process in IBDE environment. A study by Song et al. (2006) found that a majority of the 76 graduate participants reported that a lack of community was a challenge in online courses in student evaluations of several online courses at Regent University. Woods (2002) who examined learning used internet for teaching and learning. Finding of this research found that students reported feeling isolated from online instructors as well as other students in the online courses they had taken.

More recently, Croft, Dalton, and Grant (2010) investigated the pedagogic problem by examining students’ experiences of distance learning at the University of the West of England. The researchers also explored the issues and barriers facing students attempting to collaborate and feeling isolated in IBDE. They pointed out that the not having physical interaction between instructors and learners, and between learners themselves, can lead to feelings of isolation in IBDE.

**Low motivation.** The instructors using online learning have often been concerned about motivation. Many students who take IBDE courses dropout before finishing. The
question is why some students remain highly motivated, while others do not. Some elements that may influence learners’ motivation include course design, interaction, the role of the site facilitators, and learner characteristics (Al-Arfaj, 2001).

Among studies related to motivation, Braun (2008) attempted to determine the perception and attitudes of 90 graduate students regarding the time spent taking online courses compared to traditional classes. The results of this study indicated that more time working for the Internet class than for the traditional class was a main disadvantage of online course as reported by the study participants. Moreover, they indicated that specific learner characteristics, such as self-discipline and self-motivation, were necessary to complete online courses.

**Technical difficulties.** Some studies state that computer software and internet problem were considered a main disadvantage of online learning by online students, instructors, and university administrative. Song et al. (2006), for instance, found that the main challenge reported by the study participants when enrolling in e-learning courses was technical issues. One participant stated that the technical problems is main issue in online learning. Online students need to be prepared for the fact that there are times when they will face technical difficulties. Among studies related to technology issues in online course, Osei (2010) investigated the perceptions of 691 graduate students at the Kwame Nkrumah University of Science and Technology about implementing IBDE. The finding indicated that a lack of student-support services to help students is the main issue facing online learning.
Increased costs to the students. Distance education in general and e-learning in particular require costly technology equipment for students. When students enroll in an online program, managing the cost is usually extremely important for them. Costs to be considered include computer equipment and software, access to the Internet, repairing and updating equipment, tuition, and technological support (Saadé & Kira, 2009).

When it comes to online course tuition, there are many arguments about the cost of online schools. Some people believe that earning a degree online is inexpensive, while others think that it is more expensive to earn a degree online. Others argue that there is no actual difference in costs between earning a degree in a traditional classroom or virtual classroom. Some schools online degree programs may charge more fees for their online courses to their basic tuition, such as adding a fee for technology services, school operations, developing course material, and students support (Battaglino, Haldeman & Laurans, 2012). Moreover, online course tuition may vary from campus to campus, state to state, or country to country. In the United States, for example, tuition for the most popular online program ranged from $6,500 to $8,300 for virtual schools, and $8,400 to $10,200 for the blended learning version compared to $12,000 for traditional classroom in 2011/2012 (Battaglino et al, 2012).

Theoretical Framework: Theories and Models of User Acceptance of Technology

To understand the tendency of Saudi students to use or not use certain technology as a medium for learning and communicating knowledge, exploring the basic theories on new technology usage within an organization in general is necessary. A challenging issue in organizational research is that individuals typically vary in their degree of
rejection or acceptance of certain innovations (Davis, Bagozzi & Warshaw, 1989).
Several models explain the process through which new communication technologies are used in an organization.

In this regard, several theoretical models have been developed to facilitate the understanding of fundamental factors influencing people to accept and use new technology (e.g., Davis, 1989; Venkatesh & Davis, 2000). These models or theories are employed to study individuals’ behaviors related to acceptance, adoption and usage of any presented technology. These include: (1) Technology Acceptance Model TAM (Davis, 1989); (2) Technology Acceptance Model 2 TAM2 (Venkatesh & Davis, 2000); and (3) The Unified Theory of Acceptance and Use of Technology UTAUT (Venkatesh, Morris, Davis and Davis, 2003). These theories/models from previous literature will provide a comprehensive understanding of individual’s behavior to accept and use ICT, and they will provide theories or models that can be applied to this study.

**Technology acceptance model (TAM).** Fred D. Davis (1989), in his doctoral thesis “A Technology Acceptance Model for Empirically Testing New End-User Information Systems: Theory and Results” at the Sloan School of Management, Massachusetts Institute of Technology (MIT), introduced the Technology Acceptance Model TAM. TAM was developed based upon the Theory of Reasoned Action (TRA) developed by Ajzen and Fishbein in 1975 (Davis, 1989). The TRA postulates “attitudes and beliefs shape behavioral intentions and consequently behavior itself. These behaviors then, in turn, lead to observed consequences” (Jae-Nam & Young-Gul, 2005, p. 47). Davis’s model (1989) replaced the TRA’s attitudes with two fundamental
constructs: 1) PEOU, and 2) PU. Figure 1 presents the TRA Theory (Ajzen and Fishbein, 1975).


The key purpose of Davis’ model was “to provide an explanation of the determinants of technology acceptance that is general, capable of explaining user behavior across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified” (Davis, et al, 1989; p. 985). Davis’ model aims to provide a comprehensive explanation for why user’s attitudes, beliefs, and other external variables of factors influence their decision to accept or reject the presented ICT (Davis, et al, 1989).
When individuals are presented with a new technology or systems package, TAM suggests that there are number of internal and external factors affect user’s decision about when and how they will use it. Davis’ model suggests two attitude’s factors, the first these attitude is Perceived Ease of Use (PEOU), which is defined as “the degree of which the user believes that using a new technology or particular systems will be free of effort” (Davis, 1989, p. 320). The second belief is “Perceived Usefulness” (PU), which is defined as “the degree to which the user believes or expects the new technology will improve or enhance his or her task performance” (Davis, 1989, p. 320).

According to Davis’ model, PEOU was considered to affect the PU of new technology (Davis, 1989). These beliefs or expectations decide a user’s attitudes toward using a new technology or systems that change their behavior intention and guide them for actual systems use (Davis, 1989; Masrom, 2007; Jae-Nam & Young-Gul, 2005). Figure 2 presents the original TAM (Davis, 1989).
Prior to the TAM, several studies have highlighted the PEOU and PU in predicting a user’s BI to use new ICT product. Some of these studies concluded that the PU had a strong impact. Another found that the PEOU has a stronger effect than PU and predicted usage (Aggorowati, Suhartono & Gautama, 2012; Chuttur 2009; Davis, 1989; Masrom, 2007; Selim, 2006; Shroff, Deneen & Ng, 2011; Umrani-Khan and Iyer, 2009).

Sun and Zhang (2006), for instance, have conducted a systematic study of 72 independent paper of existing technology acceptance. This study attempted to find and identify factors that influence user’s BI to accept and use existing technology. Finding of
this study identified and categorized 10 factors that influence user’s intention to accept ICT’/IT into three groups: organizational, technological, and individual factors. In addition, 98% (71 out of 72) of the previous studies found PU is strong factor and more effect than PEOU. In addition, researchers indicated that the PU had a significant influence on attitude, behavioral intention or usage, with few exceptions.

Several studies have highlighted some limitation of TAM. For example, the most critical commonly testified limitation of TAM is the measurement of self-reported use date (Shroff, Deneen & Ng, 2011; Straub & Burton-Jones, 2007). Moreover, several studies of TAM found that the type of participants or the sample size choice were limitation of TAM. In some studies, the individual users or university student samples are in fact very difficult to generalize to the whole population (Aggorowati et al., 2012; Koch, Toker & Brulez, 2011).

Lee, Kozar & Larsen (2003), conducted Meta-analysis of 101 studies published by ICT journals and conferences in the past 18 years. Researchers found that using single measurement scales; using single information systems; having small sample sizes and short experience to the existing systems, taking into account few considerations of cultural differences, having self-selection bias; using a one-time cross-sectional study; and taking place in a university environment as limitation of TAM. In an attempt to overcome these limitations, the extension of the Technology Acceptance Model (TAM2) was developed to cover these limitations.

**Technology acceptance model (TAM2).** In 2000, Fred D. Davis and Viswanath Venkatesh on their research paper titled, “A Theoretical Extension of the Technology
Acceptance Model: Four Longitudinal Field Studies,” developed a new model for individuals' acceptance and use existing ICT’/IT systems. It was named Technology Acceptance Model 2. TAM2 is a model that developed based on TAM (Venkatesh & Davis, 2000). Using TAM as the starting point for new model, TAM2 includes additional key elements of TAM that explain PU and PEOU in terms of social influence SI and cognitive instrumental processes. In TAM2, SI includes “subjective norm”, “voluntariness”, and “image” (Venkatesh & Davis, 2000). On the other hand, cognitive instrumental processes include “job relevance”, “output quality”, “result demonstrability”, and “perceived ease of use” (Venkatesh & Davis 2000, p. 187). Figure 3 presents TAM2 (Venkatesh & Davis, 2000, p. 188).
The Social influence (SI) process highlights “the impacts of subjective norm, voluntariness, and image, on an individual facing the opportunity to adopt or reject a new system” (Venkatesh & Davis, 2000, p. 187). TAM2 uses the concept of subjective norm
to capture SI. According to Venkatesh and Davis (2000), subjective norm is defined as “a user’s belief and attitude, which most people regard and have a special behavior based on it” (p. 187). The subjective standard will have a positive direct impact on PU (Venkatesh & Davis, 2000). The result of their study indicated that the mandatory context, and subjective norm, has a direct determinant factor in the intention to use. The voluntariness variable highlights the degree in which individuals consider that the technology acceptance is not compulsive. Eventually subjective image highlights to a user intellect about this concern that application of an existing technology will improve users’ position in their social system (Venkatesh & Davis 2000; Zargar, Javidnia & Shahhosseini, 2011).

In their theory, Venkatesh and Davis (2000) proposed four cognitive instrumental determinants of perceived usefulness (PU): job relevance, output quality, result demonstrability, and perceived ease of use (PEOU). In TAM2, the PEOU has a direct determinant factor to the PU. Venkatesh and Davis (2000) stated that “human use their mental to assess and understand the match between important work goals and the consequences of performing the act of using existing system as a basis for forming judgments about the use performance contingency (i.e., perceived usefulness)” (p. 191).

One key component of TAM2 determinants of PU is a potential user's judgment of job relevance. Job relevance is known as “the degree of which the target system is applicable to the individual’s job” (Venkatesh & Davis, 2000, p. 191). The second component is Output quality, which is defined as the users’ believe and perceptions about the how well the existing technology performs the task or goals (Li, 2010). According to
TAM2, Venkatesh and Davis (2000) in their study found that those factors have a positive and significant influence on PU.

The third determinant of PU is result demonstrability. Yi, Jackson, Park and Probst (2006) defined result demonstrability as “an individual perceived the results of using an innovation to be demonstrable partially reflects confidence in using the system and achieving desired results” (p. 356). In previous research, TAM2 posits that result demonstrability has a positive influence on PU (Lee et al, 2003; Li, 2010; Venkatesh & Davis, 2000; Yi et al, 2006; Zargar et al, 2011).

Several studies have highlighted the TAM2 in predicting an individual’s BI to adopt and use ICT for academic purpose. Wu, Chou, Weng & Huang, (2011), for example, assessed TAM2 by studying the user’s intentions (400) to adopt and use Web 2.0 websites and their usage behavior. The researcher tried to analyze the relationships among social influence SI factors, PU, PEOU, and BI to use and usage behavior. The researchers used advance statistical tools such as “Confirmatory Factor Analysis” (CFA) and “Structural Equation Modeling” (SEM) to understand users’ acceptance and use of Web 2.0 websites. Finding of this study showed that all aspects of TAM2 influenced individuals’ perceptions and attitudes of the degree of sharing and interaction improved by Web 2.0.

**Unified theory of acceptance and use of technology (UTAUT)**. Venkatesh, Morris, Davis and Davis (2003) formulated and introduced a new technology adoption model called the “Unified Theory of Acceptance and Use of Technology” (UTAUT), as shown in figure 4. As behavioral model, UTAUT aims to explain the people behavioral
or organizations in their acceptance and use of existing ICT/IT product (Im, Hong & Soo Kang, 2011). The UTAUT builds and develops upon eight previous theories/models from social psychology and sociology (See appendix L).

Furthermore, UTAUT suggests that four constructs are the main factors of intention to use a new ICT. The four main determinants are “performance expectancy” (PE), “effort expectancy” (EE), “social influence” (SI), and “facilitating conditions” (FC) (Venkatesh et al, 2003). According to UTAUT, three elements influence users’ BI to adopt and use existing ICT/IT, which includes PE, EE, and SI. BI and FC are two determinants that affect actual use. Users’ demographic, such as age, gender, experience and the realization of voluntariness of use are all moderating factors for intention to accept and use (Venkatesh & Davis, 2003). These moderators affect each of the factors in different ways (as shown in Figure 4).

Performance Expectancy (PE) is defined as “the degree to which the use of new ICT/IT will help individual attain gains in job performance” (Venkatesh et al, 2003, p. 447). PE is a multi-dimensional concept with five constructs: PU (TAM, and combined TAM-TPB); extrinsic motivation (MM); job-fit (MPCU), relative advantage (DOI), and outcome expectancy (SCT) (Venkatesh et al, 2003). PE with these constructs is the strongest predictor of BI to adopt new ICT (Curtis et al, 2010; Donaldson, 2011; Marchewka et al, 2007; Pardamean & Susanto (2012); Umran-Khan & Iyer, 2009; Venkatesh et al, 2003). The effectiveness of PE on BI of users to accept and use new technology was moderated by gender and age (as shown in Figure 4).
Effort Expectancy (EE) is another interesting factor to describe the behavioral intention to adopt new technology. It is defined as “the level of ease related with the use of the existing ICT/IT systems” (Venkatesh et al., 2003, p. 450). This element is combined with three theories: PEOU (TAM, and combined TAM-TPB); complexity (MPCU); and ease of use (DOI) (Venkatesh et al., 2003). The effectiveness of EE on BI of users to accept and use new technology was moderated by their gender, age, and experience of using this kind of technology (as shown in Figure 4) (Venkatesh et al., 2003).

Previous research reported that EE is a significant direct influence in predicting a user’s behavioral intentions to acceptance technology. However, the results of previous research varies. Some have reported that EE factor is not significant at all (Pardamean & Susanto, 2012), while other researchers have recommended that the effects of EE have a significant association with BI (Venkatesh et al., 2003). More recently, Abbad, Morris and de Nahlik (2009) found that EE, PEOU, an independent variable that these factors were directly and significantly influence users’ BI to use ICT/IT for educational purpose.

Social Influence (SI) is defined as “the degree to which user perceives that important others believe that user should adopt and use the existing ICT/IT” (Venkatesh et al., 2003, p.451). This construct involves three factors: subject norm (TAM; combined TAM-TPB; TRA); Image (DOI); and Social factor (MPCU) (Venkatesh et al., 2003). The effect of SI on BI is hypothesized to be moderated by users’ age, gender, experience, and voluntariness to adopt and use ICT/IT (as shown in Figure 4) (Venkatesh et al., 2003).
In the results of previous research, SI has been found to have a significant direct influence in predicting a user’s BI to the acceptance of new technology. Some studies have found that SI correlates and directly influences students’ BI (Jong & Wang, 2009; Umrani-Khan & Iyer, 2009; Venkatesh et al, 2003); whilst other literature have suggested that there is no significant relationship with BI (Keller, Hrastinski & Carlsson, 2007). More recently, Pitchayadejanant (2011), for example, used an interview and a questionnaire to investigate the significance of perceived value and the difference between participants who use iPhone and Blackberry. The researcher used Structural Equation Model (SEM) to analyze the results. The researcher found that the perceived value and facilitating condition FC influence a users’ BI to adopt a smartphone. On the other hand, it was found that the SI factor does not directly influence behavioral intentions.

The last key construct in the UTAUT, Facilitating conditions (FC), is defined as “the degree to which individual believes that the organization and technical infrastructure exists to support the use of new technology systems” (Venkatesh et al, 2003, p. 453). This construct involves three factors: perceived behavioral control (TPB/DTPB and combined TAM-TPB), facilitating conditions (MPCU), and compatibility (DOI) (Venkatesh et al, 2003). The effect of FC on usage BI is hypothesized to be moderated by age and experience to use the new technology systems (as shown in Figure 4) (Venkatesh et al, 2003). FC have been found to have a positively significant direct (Keller et al. 2007; Marchewka et al, 2007; Pitchayadejanant, 2011; Venkatesh et al,
and indirect (Keong, Ramayah, Kurnia & Chiun, 2012) influence in predicting a usage behavior to the acceptance of technology.

UTAUT has been extensively applied to understand and explain users’ intention to adopt and use a great selection of technological innovations across different user groups in various contexts. These contexts are as follows: mobile technology (Khumrat & Pusaksrikit, 2012; Koivimäki, Ristola & Kesti, 2008; Pitchayadejanant, 2011); social media (Curtis, Edwards, Fraser, Gudelsky, Holmquist, Thornton & Sweetser, 2010); the information and communication technology (ICT) (Verhoeven, Heerwegh & De Wit, 2010; Oye et al, 2012); IBDE (Lin & Anol, 2008; Raaij & Schepers, 2009; Umrani-Khan & Iyer, 2009); LMS or CMS (Marchewka et al, 2007; Nanayakkara, 2007; Hirata & Hirata, 2012); computer technology (Terzis & Economides, 2011); weblogs (Pardamean & Susanto, 2012). UTAUT continues to be the most extensively useful model in ICT field (Umrani-Khan & Iyer, 2009).

Koivimäki et al. (2008) assessed UTAUT by studying the perceptions of 243 users in the city of Oulu in Northern Finland toward using mobile services and technology. The researchers tried to analyze how the use of mobile services, the time of usage, the familiarity of mobile devices, and users’ technology skills, influence users’ perceptions of mobile services. The results of this study found that the time of use of mobile devices did not influence the users’ perceptions. On the other hand, users’ experience of using devices and their skills influenced their perceptions about adopting and using presented technology. Overall, the study found UTAUT was a model capable of explaining technology acceptance and providing a comprehensive framework for ICT systems adoption analysis.
Similarly, Pardamean and Susanto (2012) assessed UTAUT by studying 49 students’ acceptance of blog technology. The result of this study showed that the SI and PE had a significant relationship with BI to adopt new technology, such as blog technology. SI was found to have a positive and very strong effect on users’ intention in using blog technology to learn e-business courses ($\beta = .664$). Additionally, PE was found to have a significant effect on users’ intentions in using blog technology to learn e-business courses ($\beta = .346$). Overall, the study found UTAUT was a model capable to examine the effect of main determinants on behavioral intention BI and actual use and adoption of technology.

Some studies in the literature have compared UTAUT to other models. For example, Dwivedi, Mustafee, Carter and Williams (2010) compared the similarities and differences of TAM and UTAUT in the usage of two commonly used models/theories of information and systems technology IS acceptance. The researchers used a comparative analysis of research papers (1,450 articles) that referenced UTAUT and TAM that were published between 2003 and 2009, and downloaded from the ICT web of knowledge. The researchers of this study indicated that authors have shifted their attention from TAM to UTAUT in order to keep away from the current limitations, such as low validity with the use of TAM.

Similarly, Ling, Downe, Ahmad and Lai (2011) compared UTAUT and TAM for predicting Malaysian school educators’ intentions to use computer technology for educational purposes. The researchers stated that perceived needs toward using technology was another factor of BI in the context of user acceptance of computer usage.
Finally, the researchers found that UTAUT explained slightly more variance (70%) in behavioral intention than technology acceptance of TAM did (40%).

UTAUT model has been the subject of several meta-analyses. For example, Dwivedi, Rana, Chen and Williams (2011) analyzed and synthesized existing findings of 43 articles that applied UTAUT using a meta-analysis method. Their meta-analysis found that relationships between external variables along with UTAUT factors and behavioral intention were usually reported as having a significant relationship. The overall effect of zero-order correlations showed a significant relationship between independent and dependent constructs of UTAUT.

Similarly, Padumadasa (2012) conducted a meta-analysis of 14 UTAUT studies, covering the period from 2004-2011, and selected from electronic databases, such as EBESCO Information Services® and scientific journals. His meta-analysis found that PE, attitude toward using IBDE AT, self-efficacy, FC, SI and EE’s effect on BI to be quite significant. The extended variable, technology anxiety, was found to have a negative impact on users’ intention to use technology. In general, this study confirmed that UTAUT model was a better model to explain the users’ decision or rejection new technology in their life.

Within the context of IBDE, Jong and Wang (2009) applied UTAUT in a study to predict students’ acceptance of a Web-based learning system by technical university students (N=606) in Taiwan. Finding of this stated that PE, attitude towards technology, FC, SI and self-efficacy have significant impacts on behavior intention. In addition, the researchers indicated that three factors that have a direct impact on system usage, which
included BI, attitude toward using technology, and SI. Moreover, the findings confirmed that UTAUT model explained 40.1% of the variance in BI to continue using the Web-based learning system.

Jairak, Praneetpolgrang and Mekhabunchakij (2009) adopted UTAUT to assess (N=390) students’ intention to use mobile as educational tools (Mobile-Learning) and to explore the main factors that influence students to adopt of Mobile-Learning in Thailand. Their study also extended UTAUT to include other factors, such as attitudes towards mobile learning. The researchers used UTAUT’s measurement scales. Their study found that the PE and EE have high levels of acceptance. The findings showed that students positive attitude toward using mobile-Learning lead them to use in education. PE, EE and SI also were significant determinants of attitude towards using Mobile-Learning. Their study confirmed that the extended UTAUT is a very useful hypothetical model in helping to realize and explain students’ BI to use m Learning.

Sedana and Wijaya (2010) adopted UTAU to investigate the acceptance and use of the learning management systems (Exelsa®) among students (N=446) of Sanata Dharma University in Indonesia. Their study found that UTAUT explained 27.3% of the variance in BI to accept and use learning management systems (Exelsa). The results showed that PE, FC, and SI have a significant influence on BI. Overall, the researchers concluded that the UTAUT model is not enough in clarifying students’ BI in using LMS.

More recently, Liao, Yu and Yi (2011) applied UTAUT to examine factors that influence e-learning behavioral intention using a cross-level analysis. Data were collected from 932 participants in Taiwan and analyzed by using a hierarchical linear
model approach. The researchers divided the traditional UTAUT model into two parts: individual-level variables (PE, EE, and BI) and group-level variables (SI). The empirical data revealed that individual-level variables and group-level variables have a positive influence on BI to use ICT. The group-level variables were the strongest predictor of intention ($\beta=.91$), whereas individual-level variables showed a lesser but significant effect ($\beta=.80$).

Likewise, Ma and Yuen (2011) adopted UTAUT to examine the acceptance factors of 128 undergraduate students who were using an IBDE system within a semester of study and to find out the major factors of BI that can predict the systems usage. The empirical data of this study found that the motivation factors such as PE, EE, and SI were significant key intention determinants of using IBDE systems in universities. FC were found not be a significantly related to IBDE. The researchers pointed out that BI and age determined a user’s satisfaction with IBDE systems.

There are few studies conducted in the Middle East that used the UTAUT model. In Saudi Arabia, Al Ghamdi and Dasgupta (2012), for instance, investigated female students’ ($N=219$) adoption and use of social media and social networking sites for teaching and learning in the gulf region. The researchers collected data related to the UTAUT model. Their study reported similar findings to the above studies.

Alzahrani and Goodwin (2012) adopted UTAU to investigate the acceptance and the use of e-Government Saudi Arabia among Saudi citizens. The researchers found PE, attitude towards technology, FC, SI and EE effect behavioral intention. The extended variable, trust, privacy, and Saudi culture had a significant impact on BI and the
continued use of e-Government Saudi Arabia by Saudi citizens. In general, this study confirmed that the UTAUT model was a better model to explain the user acceptance and use of e-Government Saudi Arabia.

**Research on the Adoption of IBDE**

IBDE is starting to show an important and significant tool in the education field in general and in distance education in particular. The diffusion of IBDE innovation has been recognized as an essential topic in the study of technological change. IBDE has received considerable attention and research not only for educational purposes but also in other fields. Many empirical studies in IBDE have focused on research on the effectiveness of IBDE on education systems or comparing it to traditional face-to-face (F2F) educational environments. Studies have also been done on the environmental setting of IBDE, such as the impact of IBDE on the educational process (Bastiaens & Kirschner, 2007; Robertson., Grant & Jackson, 2005; Ruiz, Mintzer & Leipzig, 2006), setting the environment for IBDE (Young & Norgard, 2006), and the application of IBDE (Kessler, 2009; Ko and Rossen, 2010; Narwani and Arif, 2008; Petherbridge, 2007; Richardson, 2010).

Research to identify and explore factors influencing students’ enrolling in IBDE is much less compared to other research (Al-Harbi, 2011). Research focusing on Saudi students adoption of ICT is less than other countries and more difficult to locate. Scholars are needed to investigate the factors and sub-factors related to the enrolling of IBDE in a particular country, such as Saudi Arabia or other countries in the Arab region. In this study, the researcher attempts to examine the current factors influencing Saudi
students’ adoption and enrolling of IBDE program and to explore new factors and sub-factors affecting students’ decision to accept and implement of IBDE in higher education. Realizing the factors that influence the acceptance of IBDE will help guide policy decisions in general and will help the Saudi government in particular to develop an effective online environment for successful promotion and adoption of IBDE (Al-Harbi, 2011; Chiemeke & Evwiekpaefe, 2011; Nassuora, 2012; Umrani-Khan & Lyer, 2007).

Several studies on acceptance and the use of an existing of ICT/IT systems have been conducted over the years. From the literature, a substantial number of articles have been published identifying factors or sub-factors that have influenced IBDE among students. These included personal factors, such as attitudes toward IBDE technical factors, such as familiarity with technology; family and friend pressure; and environment factors, such as organizational support (Al-Harbi, 2011; Chiemeke & Evwiekpaefe, 2011; Teo, 2011; Venkatesh et al., 2003). Some studies examined the contribution of some selected characteristics of IBDE systems on the adoption and acceptance of IBDE (Al-Harbi, 2011; Jong & Wang, 2009; Keller, 2006; Nassuora, 2012; Pardamean & Susanto, 2012). In Taiwan, Wang, Wu & Wang (2009), for example, extended UTAUT (Venkatesh et al., 2003) to include two additional factors, namely perceived playfulness and taking responsibility of learning tasks. Their research investigated factors of IBDE tools such as mobile, acceptance and explored if there were any differences among users’ age or gender. They collected data on 330 college students’ intentions to use Mobile-for educational purpose. The result of this study confirmed the suitability of UTAUT to study students’ acceptance of new technologies for learning. PE, EE, SI, playfulness, and
students’ responsibility were all significant factors of BI to use Mobile for educational environment.

Based on UTAUT model, Sumak, Polancic and Hericko (2010) investigated undergraduate students' perceptions (N=235) about adopting and using a Web-based virtual learning environment (VLE). The study findings revealed that the higher perceptions of relative PE and EE the higher the level of intention to adopt and use of a VLE.

In a very similar attempt, Jong and Wang (2009) used the extended UTAUT to study students’ intention to use of internet for teaching and learning. Findings study were consistent with previous examination in that the adoption decision was positively influenced by PE and EE. Teo (2010) investigated 592 schoolteachers’ perceptions of the decision to adopt IBDE as a teaching tool in Singapore. The results of the study confirmed that PE and EE were the most significant influences on teachers’ intentions to use and adopt IBDE.

The review of literature has exposed that some studies have looked at the role of several factors related to the user of IBDE (Al-Harbi, 2011; Teo, 2010; Wang et al, 2009). Attitudes toward the use of technology, self-efficacy, anxiety, and learning style have been the most frequently addressed constructs from the users who adopt and use IBDE. For instance, attitudes toward use were found as an important key factor in influencing BI to use IBDE (Abdel-Wahab, 2008; Al-arfaj, 2001, Al-Harbi, 2011; Bhrommalee, 2012, Jong & Wang, 2009; Liu, Li & Carlsson, 2010).
A user’s attitude toward adopting technology (AT) is one of the most important concepts in many disciplines, such as education and social psychology. Attitude has been variously defined in the previous literature. In this study, AT was defined as “an individual’s overall affective reaction to the use of existing ICT/IT systems” (Venkatesh et al., 2003, p. 455).

In the results of previous research, a user’s attitude toward technology has been found to have a significant direct influence in predicting a user’s BI to the acceptance technology. A study by Feng-Kuang, Wuttke, Knauf, Chung-Shan and Tai-Cheng (2009) found that a user’s attitude toward using ICT and subject norm are good predictors of ICT for students' learning intention.

Other studies have found a user’s attitude toward the use of technology to be a very poor predictor of actual behavior. Gasaymeh & Jwaifell (2013) conducted a study (n=34) of Jordanian graduate students enrolled in a blended learning class in information technology (IT) that aimed to investigate students’ attitudes toward and use of a weblog as a tool for communication to support their learning. The researchers adopted the theory of innovation-diffusion model to understand students’ attitudes and uses of the blog as a tool for communication and reflection. The study followed mixed methods design. The findings showed that graduate students had high positive attitudes toward the weblog as a tool for communication and reflection. Gasaymeh & Jwaifell noted that students’ attitudes toward using weblogs were not directly impacted by students’ intentions.

Other researchers applied TAM (Davis, 1989), which attributes a major role to the attitudes toward usage of the users as being influential on their intentions. In South
Korea, Park (2009) applied this aspect of the theory to investigate 628 undergraduate students’ intentions to use IBDE system in Konkuk University. The results of the study indicated that attitudes toward usage of IBDE were the most significant factor in determining the students’ BI to use and enroll in online learning.

Masrom (2007) investigated whether attitude was related to the students’ adoption (N=122) of online courses at the University Technology of Malaysia (UTM). The finding of the study supported the Davis (1989) theory that found the attitude toward usage was the best indicator of their behavioral to adopt IBDE course. The significant effect of attitude towards using the IBDE has been further demonstrated in other studies (Al-Harbi, 2011; Göğüş, Nistor, & Lerche, 2012; Teo, 2011).

Some studies added perceived convenience (PC) as a factor that influences users’ BI to accept and use ICT. PC has been variously defined in the previous literature. In this study, Chang, Yan and Tseng (2012) defined PC as “a level of convenience toward time, place and execution that one feels during the participation in new systems” (p. 812). PC is a highly significant factor in shaping individuals’ intentions to accept and use IBDE. Nasri (2011) applied TAM (Davis, 1989) to find out the factors and determinants of Internet banking services adoption in Tunisia. The researcher’s results revealed that PC’s influence was stronger and more significant ($\beta = 0.264$) than the other factors in influencing intention. More recently, Chang et al. (2012) found that perceived convenience was a more important indicator of intentions to acceptance of English mobile mobile learning.
In investigating IBDE acceptance, some literature has also added a social influence dimension. In accordance with UTAUT (Venkatesh et al., 2003), SI is a highly significant factor in shaping individuals’ intentions to accept and use IBDE. That means, the pressure one receives from others to accept and use IBDE has been studied (Abdel-Wahab, 2008; Aleshidi & Ramdane, 2012; Al-Harbi, 2011). Other studies, however, have broken down this concept into specific relevant groups, such as “course leaders, teachers, friends, colleagues and managers” (Al-Harbi, 2011, p.45). Foon & Yin Fah (2011) applied the UTAUT model to explore the factors or sub-factors and determinants of Internet banking adoption among Malaysians. Their results revealed that perceived social influence was stronger ($\beta = 0.32$) than the other factors in influencing intention. Along the same lines, Nanayakkara (2007) found that SI in the form of perceived pressure from colleagues and classmates was an important factor on intention to accept and use IBDE.

Only a few of the studies that investigated the acceptance and use of IBDE at the micro level have addressed the effect of the organization dimension on the adoption decision (Al-Harbi, 2011; Göğüş, et al, 2012; Nanayakkara, 2007; Teo, 2010). Organization support includes ICT training and helpdesk, library online services, the attitudes toward the technical support team, and the computer lab’s technical support. In this respect, Ahmed (2010) conducted an empirical study to evaluate hybrid IBDE acceptance by university students ($N=538$) using three critical success factors. These factors included instructor characteristics, information technology (IT) infrastructure, and organizational and technical support. Although Ahmed’s study specified IBDE’s critical
success factors by using the Structural Equation Modeling (SEM) to validate and assess the hypothesized relationships among these factors and their influence on students’ acceptance and use of hybrid IBDE. The finding of the study showed that factors significantly and directly influenced the students’ acceptance of hybrid online courses. Students accepted the technology infrastructure and university support.

Only a few of the research studies investigating the factors that influence the enrollment in IBDE have been completed in countries outside of Western countries and specifically little work has been done on Arab countries. The availability of literature on Arab counties has focused on the faculty, students, staff, and administrators’ perceptions and attitudes on introducing IBDE in their organizations. Alajmi (2010) conducted a study to investigate Kuwaiti faculty members’ readiness for e-learning. The study applied Rogers Diffusion of Innovation Theory (1962). The study’s findings reported that relative advantage, compatibility, difficulty, trialability and observability were significant in explaining Kuwaiti faculty members’ acceptance and use of the web-based instruction for academic purposes. Two studies by Asir, Mahmud, Abu Bakar and bin Mohd Ayub (2012) and Hussein (2011), which investigated factors that influence the attitude of faculty toward JUSUR (Jusur LMSs) in Saudi Arabian public universities, revealed that some demographics such as gender, age, computer experience, and the types of colleges were significant factors that influenced attitude towards the use of IBDE. Other factors, such as training in the use of the system, lack of computer experience and knowledge, and lack of administrative support, were found to be the main barriers to the use of IBDE.
Abbad, Morris, and de Nahlik (2009) conducted a study on various variables as predictors of student adoption of online education systems at the Arab Open University (AOU) in Jordan. The application of the TAM to online learning and the power of structural equation modeling (SEM) were used in this study. The results showed that students’ self-efficacy, PEOU, students’ prior Internet experience, PU, subject norms, students’ perceptions of technical support availability, and interaction in online courses had a statistically significant influence on students’ BI to accept and use online course at AOU in Jordan.

In the Saudi environment, few researcher is known about the elements of the successful adoption of IBDE. One study, conducted by Zouhair (2010) investigated Prince Sultan University’s female students’ perceptions regarding a web-based LMS, which revealed that the students had positive attitudes about a web-based learning management system (JUSUR). The findings of the study showed that ease to use, useful, attitude, and organization support were important factors on the intention to accept and use a web-based LMS.

Al-Harbi (2010) extended The Theory of Planned Behaviour (Ajzen, 1985) to investigate the factors that influenced students’ BI to accept and use IBDE as a supplementary tool (BIS) and for distance education (BID) in King Abdul Aziz University KAU. The researchers adopted a mixed methods approach – qualitative and quantitative research – to propose factors that influence students’ BI to adopt IBDE. The results of the study revealed that the model explained 20% of the students’ BIS and 41% of the students’ BID. The findings also revealed that students’ attitude (AT) (e-learning
PEOU, PU, interactivity, and flexibility), subjective norm (SN) (students’ peers, family, and instructors), and perceived behavioral control (PBC) (perceived accessibility, internet self-efficacy, and university Support) were proposed as main factors that influenced students’ BI to adopt and enroll in IBDE program in KAU. On the other hand, in regards to enrolling in IBDE, students’ attitude (AT) was more significant than the students’ subjective norm (SN) and students’ perceived behavioral control (PBC).

More recently, Ali (2012) conducted a study to assess online students’ perceived satisfaction and investigated the factors that have an influence on Saudi nursing students’ satisfaction with their IBDE experience in King Khalid University (KKU). The findings of this study revealed that students’ attitude towards computer, students’ computer anxiety, course flexibility, the quality of online course, technology quality, useful, easy to navigate and use, diversity in assessment, and students’ perceived interaction with others were critical factors influencing Saudi students’ decision to enroll in IBDE program.

In two public Saudi Arabian universities, Aleshidi and Ramdane (2012) used the extended TAM to examine (N=400) undergraduate students’ intention to enroll and use the Internet as academic tool. They hypothesized that the perception of social encouragement, cultural factors (CF), technology self-efficacy (CSE), and pleasure and enjoyment (EN) could affect the level of students’ e-learning adoption intention. The study’s findings revealed that the higher perceptions of encouragement, cultural, c self-efficacy and enjoyment were the higher the level of intention to adopt virtual learning was.
Nassuora (2012) adopted the UTAUT to examine (N=80) undergraduate students’ acceptance of mobile leaning from Al-Faisal University in Saudi Arabia and tried to find the main factors that affect using mobile leaning by Saudi students. The statistical analysis of this study showed that the effort expectancy and the facilitating condition were proposed as main factors of the students’ behavior intention to use mobile devices for educational purpose.

**Culture Factor and Internet-based Distance Education in Saudi Arabia**

The online learner population comes with diverse values, beliefs, attitudes, and perspectives (heterogeneous group). Culture greatly influences how learners engage and use a learning environment (Seufert, 2002).

Hofstede (2008) defined culture as “a distinguishable collective mind of people based on a set of values” (as cited in Hamdan, 2012, p.185). It is “patterns of human activity and symbolic structures that are given significance and importance. Culture is a set of symbols and meanings that lack fixed boundaries and are constantly interacting and competing with one another” (Al-Kinani & Al-Besher, 2008,p.154).

Culture can influence an online learning environment and the learners’ behaviors. Seufert (2002) illustrated two perspectives that affect an online environment and how they could be a challenge when implementing online education: a) the planning and development of the online learning systems that includes usability, human computer interface, group support, and learning paradigm; b) acceptance and use of online learning systems that include: instructors’ preferences, learning style, group behavior, and cross culture communication.
In Saudi society, there are many cultural challenges that influence the acceptance and use of an online learning environment. According to Mohamed, Abuzaid & Benladen, (2008), cultural factors play a major role in any developing country. Lindsey (2011) stated that “Culture is often part of the challenge that face teaching and learning in any country” (p.1). Therefore, this research introduced some cultural issues that are facing Saudi Arabia when adopting IBDE for teaching and learning.

**Conservatism and religion.** Saudi society is a religious and conservative society (Mohamed et al., 2008; Lindsey, 2011; Hamdan, 2012; Al-Kinani & Al-Besher, 2008; Al-saggaf, & Williamson,2004). Islam plays an important role as it influences the culture in Saudi society. The misuse of technology can influence the religious and cultural values in Saudi society. Introducing new technology in Saudi society may take extended periods of time in discussions and consultations by the Saudi Arabian authorities. Al-saggaf & Williamson (2004) states, “The diffusion of new technology might take some time to penetrate throughout the society” (p.155). For example, the Internet on which online learning depends was introduced to the public in Saudi Arabia in 1999. The decision was a result of an extensive debate regarding the advantages and disadvantages of the Internet among the Saudi authorities.

**Gender segregation.** In Saudi Arabia, segregation between genders is an important aspect that influence Saudi people's social life. According to several prominent culture scholars ((Al-saggaf & Williamson, 2004; Hamdan, 2012), male and female segregation defines as the separation of male and female socially, physically, and Psychological. By the local culture and Islamic values in Saudi Arabia, the authorities,
for example, do not allow a female to mix with men who are not related to them in social life and different places such as government place, public places, and business organizations. In educational institution, Saudi students (male & female), for instance, study in segregated environments from elementary until graduate from university. Through closed-circuit T.V or ICT tools, Saudi male instructors can teach and interact with both male and female students. However, female instructors cannot teach or interact with any male students at all despite the presence of technology. Al-Jarf, (2007), for example, tried to find out the main challenge and disadvantage of using online communication between male and female in two universities in Saudi Arabia finding of this study stated that the main challenge face female students was communication with male students. Based on the result, female students reported that communication with male students is unacceptable based several factor such as families, culture, religion, university role.

Internet accessibility. Internet accessibility in Saudi Arabia is a major challenge that impacts the adoption of online learning. Saudi Arabia has introduced and made available the Internet for the public in 1999. The Saudi government approved this new technology after a long debate and consultation among Saudi authorities (Al-saggaf & Williamson, 2004). King Abdul-Aziz City for Science and Technology (KACST) provides and controls the Internet in Saudi Arabia. KACST has heavily secured systems to block access to any unacceptable websites that has conflicts with culture, Islam, and Saudi politics (Mohamed et al., 2008; Hamdan, 2012; Al-Kinani & Al-Besher, 2008; Al-saggaf, & Williamson, 2004).
Hamdan (2012) attempted to explore the challenges by which the use of the Internet and online education affect the Saudi cultural norms. The result of this study indicated that female undergraduate students face the biggest challenge with adopting IBDE in Saudi Arabia due to the limited access to the Internet. One participant commented that if students have better access to the Internet, it will enable them to “gain experience with different ways of thinking, different styles of writing, and different approaches to improving their communication skills” (p.192).

Factors that Influence Continued Enrollment in IBDE

There are many studies have shown that variety of factors or sub-factors influence students’ decisions to continue in online courses or programs (Bunn, 2004; Ivankova & Stick, 2007; Park & Choi, 2009; Street, 2010). The major factors are typically divided into three categories: students’ characteristics, external factors, and internal factors (Park & Choi, 2009; Rovai, 2003; street, 2010). The review of previous studies that follows is organized based on these three major factors.

Students’ characteristics such as gender, age, education level, marital and employment status have been found to have a significant and direct influence on predicting the students’ decision to persist in ICT/IT systems (Park & Choi, 2009). For example, the age is a very influential factor in terms of acceptance and use of ICT/IT systems for education as reported by previous studies (Essam & Al-ammmary, 2013; Xu & Jaggars, 2013). Older students are more successful in online courses than younger students are. Younger students are less likely to engage in critical thinking, have less self-motivation, have less self-monitoring, experience less self-fulfillment, and have less self-
regulation (Xu & Jaggars, 2013). Moreover, Park & Choi (2009) concluded that when it
takes about enrolling in online courses, gender has been found to be a significant
interaction factor. For female students, taking classes through Internet would appeal as a
great alternative for completing her education. Female students are more likely than male
students for accepting and using online learning are. The reasons are because female
students are more motivated, more network oriented, more collaborative, and better at
organizing their time (Essam & Al-Ammary, 2013). Researches finding have been found
working status factor is significant influence students’ decisions to continue in online
courses or programs. Pontes, et al. (2012) indicated that many employees attend and take
online courses due to their convenience with their job schedule.

Several scholars have agreed that there are many external factors affecting
students’ decisions to dropout or continue in online courses or programs (Holder, 2007;
Ivankova & Stick, 2007; Nistor & Neubauer, 2010; Park & Choi, 2009; Street, 2010).
The most external factors investigated or identified by studies are time conflict, family
support, financial issues, employment status, and language instruction of online course
(Al-Jarf, 2004; Bahous, Bacha, & Nabhani, 2011; Rovai, 2003).

Among these, time management is an important factor to both male and female
students in their choice to continue studying in online course. Moreover, social life
obligations and online course schedule are the main barriers to adopt online course.
According to Roper’s (2007), finding indicated that planning a specific time for learning
task such as reading, writing, discussions to others and instructors is the main challenge
facing students in this kind of education. Learn how to balance between completing task
and social life activities plays an essential factor to success in online program. Willging and Johnson (2009) presented a research study identifying factors that influence students’ choice to continue taking or dropout of online courses at the University of Illinois at Urbana-Champaign. The results of the study revealed that flexibility of schedule and convince were important in encouraging students to complete online courses or programs.

Other scholars have found that encouragement by family could be an important factor in helping students to complete or continue taking online courses. Park and Choi (2009), as well as Ivankova and Stick (2007), indicated that support from family and friends is a key factor affecting students’ behavior to complete an online course. In addition, Willging and Johnson (2009) examined factors that influences students’ decisions to dropout or continue taking an online course and found that students’ financial status is an important factor in continued enrollment in online programs. The financial factor is considered as a special factor in regards to whether or not a student enrolls in an online course.

Numerous studies have agreed that there are many internal factors influencing students’ behaviors to take or complete an online course. Park & Choi (2009); Park (2007); and Rovai (2003), for instance, have identified internal factors that influence whether or not students complete online courses, which include students’ satisfaction; academic integration; social interaction; technical support; course design; institutional support; and resource availability and accessibility. Among these, availability and accessibility of information are reported as major challenges shaping their attitudes towards completing online courses and their readiness to enroll online program. Arabasz
and Baker (2003), Ndume, Tilya, and Twaakyondo (2008), and Link and Marz (2006) reported in their study that computer literacy, Internet access, availability of information and lack of computer equipment were the most common issues and challenges to enroll and continue in this program.

Lack of interaction with other classmate or instructors can lose students interest or motivation to persist in online class. Numerous online instructors and researchers have agreed that motivation is a key factor to success any online program. For example, Roper (2007) stated, “Students who develop a personal motivation strategy find it a great asset to the online learning experience, one that can keep them from losing interest or burning out” (p. 65).

Organization support and help disk are the main feature of IBDE. These include “face-to-face contact, online tutorial supervision, peer support, advice from experts, feedback on performance, and support services and software tools” (Coomey & Stephenson, 2001, p. 39). Song, Singleton, Hill, and Kohn (2004) investigated the disadvantage and barriers that face online students. As reported by participants in this study, lack of support from the organization and difficulties to contact the technical department were the main challenge to continue in online class.

Factors Motivating Students to Refuse IBDE

As IBDE continues to increase in popularity, the number of universities and colleges offering IBDE courses and the number of students enrolling in this kind of education is increasing. Even though more students are taking online courses, research shows that attrition becomes a major issue in IBDE courses. Attrition is defined as the
decrease in the number of students participating in degree programs, and it is often considered a measure of program inefficiency by education institutions (Street, 2010). The literature has typically shown that attrition rates in online courses are often substantially higher (10-20%) than those in traditional, face-to-face classrooms (Angelino, Williams & Natvig, 2007; Street, 2010).

Numbers of factors will influence any learning task facilitated by technology (Holder, 2007; Nistor & Neubauer, 2010). Among these factors are the quality of the online content, course design (Sherry & Gibson, 2002), a student’s readiness to adopt and use online courses, a student’s confidence, a student’s knowledge and ability to accept and use online learning, technical support, a student’s experience of use Internet for academic purpose, personal development (Aragon & Johnson, 2008), organization support and the availability of IT resources (Aragon & Johnson, 2008; Chen & Jang, 2010; Holder, 2007; Nistor & Neubauer, 2010; Sherry & Gibson, 2002; Street, 2010). Ndume et al. (2008) identified other factors that are related, especially to Internet technology, which include access to the Internet and the knowledge and ability to use IBDE and IBDE confidence. Arabasz and Baker (2003) and Nassuora (2012) identified some factors to be considered in influencing students’ decision to drop out of an online course. This included lack of technology infrastructure, institutional support, high quality online content, and lack of online course policy and planning.

Factors that may influence the dropout rate in online course have been categorized into three major groups: personal factors, environment factors, and course factors (Angelino et al, 2007; Essam & Al-Ammary, 2013; Rovai, 2003; Street, 2010). Factors,
such as personal factors and environment factors, have been considered by Street (2010) to have important affects on a student’s decision to dropout of online learning. Essam and Al-Ammary (2013) identified personal factors, such as personal demographic, culture, knowledgeable development, and educational performance and preparation prior to college as important factors. At the same time, Essam and Al-Ammary identified family support, organizational support, and technical support as critical items of the environment factor.

Feng-Kuang et al. (2009) considered a student’s attitude towards using IBDE as an important factor that influences a students’ decision to dropout of an online course. If students are not happy or enjoy with an online course, then low-level of expectations from online learning can be perceived. Moreover, the students ‘confidence of using Internet will influence their attitudes toward using and enrolling in online courses and this will influence their level of support and engage with IBDE, and, therefore, will affect their decision to accept and use IBDE (Al-Arfaj, 2001; Al-Harbi, 2010). Finally, Street (2010) identified course design and content as one of the factors that may influence a student’s decision to continue taking or dropout of an online course. The author argued that the lack of good design might hinder the acceptance and use of IBDE.

Chapter Summary

This chapter reviewed the literature on the adoption of Internet-based distance education IBDE. First, this chapter reviewed the literature related to IBDE, including a definition of IBDE as well as the advantages and disadvantages of IBDE. In addition, this chapter offered an overview of the theoretical basis for this research. The chapter
reviewed common technology acceptance models and how these theories/models relate to IBDE. These theories offer a useful framework to investigate the adoption and use of Internet-based distance education among university students in general and in Saudi Arabia in particular. The review of the literature also revealed the importance of various factors and sub-factors that influence students’ decisions regarding acceptance and use of Internet-based distance education in their academic lives. The next chapter will describe in detail the methodology adopted in this study.
Chapter 3: Methodology and Research Design

This chapter was describe the methodology and research plan that were used to address the question: What factors influence Saudi students' decisions toward enrolling in IBDE programs in Saudi universities? First, the proposed research model used in this study will be presented; then, the researcher will describe the research design adopted for this study. This chapter will explain an exploratory sequential mixed methods study design (ESMM), and how it works and its general advantages and drawbacks. In detail, the phases of the research design, describing the procedures regarding population, sampling, data collection and analysis were explained in this chapter.

Research Initial Model

Following the discussion of the constructs of interest in Chapter 2, this section presents the conceptual model used to explore and examine Saudi students’ BI to enroll in IBDE in traditional universities. The research model is shown in Figure 5. This model draws on findings from relevant previous research and is based on the UTAUT (Venkatesh et al., 2003). This framework was the initial model used in this research project, which served as the starting point for developing a data collection plan.
Figure 5: The Initial Research Model.
The Research Design

To interpret and understand the components and sub-components that impact IBDE in Saudi Arabia, this investigation utilized an exploratory sequential mixed methods research design (ESMM). This was because the research conducted to date in Saudi Arabia has tended to focus on perceptions and attitudes of students rather than other factors that stem from the society as a whole that may play a significant impact in the diffusion of IBDE. It is notable that the majority of Saudi research in this area is quantitative in nature, which does not uncover the deep factors that influence students’ BI to accept and use IBDE. In order to uncover the real factors, a qualitative component needed to be considered. For these reasons, the ESMM is appropriate for this setting; for instance, the exploratory phase will allow the researcher to clarify some of these factors. Since this kind of method starts qualitatively and ends quantitatively, the latter measures will supplement and extend the former. ESMM serves to acquire knowledge of both individual experiences and the reality of social systems (Cabrera, 2011; Creswell, 2009; Creswell & Plano Clark, 2011; Teddlie & Tashakkori, 2009).

Exploratory sequential mixed methods research design ESMM. According to Creswell and Plano Clark (2011), Creswell (2009), and Teddlie and Tashakkori (2009), the ESMM design is conducted across two phases. The design starts with qualitative research approach (data collection, analysis, and interpretation). From the qualitative finding, researchers conduct a second phase, quantitative research, to test and generalize the initial finding. Then, the researchers interpret how the quantitative results build on the initial qualitative results.
Creswell and Plano Clark (2011) helped to develop four main stages of ESMM design. The initial steps are design and implementation of the qualitative research. In this stage or phase, researchers start with qualitative research questions and decide on the qualitative methods, and try to identify the sampling audience for the study. Finally, the researchers collect and analyze the qualitative data by using protocols of open-ended questions and develop themes to answer the qualitative research question. The main goal of this stage is to discover new phenomena and classify the information need for the quantitative phase (Creswell & Plano Clark, 2011; Creswell, 2009; Teddlie & Tashakkori, 2009).

The second stage involves the interface of mixing qualitative and quantitative research. In this stage, researchers use established strategies based on the qualitative findings. They then review the research question and the mixed method question, and determine the sample for the quantitative research. Finally, they will design a quantitative survey instrument based on the qualitative results (Creswell, 2009; Creswell & Plano Clark, 2011).

The third stage is designing and implementing the quantitative research, in this case a survey. Researchers implement the quantitative research to examine the new variables with a new sampling. First, researchers state the quantitative research question and develop a survey instrument based on the qualitative results. Then, they select a quantitative sampling to generalize the qualitative research. Moreover, they develop a closed-ended instrument to collect their data. Finally, the researchers analyze the quantitative data by using analytic approaches, such as descriptive (measures of central
tendency and measures of variability about the average), inferential statistics (test hypotheses and relating findings to the sample or population), and effect size to answer the quantitative research question and mixed method question (Creswell, 2009; Creswell & Plano Clark, 2011; Teddlie & Tashakkori, 2009).

Once the analyses are complete, researchers summarize and interpret the qualitative and quantitative results, looking across the findings from both qualitative and quantitative data to assess how the information from qualitative and quantitative data addresses the MMR question in the study. This interpretation is called “inferences or “meta-inferences” (Teddlie & Tashakkori, 2009). Inferences in MMR is defined as “conclusion or interpretation drawn from separate quantitative and qualitative strands of study as well as across the quantitative and qualitative strands” (Creswell & Plano Clark, 2011, p. 212-213).

There are several benefits of implementing the ESMM design. Creswell and Plano Clark (2011) cite several specific advantages to using this approach. It is straightforward to explain, implement, interpret, and make the qualitative research more acceptable to quantitative audiences. It is useful when entering the quantitative phase, which is based on what is learned from the qualitative research. It is a very useful method for researchers who want to discover a new phenomenon and want to expand on qualitative results. It allows researchers to develop a new instrument for a new phenomenon.

On the other hand, there are challenges in adopting this exploratory design. Creswell and Plano Clark (2011) summarized these challenges as: this kind of design requires more time to implement and develop a new instrument for two phases, it is
difficult to get approval for it through an institutional review board (IRB) and to specify the procedures of quantitative research, and it needs two purposeful samplings for each phase. For the first phase, the qualitative approach, researchers need a small sample. Then, researchers need a large sample in the second phase to avoid questions of bias in the quantitative research. In addition, deciding which data to use from the qualitative phase to build the quantitative instrument is a significant challenge.

**Phase I: Exploratory Study Using Qualitative Design**

In Phase I, the researcher used qualitative data to explore and identify a set of factors and sub-factors and to expand the research’s initial model that might contribute to and influence Saudi university students’ acceptance and use of IBDE.

Qualitative research is a system inquiry method that is employed in several disciplines, such as social sciences, marketing research, and in other contexts (Denzin and Lincoln, 1994; Patton, 2002). The general goal of qualitative research is the gathering an in-depth and rich understanding of complex social and human sciences (hermeneutics, phenomenology, and sociology) (Creswell et al., 2011). It takes place in a natural setting that employs a combination of a variety of empirical tools (life story, interview, participant and nonparticipant observation, case study, and document analysis) to describe an individual’s life (routines, problematic moments, and meaning).

Numerous prominent qualitative researchers have tried to provide the best definition of a qualitative research approach (Braun & Clarke, 2006; Best & Kahn, 2006; Creswell 2002; Creswell et al., 2011; Denzin and Lincoln, 1994; Patton, 2002). Denzin and Lincoln (1994) broadly, for example, define qualitative research as:
Multimethod in focus, involving an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret phenomena in terms of the meanings people bring to them. Qualitative research involves the studied use and collection of a variety of empirical materials—case study, personal experience, introspective, life story, interview, observational, historical, interactional and visual texts—that describe routine and problematic moments and meanings in individuals’ lives. (p. 2)

Holloway (1997), in Basic Concepts for Qualitative Research, identified qualitative research as a social or naturalistic inquiry that focuses on how people interpret their experience. The foundation of qualitative research is to interpret the social reality. Creswell (1998) defined qualitative as “an inquiry process of understanding a social or human problem, based on building a complex, holistic picture, formed with words, reporting detailed views of informants, and conducted in a natural setting”(p. 12). The qualitative research seeks deeply answers and understand the social reality of human behavior questions (Denzin & Lincoln, 1994; Patton, 2002). Researchers who adopt a qualitative approach use various strategies, such as interviewing, observation, and the like to gather in depth understanding of human attitudes, experiences, and perspectives they study. Indeed, this approach tries to find essential nature of phenomena as they are (Creswell & Plano Clark, 2011; Denzin & Lincoln, 1994; Patton, 2002). This phase will allow researchers to convert the qualitative data into a set of factors and expand the initial research model (Creswell & Plano Clark, 2011).
Since the main goal of phase I, qualitative, was to explore and identify some insight about individuals’ experiences, attitudes, and perceptions to the particular phenomenon (set of factors and sub-factors that might contribute to and influence Saudi students’ acceptance and use of IBDE, A phenomenological research design was chosen as the most appropriate design for the purpose of this phase. The rationale behind choosing this method was that a phenomenological research design facilitates the process of exploring and describing in-depth responses about peoples’ experiences, attitudes, feelings, and perception about current phenomenon by using different types of qualitative data collection. In this sense, phenomenological research allows qualitative scholars to deeply explore, understand and interpret of nature or meaning of our lived experiences (Croswell, 1998; Creswell & Plano Clark, 2011; Patton, 2009)

Qualitative scholars proposed two types or elements of phenomenological studies to ensure that the topic of interest is well explored. Croswell (1998), for example, identified two approaches to phenomenology: the hermeneutic phenomenology, and empirical, transcendental phenomenology. Originally, the term hermeneutics was defined as “a theoretical framework for interpretive understanding, or meaning, with special attention to context” (Patton, 2009, p. 114). On the other hand, the transcendental phenomenology focuses on “analysis of data by reducing the information to significant statements and combine the statements to the themes” (Croswell, 1998, p. 60). In the study presented in this dissertation, the researcher used transcendental phenomenology. This type helped the researcher gain in-depth insight and descriptions of what people experience in regards to the topic or current phenomena.
The major data sources for this type of phenomenology study is qualitative interviewing. Patton (2009) stated the purpose of qualitative interviewing is “to allow the researcher to enter into the other person’s perspective” (p. 341). Qualitative interviewing provides in depth information about participants’ experiences, perception, and attitudes on a particular topic. Informal conversational interview, interview guide approach, standardized open-ended interview, and focus group interviewing are fundamental types of qualitative interviews as summarized by Patton (2009). In this study, interview guide approach or semi-structured interviews were used to conduct interviews with both male and female Saudi students. The main reason behind choosing these methods for collecting data was that this method is generally considered effective for defining the areas to be explored, and understand and describe the story of the individual’s experience. Moreover, these approaches help the interviewer to prepare questions a head of time before interview.

**Participant selection.** In this study, the researcher used a purposive sampling technique, also known as judgmental, selective, or subjective sampling. Purposive sampling is a type of *non-probability sampling* technique used by qualitative researchers to select (recruit) participants for their studies who have experienced the central phenomenon (Creswell & Plano Clark, 2011; Patton, 2002). *Purposive sampling* technique is a very useful technique because it allows the qualitative researcher to focus on particular characteristics of a population that he or she wishes to study (Patton, 2002). In this vein, there are a number of purposive sampling techniques that the researcher can use (Patton, 2002), including but limited to maximum variation sampling, homogeneous
sampling, typical case sampling, and extreme case sampling. As this study attempts to explore and identify a set of factors and sub-factors that might contribute to and influence a particular group regarding specific issues, the more useful strategy to employ was maximum variation sampling (or maximum diversity sampling), as recommended by Creswell and Plano Clark (2011). The maximum variation technique, also known as heterogeneous sampling, refers to “choosing diverse individuals who are expected to hold different perspective on the central phenomenon” (Creswell & Plano Clark, 2011, p. 174). This technique helps the researcher to explore and understand how the concept or phenomenon is seen and understood among different people, at different times and in different place or settings (Creswell & Plano Clark, 2011). Furthermore, the sample size of qualitative research is much smaller than that used in qualitative studies. This is because qualitative studies are concerned with meaning and not generalizing (Mason, 2010). By using a maximum variation technique, the researcher selected a small number of unit or cases that maximize the diversity applicable to the research goal (Patton, 2002). For this reason, the researcher in this study will use data saturation as a foundation during data collection.

To accomplish this, the eligible participants for this study should be Saudi students, male and female, from different locations in Saudi Arabia, and currently enrolled in a fully online program at Saudi universities. The total number of the researcher’s participants will be determined based on the diversity of the eligible students and data saturation. The sample grew beyond the mentioned criteria to capture a greater
variety of the population. After conducting seven interviews, the information and various factors began to reach saturation.

In the present research, eleven to fifteen interviews were planned. However, only seven interviews were carried out eventually. The interviewees included four females and three males, displaying different dimensions on aspects such as family status, age, gender, job statues, which allowed for the investigation of multiple thoughts on acceptance and use of IBDE as a new learning method in Saudi universities. All seven agreed to participate in this study.

The researcher in this study sought an appropriate and acceptable way to interview female participants. This is because direct interaction between male and female students is culturally unacceptable in Saudi Arabia. Women participants were interviewed by emailing or text exchange through computer chat software or similar tools. Additionally, a female was trained to use the recording device and how to ask and discuss with each Saudi female interviewee.

**Researcher bias.** In qualitative, quantitative and laboratory science research, researcher analyst’s position, knowledge, and attitudes will affect all steps in the research process including research questions, data collection and analysis, research finding, and the framing and communication of interpretation or conclusion of research study ” (Malterud, 2001, Patton, 2002). Quantitative researchers, for example, must manage the risk of research bias to achieve research credibility. To manage such bias, qualitative researchers engage and seek to develop self-awareness, political/cultural consciousness, and ownership of one’s perspective regarding their impact on the research study
Researchers should reflect on their biases, knowledge, and values that affect what is being studied.

Reflexivity or research’s perspective has become the most crucial part needed to achieve credibility in qualitative approach. According to several qualitative scholars (Croswell, 1998; Malterud, 2001; and Patton, 2002) reflexivity is the researcher’s attitude, background, position that are brought to research project and will affect every step of the research process. Lietz and Zayas (2010) also define reflexivity as “a thoughtful consideration of how a researcher’s standpoint can influence the research” (p. 193). There are some advantages of using reflexivity in qualitative study. Reflexivity in qualitative research can involve critical reflection of how the researcher constructs knowledge from the research process. It helps a researcher enhance the quality and validity of the study and to identify the limitations of the knowledge that is produced. It is necessary for a qualitative researcher because it encourages researchers to develop the skills and abilities to reflect and respond appropriately (Guillemin & Gillam, 2004; Patton, 2002). Consequently, Lietz and Zayas (2010) point out that the researcher’s position, perspective, beliefs, and values are an issue in qualitative research. According to several scholars in qualitative research, reflexivity must be addressed as an essential part of any qualitative research (Guillemin & Gillam, 2004; Malterud 2001; Patton, 2002).

As has been noted earlier, the researcher’s position, perspective, attitudes, and values are very important and influence the validity and reliability of qualitative research. In this case, the researcher’s background and previous experience in distance education
and working as faculty member at King Faisal University KFU will help to focus on particular information in order to find relevant answers to the qualitative research questions. To reduce the possibility of any researcher bias that might occur in this study, the researcher also adopted some steps that are recommended by Denzin and Lincoln (1994). First, the researcher introduced himself as a friendly person who has empathy for the participants involved in the study. Secondly, the researcher wrote down (reflexive journal) any feelings and conflicts the participants have about this study because it helps to prevent biases or increase objectivity.

**Ethical issues.** The researcher followed ethical standards to make sure that the researcher avoids harming participants. The researcher obtained approval ahead of time from the Ohio University Institutional Review Board and prepared information consent forms (see appendix F). In addition, the researcher applied other guidelines for ethical consideration that were suggested by Smith (1975). For example, the researcher explained the research objectives verbally and in writing. Then, the researcher in this study introduced risk factors to provide a sufficient safeguard. The researcher kept confidential all information that was obtained from research subjects. The researcher notified the participants of all data collection devices and activities. Finally, the researcher acquired written permission from all participants, and the researcher used a code for all participants to protect the identity of each participant, as recommended by Patton (2002).

**Interview protocol development.** The study used a qualitative research design aimed at capturing rich sources of information by exploring and evaluating the factors
influencing Saudi university students’ decisions regarding acceptance and use of IBDE. For this study, the main qualitative research techniques were personal interviews. Interview technique helped the qualitative researcher to collect in more detailed participants’ background information on the topics in question (Creswell & Plano Clark, 2011; Denzin & Lincoln, 1994; Patton, 2002). Patton (2002) defined the interview as “direct questions from people about their experiences, perceptions, feelings, opinions, and knowledge” (p. 4). The main goal of using qualitative interviewing methods is to learn and explore the phenomena under investigation. Each interview attempted to acquire answers to the 12 questions (see Appendix A). These questions covered certain topics. The interviews lasted from 45 to 60 minutes.

**Semi-structured interview.** This method, also known as conversation with a purpose, was conducted in this study with male and female Saudi students. A semi-structured interview is a research method most widely used format for qualitative interviewing in social science. This approach of interview allows the researcher to have interview guideline or steps to be covered, such as list of interview questions, theme, and issues. It also helps qualitative researcher to change the interview questions order based on the direction of the interview, to use the interview guide, and to ask additional questions at interview time (Al-Harbi, 2010; Kajornboon, 2010; Patton, 2009; Schensul, Schensul, & Lecompte, 1999). The main advantage of using a semi-structured interview technique in qualitative research is that the researcher, who adopt this technique, is able to ask in-depth questions regarding participants’ background information beyond following just the interview guide. The researcher also can restate the interview questions
if participants or interviewee are not clear or not familiar with the questions (Croswell, 1998; Kajornboon, 2010; Patton, 2002; Schensul, et al., 1999).

The semi-structured interview technique was selected over other types of interviews in this study because it is more flexible, more appropriate, allows a greater degree of freedom, and allows more fluid conversation (Patton, 2002). The semi-structured interview technique also allows two-way communication, as both the interviewee and interviewer can ask each other questions (Al-Harbi, 2010; Creswell & Plano Clark, 2011).

As delineated earlier, the researcher collected this study via the semi-structured interview technique. Interviews were conducted to identify factors influencing Saudi university students’ decisions regarding acceptance and use of IBDE that were not explained by the initial model proposed in this study.

The researcher conducted semi-structured interview in this study with male and female Saudi students attending online Saudi universities or colleges. First, the researcher started the interviews with welcoming and thanking the participants for their time and participation. The researcher started with introducing himself, explained the purpose of this semi-structured interview study, and discussed the ethical issues in this study with the interviewees.

The researcher was conducted and recorded one-on-one interview by using an recording procedure. To record the interviews, a Flip camera was used because it has several advantages over audio and video cameras. The main benefit of using a Flip camera is ease of use. It allows an immediate and easy upload of files to a computer or
TV. Secondly, it has a safer hard drive to store the recorded interviews for later use. 

Thirdly, with the capability of uploading the interviews to a computer, it is very easy to capture random moments and important words that are spoken (Al-Harbi, 2010). Finally, all interviews can be transcribed verbatim.

The semi-structured interview consisted of two segments. The first segment of questions attempted to investigate Saudi students’ demographic and background information. The second segment-contained items designed to point out Saudi students’ opinions about the factors that may influence students’ decisions toward adoption of IBDE as a new learning method in Saudi universities (see Appendix A).

**Data analyses.** Several qualitative methods can be used to analyze the data from semi-structured interviews. The most common method usually employed by social science researchers is the thematic analysis (TA) approach (Boyatzis, 1998; Braun & Clarke, 2006). Thematic analysis is a method of qualitative research chosen for analysis of data. Thematic analysis is multiple analytic process including collecting, analyzing, and reporting themes within data to organize and describes data set in rich detail (Braun and Clarke, 2006; Guest, Macqueen, & Namey, 2012). TA helps qualitative researchers to move beyond counting explicit words or phrases (Braun & Clarke, 2006). In other words, this technique allows researchers to explore, collect and categorize both implicit and explicit ideas within the data (Guest et al., 2012, p. 84). Moreover, TA helps to relate a description and interpretation of patterns data with previous literature (Braun & Clarke, 2006). Unlike many qualitative approaches, thematic analysis is very flexible.
That means that thematic analysis allows qualitative researchers to establish their own guidelines for identifying and analyzing themes (Braun & Clarke, 2006).

After transcribing the audio, the six generic phases for qualitative data analysis and semi-structured interview data analysis, as outlined by Braun and Clarke (2006), are: (1) becoming familiar with the data and background literature, (2) coding, (3) themes conducting, (4) revising themes, (5) naming themes, and (6) writing up (p. 15)

In step one—becoming familiar with the data and background literature—the qualitative researcher read and reread the transcript of verbal data. A comprehensive literature review was used in this phase. This phase helped the researcher to become familiar with the body of data and begin with searching and exploring the meanings and patterns in the data, as suggested by Braun and Clarke (2006). The second step included creating a coding scheme to get ideas regarding what data is of interest to the researcher. This step helped the researcher to recognize important moments and develop themes from them. In the third step, the researcher converted coded information into a description of patterns or themes. The fourth step involved reviewing and refining the researcher’s themes. In the fifth step, the researcher started to define and name the data themes. This phase helped the researcher analyze the data within each theme and explain each theme in a few words. The last step provided an interpretation of the data (Braun & Clarke, 2006).

In addition, Stirling (2001) identified the three common steps of TA, noting that the whole process of TA can be divided into three broad stages: “(a) breakdown of the text “data reduction”; (b) the exploration of the text; and (c) the integration of the exploration” (p. 390). These three steps were followed in this particular study.
Data trustworthiness. According to Creswell and Plano Clark (2011), it is very important that a researcher understands the main issue of reliability and validity in qualitative research. This includes trustworthiness and other validation strategies. In qualitative research, the main goal of trustworthiness is to ensure data reliability and validity. Lincoln and Guba (1985) defined the trustworthiness in qualitative research as developing the validity and reliability in qualitative research. It is very important that the method used ensures that the results of a qualitative study are worthy of more attention (Lincoln & Guba, 1985).

There are four general criteria to evaluate the trustworthiness in qualitative research as identified by Lincoln and Guba (1985). These include “credibility, transferability, dependability, and confirmability” (p. 289). Credibility is one of main factors in establishing trustworthiness in a qualitative study. It refers to ensuring that the findings of a qualitative study are congruent with reality. Merriam (2009) defines credibility as “how the result of research match with the reality” (p. 213–214). Measuring credibility is analogous to internal validity and truth-value (Lincoln & Guba, 1985; Merriam, 1998). Lincoln and Guba (1985) also developed several techniques that can be used to increase the credibility of qualitative research. These include prolonged engagement, persistent observation, triangulation, peer debriefing, negative case analysis, referential adequacy, and member checking.

Prolonged engagement involves spending sufficient time with respondents in their culture and everyday if in order to learn and understand the phenomenon of interest (Lincoln & Guba, 1985). On the other hand, persistent observation refers to the
researchers’ focus on in-depth characteristics of a conversation that are relevant to the topics or issues being studied (Lincoln & Guba, 1985). Lincoln and Guba (1985) noted that “prolonged engagement provide scope, persistent observation provides depth” (p. 304). Both prolonged engagement and persistent observation allow people to feel enough confidence and trust in the researcher to allow the research to gain enough information about culture or check misinformation about phenomenon of interest.

A number of researchers believe that the use of a single approach cannot help researchers to obtain in-depth information. Therefore, using multiple methods will help researchers to facilitate deeper understanding of phenomenon of interest. Triangulation is one of the most powerful approaches used to enhance credibility in qualitative research. It refers to the use of more than one data source, such as interviews, focus groups, observations to answer the research question in order to support qualitative research findings (Lincoln & Guba, 1985). Patton (2009) identifies four major types of triangulation methods which include “methodological triangulation, analyst triangulation, investigator triangulation, and theoretical triangulation” (p. 556). Methodological triangulation is the most common of the meaning of the triangulation discussed in research. In this study, the researcher used the theory of triangulation to connect the UTAUT model with the result of phase I, qualitative.

Peer review or debriefing, also called analytic triangulation, is another important approach employed by qualitative researchers to enhance the validity of qualitative research through the use of external peers who are not involved in the research topic (Lincoln & Guba, 1985). This technique helps the qualitative researcher to become more
aware of his or her views about the phenomenon under study. It also helps to detect any problems facing the qualitative researcher, such as biases or assumptions that are made by the researcher, vague descriptions, and general error in the finding (Patton, 2009, p. 560).

Negative case analysis, also called deviant case analysis, is a powerful methodology that allows the qualitative researcher to search for and discuss units of the data that do not fit within the main body of theory or patterns of study under investigation (Creswell, 1998; Patton, 2009). In negative case analysis, the researcher looks for any evidence that emerges from data analysis that is not applicable to all cases, and this allows the researcher to revise or hypothesize until all cases fit in research study (Creswell, 1998).

Referential adequacy is a process that allow the researcher to test the validity of finding by identifying a selection of data, which has been archived, but not analyzed. Then, the researcher conducts analysis on the remaining data and develops preliminary findings. Finally, the qualitative analyst returns to the archived data and analyzes it too see if they reflect the findings of the study (Lincoln & Guba, 1985; Patton, 2009). This technique provides valuable information to the researcher in understating the context of phenomenon.

The technique that was used in this study to address credibility issues was member checking, in which the transcribed interviews of the study were sent for review to the interviewees (Creswell & Plano Clark, 2011; Lodico, Spaulding, & Voegtle, 2011). This technique helped the researcher to ensure accuracy of data (Creswell and Plano...
Clark, 2011; Lincoln & Guba, 1985; Merriam, 1998). In this study, the researcher gave all participants the opportunity to review their transcriptions. The researcher asked interviewers to edit, clarify, elaborate, and delete their own words from the interview. Through this technique, the researcher asked the participants for any suggestions or thoughts that can help this study as recommend by Creswell (1998), and Patton (2009).

Transferability refers to the level of which the qualitative findings is able to be applied or transferred to other contexts (Lincoln & Guba, 1985; Merriam, 1998). Measuring transferability is analogous to external validity (Lincoln & Guba, 1985; Merriam, 1998).

To address transferability in this study, rich, thick descriptions were taken that provided sufficient details about the phenomenon. This technique allowed other people to evaluate whether the people and events can be transferable elsewhere. It also and can be used to achieve external validity. The researcher made all data analysis and documents available for other researchers upon request granted that permission from the researcher of this study and his supervisor was given. This technique helps other researchers to transfer the findings or conclusions of this study to other cases.

Dependability allows qualitative researchers to track and assess the quality of the integrated procedures and processes used to collect, analyze, and interpret the data (Lodico, et al., 2011). The dependability measure is parallel with reliability (Lincoln & Guba, 1985; Merriam, 1998). Confirmability refers to the level of which the conclusions of data set are supported by the data collected (Lincoln & Guba, 1985). To achieve the dependability and confirmability, the researcher relied on an independent audit of the
research procedures. A professional in the field of educational evaluation conducted an external audit. The external audit examined the researcher’s integrated procedures and processes—my audit trail—including the study design, methods, and data analysis. This means that the external audit evaluated the dependability and confirmability of this study, as suggested by Lincoln and Guba (1985). This technique helped the researcher to assess the accuracy and to confirm that the interpretations are supported by the data (Lincoln & Guba, 1985).

**Phase II: Developing the Survey Instrument**

In this phase, the researcher developed and piloted the survey instrument to use in Phase III, quantitative research. The results from the qualitative research, or Phase I, helped the researcher to generate and develop the survey instrument.

To answer any quantitative questions of this study, a survey instrument was used as recommended by Bell (2005). Given this, the researcher adopted the survey instrument utilized in the UTAUT by Venkatesh et al. (2003). This survey instrument was altered based on the qualitative interviewing data, and the researcher obtained permission from Venkatesh et al. (2003) to use and modify their instruments in this study (see appendices B and C).

This survey instrument consists of 31 items, each on a 7-point Likert scale (1 = completely disagree, 2 = moderately disagree, 3 = somewhat disagree, 4 = neutral (neither disagree nor agree), 5 = somewhat agree, 6 = moderately agree, and 7 = completely agree). Based on the qualitative result, these items were divided into six categories: attitude toward technology (AT), performance expectancy (PE), effort
expectancy (EE), social influence (SI), facilitating conditions (FC), and behavior intention (BI) (see Appendix C). The UTAUT instrument has been used several times by different scholars and has been proven to be a valid, reliable survey instrument (Almutairi, 2008; Nassuora, 2012; Oshlyansky, Cairns, & Thimbleby, 2007; Sundaravej, 2010; Wang & Shih, 2009). The researcher formulated the survey instrument based on the outcomes of the qualitative phase of this study.

In addition, the supplementary questions were expanded based on the results of Phase I. These questions addressed the factors that likely influence Saudi students’ decisions to enroll in IBDE as a new learning method in Saudi universities and therefore should be investigated quantitatively in Phase III.

**Translation and back-translation of the instrument.** The focus of this study was on university students in Saudi Arabia. Consequently, the instrument of this study was written in English and then translated into Arabic so that it could be easily read and understood by the study participants (see appendices G and H). Once the survey instrument was written in English, the researcher then email it to distance education professionals at Washington State Community College and King Faisal University (KFU) in Saudi Arabia to translate the document from English to Arabic. The Arabic version was presented for further suggestions to two to three Arab doctoral students (male and female), at King Faisal University and Ohio University, from different majors, including instructional technology, special education, and curriculum and instruction. The researcher asked other instruction technology doctoral students to revise the Arabic survey instrument.
The Arabic survey instrument was then back translated by the researcher and the distance education professionals to English to ensure accuracy of the instrument. The researcher asked other instructional technology, and curriculum and instruction doctoral students at Ohio University to check the back translation. This process helped the researcher to check and ensure the accuracy of the survey instrument (Al-Arfaj, 2001).

**Pilot testing the survey instrument.** Good questionnaires require a pilot study (Altman, et al, 2006). Pilot study is an essential stage that assist the researcher to recognize basic issues in the research instrument. Johanson & Brooks (2009), and Al Arfaj (2001) point out that a pilot study is a great way to develop a good instrument and examine the reliability, validity, and testing hypothesis of the research topic. A pilot study was conducted in this study.

After translation of the instrument, both the Arabic and English version of the instrument were put forward. The researcher first used the think-aloud approach with two students; one was a PhD candidate in curriculum and instruction, and one was a PhD student in instructional technology at Ohio University. The researcher also sent a copy of the survey to the Director of E-Learning at Washington State Community College to participate in this approach. The survey was sent to them through electronic mail. They were asked to participate in the think-aloud approach while they were completing the online survey. The researcher took notes on everything that the participants said.

Finally, the researcher invited male and female Arabic-speaking undergraduate and graduate (master and doctoral) students majoring in different disciplines at Ohio University, Hocking College, and Marietta College to participate in the pilot study. Thirty
students participated in the pilot study (N = 30), as recommended by Johanson and Brooks (2009). These students were included in the sample of this study. The Arabic survey instrument version was used in the pilot study.

**Phase III: Exploratory Study Using Quantitative Design**

The researcher used the survey instrument in Phase II to collect data on university students’ decisions regarding acceptance and use of IBDE. This included the study population, sample, sampling procedure, data collection procedure, and the statistical procedure that was used for data analysis.

**The population.** This study targeted male and female undergraduate and graduate school students enrolled at the Saudi Electronic University (SEU) in Saudi Arabia in the year 2012/2013. This university was chosen to be the site of this study because it is the leading electronic university in Saudi Arabia in providing online degrees for their students.

The population for this study, according to registries for academic year 2012/2013, included approximately 5,330 male and female students. This population consisted of male and female students enrolled in three colleges. Table 2 illustrates the undergraduate and graduate students enrolled in 2012/2013 (Statistical Summary, 2013). The male students constituted 47% of the whole population, while the female students constituted 53% of the whole population.
Sample and sampling procedure. The main objective of the present research was to generalize the results from the sample statistics to the larger population; hence, the researcher needed to design a sample that was representative of the population with minimum standard error, sampling error (Best & Kahn, 2006; Creswell & Plano Clark, 2011). This section describes the research sample and sample procedure.

A Population is defined as the whole group or universe that shares set of items or characteristics that are of interest to study by the researcher (Best & Kahn, 2006; Creswell & Plano Clark, 2011). On the other hand, sample size is a small part of the population that is selected by either “probability” or “non-probability” approach for observation and analysis (Aron, Aron, &Coups, 2010; Best & Kahn, 2006). Sampling is a very useful technique that helps researchers to generalize findings to the population. It also requires less time, cost and effort in the collection and analyzing of data. In

Table 2

Students’ Enrollment in SEU in 2012/13

<table>
<thead>
<tr>
<th>Major</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
<th>%</th>
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<tbody>
<tr>
<td>Administrative &amp; Financial</td>
<td>840</td>
<td>662</td>
<td>1502</td>
<td>28%</td>
</tr>
<tr>
<td>Information Technology</td>
<td>985</td>
<td>1139</td>
<td>2124</td>
<td>40%</td>
</tr>
<tr>
<td>Health Informatics</td>
<td>1017</td>
<td>617</td>
<td>1634</td>
<td>31%</td>
</tr>
<tr>
<td>MBA</td>
<td>0</td>
<td>70</td>
<td>70</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>2842</td>
<td>2488</td>
<td>5330</td>
<td>100%</td>
</tr>
<tr>
<td>%</td>
<td>53.4%</td>
<td>46.6%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>
quantitative research, some statistical analyses, such as regression requires large numbers of people in order to serve as an adequate representation of the population (Best & Kahn, 2006). Best & Kahn (2006), Creswell and Plano Clark (2011), and Field (2013) strongly advocate using large samples to reduce the sampling error and provide adequate power for the study.

There are two types of sampling methods, including probability (random sampling) and non-probability (purposive sampling) (Best & Kahn, 2006; Creswell & Plano Clark, 2011; Patton, 2009). The probability sampling method, also known as representative samples, is a sampling technique that allows the researcher to choose individuals for observation who represent in the data population (Creswell & Plano Clark, 2011). Examples of probability sampling include: a simple random sample, each individual of the population has the same chance of being selected as the subject of study; stratified sampling, a grouping process that allows researcher to divide the population into “homogeneous” smaller group called as “strata”; systematic sampling: each individual of the population is put into a list and then every $K^{th}$ in the list is chosen for inclusion in the sample; and area or cluster sampling, involves simple random samples which are particularly appropriate when the population does not exist (Best & Kahn, 2006; Creswell & Plano Clark, 2011; Patton, 2009).

On the other hand, non-probability sampling is a “selection that is not consistent with random sampling” (Best & Kahn, 2006, p. 18). The following methods exemplify this type. A convenience sample, involves selection of participants who are available for study; quota sampling, in which a set of criteria is used to identify and choose the sample;
snowball or chain sampling, which refers to the use of a few cases to identify other participants who might be suitable for the study; and purposive sampling, which refers to a selection of participants for the study who have experienced the phenomenon being investigated (Patton, 2009).

The stratified sampling method was the sampling technique that was used for this research. Stratification is grouping process that allows subdividing members of the population into smaller relatively homogeneous group (strata) before sampling to get more accurate representative sample. Within each sub-group or stratum, simple random sample was then applied (Best & Kahn, 2006; Collins, Onwuegbuzie, & Jiao, 2007; Creswell & Plano Clark, 2011). One the same sample size, this grouping process gives the researcher a more accurate representative sampling than other techniques (Best & Kahn, 2006; Collins, Onwuegbuzie & Jiao, 2007).

To approach this technique in this research, the population of the SEU students was stratified by the gender variable as seen in Table 3. In addition, the two main strata of male and female students were further stratified by other variables of interest, such as students’ major (Business, Computer and information technology, and health science).
Table 3

*Strata (subgroups) for Stratified Random Sampling*

<table>
<thead>
<tr>
<th>Stratum Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male and female students from majoring in Business.</td>
</tr>
<tr>
<td>Male and female students majoring in Computer and Information Technology.</td>
</tr>
<tr>
<td>Male and female students majoring Health Informatics.</td>
</tr>
</tbody>
</table>

The estimation of an appropriate sample size relies on the selection of certain factors. Alpha level $\alpha$, power, and effect size are three factors that researchers should consider in the calculation of an appropriate sample size (Aron et al., 2010). $\alpha$ (alpha) level is used to indicate the level of significance. It refers to the probability of getting a significant value when in fact the null hypothesis $H_0$ is true (Type I error) (Aron et al., 2010). Alpha $\alpha = 0.05$ or 0.01 is widely used in most academic research studies to determine the sample size. For this study, the researcher used $\alpha = 0.05$ because a lower alpha level requires a large sample size compared to a study with an alpha level of 0.05 (Field, 2013). A statistical power refers to “the probability that the study will give a significant result if null hypothesis $H_0$ is true” (Aron et al., 2010, p. 210). The adequate statistical power that was used in this study to determine the minimum sample size was .8 as recommended by Aron et al. (2010) and Field (2013). Furthermore, the effect size is a standardized measuring the magnitude of a finding. Jacob Cohen (1988) suggested (0.20) small, (0.50) medium, and (0.80) large as three types of effect sizes. In this study as recommended by previous research in this area, medium effect size was chosen.

To determine the adequate number of participants for the quantitative phase of this study, the researcher used the general power analysis program, G*Power 3.1.9, for all
the statistical tests that were used in this phase including regression, ANOVA, t-test as recommended by Creswell & Plano Clark (2011). For regression tests, the minimum participants or cases needed for this study was between 110-140 cases, where the number of predictors were set to be nine, with a level of significance of .05 ($\alpha = .05$), with .80 of statistical power, and a medium effect size. The researcher also used G*Power 3.1.9 software to determine the number of cases required when applying a t-test and ANOVA tests. In all statistical tests that were used in this phase, quantitative phase, at least 150 participants were needed.

**Data collection procedure.** The following steps were utilized in collecting the needed data for this research. The first step was requested by King Faisal University KFU, where the researcher works, to write an official letter to the Saudi Electronic University (SEU) explaining the researcher’s need to conduct a survey instrument focused only on students, male and female, attending SEU (See appendix K). Second, based on the letter from the researcher and King Faisal University, the agreement letter from SEU was received, which gave permission to distribute the questionnaires to their students. Third, an e-mail was sent to the SEU vice president to distribute an electronic survey by using the Internet. Only male and female students who attending the different colleges in SEU were focused by research survey. Fourth, URL link was provided to the SEU technology services department. Fifth, this department sent an electronic message for their students to announce the availability of the research survey. In this message, researcher introduced himself to the participants, provided a brief introduction about why
it was very important for research and Saudi government, and asked them to participate with a pledge of anonymity for participants.

Several studies that focused on using survey found that there are numerous strengths of using a web-based over paper-based surveys (Dillman, Smyth, & Christian, 2009; Evans & Mathur, 2005). For example, flexibility, convenience, and cost are a main advantage of using web rather than paper survey. It allows researchers to conduct data or participants by using several formats. For example, researchers who can use electronic message or other social network tools such WhatsApp software or twitter with an embedded survey URL. It also helps researcher conducting large participants at a low cost. In addition, Participants are able to participate and answer research questionnaire anytime and anywhere. It allows them taking as much time as they need to complete it. Before completing the survey, research, who use online survey, can construct a survey that participants must response each question on the survey to avoid any missing value (Evans & Mathur, 2005).

It is very important to consider the possible types of survey error that might arise when designing an instrument. Sampling, coverage, non-response, measurement, and processing errors are five generally accepted types of survey errors (Dillman et al., 2009; Groves, 1989). Sampling errors, or error of variance, is an error of non-observation and represents one component of total errors (Groves, 1989). It arises when a random sampling is used to select a sample, but the resulting sample is not representative of the general population (Groves, 1989). It refers to “the variability of value of statistic over the different sample that could be drawn” (Groves, 1989, p. 242). A coverage error arises
when some members of the population cannot be included in the sample list. The reason for this error is that these members can never be measured (Groves, 1989).

A nonresponse error occurs when some member on the list used by the survey cannot be located or refuse to answer all the questions. Lee, Benoit-Bryan, and Johnson (2012) defined nonresponse error as a systematic difference in responses between participants and their respondents. This error affects the results of the study in two ways. First, the decrease in sample size or refusal to answer a particular question results in a large standard error of mean. Second, the bias is increased (Groves, 1989; Dillman et al., 2009). A measurement error arises when the researcher selects a measurement that leads to inaccurate answers (Lee et al., 2012). Finally, a processing error is a type of non-sampling error occurring after the data collection such as during data capture, coding, sorting of data, and editing (Lee et al., 2012).

Any one of these types of errors may make the web survey results unacceptable. To maximize sampling errors in a research study, the researcher should be increased the random sample size (Lee et al., 2012). Groves (1989) suggested two approaches to reducing coverage errors including obtaining all geography updated information about participants, and using two phases of the sampling technique. To reduce nonresponse errors in a research study, Lee et al. (2012) stated that enhancing the response rate is a good approach for this type of error. For example, online surveys provide a requirement tool that helps researchers by forcing participants to answer the entire question in the survey. To minimize measurement error and processing errors, a researcher should pre-test and modify instruments that will be used in the study, select an accurate sample
framework and keeping the survey simple. The researcher should be aware of all factors that influence the research study under investigation, and ask subject matter and survey experts to conduct an extensive review of the data analysis (Groves, 1989; Dillman et al., 2009).

**Data analysis procedure.** In Phase III of this research, a quantitative method “descriptive and inferential analyses” were used to explore and analyze factors influencing Saudi students’ decisions regarding acceptance and use of IBDE. Descriptive statistics was defined as numerical and graphical procedures or comprehensive technique for summarizing, analyzing, and reporting scores (Aron et al., 2010; Best and Kahn, 2006; Field, 2013; Warner, 2007). According to Aron et al. (2010), the main goal of descriptive analysis is to summarize and describe a group of number or score. In this study, once the questionnaire was refined and data collected gender, age, and students’ occupation, and students’ major section of the survey were analyzed by using descriptive analysis including frequency, central-tendency, variance, and standard deviation.

Inferential statistical, on the other hand, is multiple techniques that allow researchers to draw a conclusion or make generalizations based on the numbers collected from a research study (Aron et al., 2010; Best & Kahn, 2006, p. 456). Researchers in many disciplines use this technique to draw and interpret conclusions about populations that are based on group of numbers or scores from samples. Researchers who use this technique go beyond these scores or numbers (Aron et al., 2010). Without having to conduct a survey, researcher can investigate and exanimate a wide range of phenomena (Aron et al., 2010; Black, 2012; Field, 2013; Warner, 2007). Regression, independent-
samples t-tests, ANOVA, and simple linear regression were four types of inferential technique used in this study. These were discussed briefly.

Before conducting the inferential technique, any violations of the assumptions that might interfere were checked by the researcher. The first assumption checked was that the variables were normally distributed and there was a linear relationship between the independent and dependent variables (Field, 2013; Warner, 2007). To check the normality assumption, skewness and kurtosis statistics were examined. To find any linear relationships between independent and dependent variables, scatterplots were used.

The second assumption checked was that if the within-group variances of the groups were equal (Warner, 2007). Field (2013) defined homoscedasticity as “An assumption that the residuals at each level of the dependent variable have the same variances” (p. 876). To assess the homoscedasticity, the researcher used residual scatterplots as recommended by Field (2013). This figure or plot shows researchers the relationship between two axes of residuals (standardized and standardized predicted residuals).

“Tolerance” and “Variance Inflation Factor (VIF)” values were also checked to assess multicollinearity (sometimes called collinearity). Multicollinearity assumption refers to the level of relationship among the independent (or predictor) variables. If two or more independent variables are highly correlated, then these variables are collinear and the results show multicollinearity, which increases the standard errors of the coefficients (Field, 2013). So, some statistical scholar suggested that if the tolerance value is less than
.10, or the values of VIF is greater than 10 then there would be a problem with a regression model and may need further investigation (Field, 2013; Warner, 2007).

The researcher also needs to detect outliers and influential points. These points may affect the regression equation and result data. Outliers are anomalous values from the rest of the data (Field, 2013). In the horizontal direction, if an observation value lies far away from the other data, it is known as an influential point (Warner, 2007). The researcher used two common methods to check these assumptions, which included casewise diagnostics and cook’s distance as recommended by Warner (2007). In cook’s distance, any value greater than 1 might require further investigation as suggested by Cook and Weisberg (1982).

Data was also checked for any violation of independence. Independence of errors, it is also known as lack of autocorrelation, refers to an assumption that a data point does not correlated or influence another (Field, 2013). To detect independence error, Durbin-Waston test was used to assess any serial correlation between errors. This test ranges from 0 to 4. A value less than 1 and greater than 3 indicates autocorrelation (Field, 2013).

Relationships between the dependent variables and the independent variables as well as among the independent variables themselves were also examined by using a Pearson correlation coefficient, $r$, was used in this study. A value from +1 to -1 indicates a positive or negative relationship between two variable. A zero value, on the other hand, indicates no association between the two variables phenomena (Aron et al., 2010; Black, 2012; Field, 2013; Warner, 2007).
In addition to descriptive analysis that was used in this study, a regression analysis was used to analyze the sets and to find whether there was relationship among the variables. This procedure allowed identifying and explaining the values of one dependent variable based on the value of more than two independent variables (Aron et al., 2010; Warner, 2007). Several researchers utilized and applied multiple regression procedure in measuring behavior intention of adopt and use ICT/IT systems and IBDE (Abbad, Morris, & Nahlik, 2009; Al-Harbi, 2010; Nanayakkara, 2007; Oye et al., 2012; Pardamean and Susanto, 2012; Venkatesh et al., 2003). According to Field (2013), there are two types of regression analyze including simple linear regression and multiple liner regression. Both of these tests were used in this study.

A multiple regression is an extension of a simple linear regression in which a dependent or outcome variable is predicted from multiple predictor variables (Field, 2013). Multiple regression was used because the researcher sought to determine if several predictor variables, UTAUT model (Venkatesh et al., 2003), and additional variable from qualitative results, predict a continuous dependent variable, behavioral intention BI. All predictors were forced into a multiple regression model simultaneously using enter method. To check about significant predictor variables, the researcher checked if the value of each variable is less than or equal \( p \leq 0.05 \) (\( \alpha = .05 \)). For this research model, the equation was:

\[
\hat{Y}_1 = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8 + e
\]

multiple regression model was also generated to explore which among these factors were more significant predictors of students’ BI by using the forward method. In
this technique, Social Sciences Software (SPSS), version 19, selects the one predictor variable that would the best predict the outcome variable and has the highest correlation with the outcome variable (Field, 2013; Warner, 2007). The equation for this model was:

\[ \hat{Y}_2 = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \cdots + \beta_7 x_7 + \beta_8 x_8 + e \]

On the other hand, a simple linear regression was used to determine if participants’ age, was statistically significantly related to their intention to partake in IBDE. It refers to a regression analysis in which the dependent or outcome variable is predicted from a single independent variable (Warner, 2007). For this question, the equation was:

\[ \hat{Y}_3 = \beta_0 + \beta_1 x_1 + e \]

To determine if there is a significant difference between the SEU students’ gender and their BI to enroll in IBDE program using (\( \alpha = .05 \)) significance level, the independent samples \( t \)-test was also used in this study. Researcher, who use this technique, can compare the mean of two separate groups of people (Aron et al., 2010). With this procedure, the “Levene’s test for equality of variances was used to find if any two groups have about the equal or different amounts of variability between sample values (Aron et al., 2010; Field, 2013; Warner, 2007). If the values of Levene's test is < 0.05, then there is significant mean difference between the two groups (Aron et al., 2010; Field, 2013; Warner, 2007).

One-way analysis of variance (ANOVA) is a hypothesis test procedure used for testing variation among the mean scores of more than two groups (Aron et al., 2010; Field, 2013;). This test was conducted in this study to determine if the means of SEU
students’ occupation, independent variable, is significantly different to the students’ BI to enroll in IBDE program, dependent variable. With the ANOVA test procedure, F statistic was checked to determine if there is any statistically significant difference among the means, and whether or not the researcher could reject the null hypothesis. To indicate which groups had statistically significant differences, either Tukey's honestly significant difference (HSD) or Scheffé post hoc tests was used.

**Meta-Inferences in Mixed Method Research.**

The final stage of mixed research method is called Meta-inferences (Creswell & Plano Clark, 2011). In this stage, researchers can integrate or combine the results of both qualitative and quantitative in a single study (Creswell & Plano Clark, 2011). Meta-inferences was defined as “theoretical statements, narratives, or a story inferred from an integration of findings from quantitative and qualitative strands of mixed methods research” (Venkatesh, Brown, and Bala, 2013; p. 38). The main purpose of meta-inferences is to go beyond the results of the qualitative and quantitative study and develop a more in-depth understanding than a single study cannot offer (Creswell & Plano Clark, 2011; Venkatesh et al., 2013).

Venkatesh, et al. (2013) suggested two approaches to developing meta-inferences in mixed method research including the bracketing process and the bridging process. The bracketing process is an integrating process of a diverse and/or opposing view of the topic of interest (Venkatesh et al., 2013). The main goal of this process is to allow the researcher to look for contradictions and oppositions from both phases’ findings, qualitative and quantitative (Venkatesh et al., 2013). On the other hand, the bridging
approach refers to a process of developing an agreement between the phases’ findings, qualitative and quantitative (Venkatesh, et al., 2013). This approach helped the researcher to develop or expanded their view of a phenomenon of interest. It also helps to understand transitions and other boundary situations related to the research study (Venkatesh et al., 2013).

In this illustrative study, qualitative and quantitative phases were connected during different phases in this study. The first connection was on phase II while selecting the participants for the quantitative phase from those who participated to semi-interview in the qualitative phase based on their thoughts. The second connection was on developing the quantitative research questions and survey instruments based on the results of qualitative phase. During conclusions or interpretation stage, the researcher used the bridging approach as recommend by Venkatesh, et al. (2013) to find any consensus between qualitative and quantitative findings.

Chapter Summary

In summary, this chapter provides information about the methodology used in this research study. To answer the research question, the research was designed as a sequential exploratory mixed methods to collect data. In Phase I, the researcher used the qualitative data to explore and identify a set of factors and sub-factors and to expand the research’s initial model that might contribute to and influence Saudi Electronic University students’ acceptance and use of IBDE.

In Phase II, the researcher developed and piloted the survey instrument to use in Phase III, quantitative research. The result from the qualitative research, or Phase I,
helped the researcher to develop the survey instrument. A pilot study was conducted to test the validity and reliability of the research instrument used to collect data.

In Phase III, the researcher used the survey instrument in Phase II to collect data on Saudi Electronic University students’ decisions regarding acceptance and use of IBDE. This included the study population, sample and sampling procedure, data collection procedure, and the statistical procedures that were used for data analysis. SPSS, version 19, was used to analyze the descriptive data and other statistical results.
Chapter 4: Data Analysis and Result

Phase I: Qualitative Data Analysis

The researcher conducted the first phase of the study, qualitative research, in order to explore, investigate, and examine the factors that influence Saudi students’ decisions to accept and use IBDE programs. The researcher rationally analyzed the knowledge, perceptions, and experiences of the participants, who were male and female Saudi students attending Saudi universities or colleges, through semi-structured interviews. The interview findings of the participants were then coded for thematic analysis, which was performed to establish new knowledge and factors connected to the main reasons or factors that students consider joining IBDE programs. The researcher employed the first phase of qualitative thematic analysis design, which focused on the themes formed in the interviews, to allow the validity and reliability of the responses to emerge. All extracted meanings and new-formed pieces of knowledge sought to address the main research question:

What are the main factors that influence Saudi students’ decisions to enroll in IBDE as a new learning method in Saudi universities?

Description of the sample. The study participants were seven Saudi students who enrolled in online program in Saudi universities and had opinions about the factors that may influence their decisions to accept and use IBDE as a new learning method in Saudi universities. The overall sample population was composed of four females and three males. Their ages ranged from 22 to 35 years old. The participants belonged to various colleges, including (a) the College of Business Administration (three participants), (b) the
College of Arts (two participants), (c) the College of Administrative Sciences (one participant), and (d) the College of Education (one participant). The participants also had different majors, including (a) Business Administration (four participants), (b) English (two participants), and (c) Learning Disabilities (one participant). As can be seen in Table 4, the breakdown of the demographics of the participants.

Table 4

_The Demographics of the Participants_

<table>
<thead>
<tr>
<th>#</th>
<th>Gender</th>
<th>Age</th>
<th>College of Major</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student #1</td>
<td>Female</td>
<td>25</td>
<td>Business Administration</td>
</tr>
<tr>
<td>Student #2</td>
<td>Female</td>
<td>22</td>
<td>Arts</td>
</tr>
<tr>
<td>Student #3</td>
<td>Male</td>
<td>35</td>
<td>Business Administration</td>
</tr>
<tr>
<td>Student #4</td>
<td>Male</td>
<td>25</td>
<td>Business Administration</td>
</tr>
<tr>
<td>Student #5</td>
<td>Male</td>
<td>35</td>
<td>Administrative Sciences</td>
</tr>
<tr>
<td>Student #6</td>
<td>Female</td>
<td>26</td>
<td>Education</td>
</tr>
<tr>
<td>Student #7</td>
<td>Female</td>
<td>30</td>
<td>Arts</td>
</tr>
</tbody>
</table>

_Research Methodology and Introduction to Analysis_

For the first phase of the study, the researcher employed qualitative research with the research design of a thematic analysis TA through interviews with the seven participants. The researcher chose to employ TA as the main research method for the qualitative portion of the study due to its inherent characteristics. Boyatzis (1998) stated
that TA presents data in a highly detailed manner and, at the same time, relates to broad subjects through interpretations and extraction of meanings. Willig (2013) explained that TA "produces knowledge that takes the form of themes, built up from descriptive codes, which capture and make sense of the meanings which characterize the phenomenon under investigation" (p. 65). Namey, Guest, Thairu, and Johnson (2008) explained the process of thematic analysis as:

Thematic moves beyond counting explicit words or phrases and focuses on identifying and describing both implicit and explicit ideas. Codes developed for ideas or themes are then applied or linked to raw data as summary markers for later analysis, which may include comparing the relative frequencies of themes or topics within a data set, looking for code co-occurrence, or graphically displaying code relationships. (p.138)

Braun and Clarke (2006) identified the six common steps of TA including (1) becoming familiar with the data and background literature, (2) coding, (3) themes conducting, (4) revising themes, (5) naming themes, and (6) writing up (p. 15). In addition, Stirling (2001) identified the three common steps of TA, noting that the whole process of TA can be divided into three broad stages: “(a) the reduction; (b) the exploration of the text; and (c) the integration of the exploration “interpretation”” (p. 390). These three steps were followed in this particular study.

The data findings discuss the interviewed participants' knowledge, experiences, and perceptions with regards to the factors and reasons that students from Saudi Arabia consider enrolling in IBDE. The next section presents the findings with tables, numbers,
percentages, and verbatim texts in order to explain the formed themes and invariant constituents of the study. The analysis of individual interviews revealed fifteen themes, outlined in Table 5.

Table 5

*The Analysis of Individual Interviews*

<table>
<thead>
<tr>
<th>#</th>
<th>Themes</th>
<th># Of Sources</th>
<th># Of References</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Convenience &amp; Practical</td>
<td>7</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>Accreditation &amp; Recognized Certificates</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>3</td>
<td>Effectiveness</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>4</td>
<td>Usefulness &amp; Communication</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>Ease of Learning &amp; Ease To Use</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>Encouragement</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>Admission Requirement</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>Technology Infrastructure</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td>Special Courses</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>10</td>
<td>Training</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>11</td>
<td>Love of Education &amp; Self-Fulfillment</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>12</td>
<td>Enjoyment</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13</td>
<td>Technical Support</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>14</td>
<td>Incentives</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>High grades</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
Presentation of Findings

Theme #1: Convenience and practical. Convenience and practicality form the first main theme in this study. All students participating in the interviews stated that they enrolled in an IBDE program because it is much more convenient and practical than regular universities, since the programs are online and, thus, students can study, work, and fulfill other personal and career related responsibilities at the same time. This theme pertains to the major factor influencing Saudi students' decisions to enroll in IBDE programs as a new learning method in Saudi Arabia: they primarily consider the convenience and practicality of the IBDE programs compared to those of a regular university.

Participant #1 stated that electronic education provides her and other students with the same situation—the perfect opportunity to study and learn without having to compromise their jobs. She added that another advantage is the mobility of being able to acquire a good education anytime and anywhere:

“Convenience” The other reason is that some students consider electronic education a perfect field or option for them to continue studies without being fired or without quitting their job, as they can coordinate with their departments to attend exams in the exam center. The following reasons were stated:

1. At anytime and anywhere you can attend lectures and answer assignments.
2. I am a housewife, thus electronic education gave me the freedom to study, or, as expressed, organizing my time between caring about my family and studying, which is difficult to achieve with regular education.
Yes, this kind of education is interesting and convenient in contrast to regular education as I sometimes listen to the lecture and pause it to note down the important information in the lecture and resume the lecture.

Participant #3 shared the same reason for joining an IBDE program; he said that IBDE provides the aid and consideration necessary for employees like himself to balance their educational and career life. He also mentioned the convenience of learning and accessing school-related activities without having to physically go to the university:

Since I am an employee and I was not accepted in the universities, I found that electronic education is the distinctive field that helps me to balance between my job and studying at the same time, and, as you know, it is difficult these days to find a suitable job. Therefore, I decided to keep my job and continue studying and gaining knowledge. Four reasons were given:

1. Lectures are available at anytime and anywhere.
2. Communication with the other students, participation in revising lessons at any time and anywhere.
3. Communication with the staff members is quicker and at anytime and anywhere.
4. In addition, I find that one of the encouraging reasons for joining electronic education programs is its nearness to my place of residence and exam centers are available anywhere in the Kingdom.

Participant #3 also stated:
Studying at home is the most important thing—balancing work and studying; the government cooperates by helping students attend exams, and the companies' cooperate by promoting their employees. There are very cheap requirements—no need to go to the university—and the low cost of programs encourages studying using IBDE in comparison with the private regular education programs.

Participant #4 shared his personal experience and perception on why joining an IBDE program was the perfect option for him. He stated that as an employee of a reputable company (Saudi Aramco), he needed to get an advantage among the working population in Saudi without having to compromise his career; thus, he decided to get an education in the most convenient way possible:

The main reason for choosing electronic education as a substitution for regular education is that I am an employee in the Saudi Aramco. I joined the company after graduation from secondary school, and the job opportunity was better than studying because Aramco is one of the respectable companies, and it is difficult to get a job with the company. Also, after joining Aramco's training programs, I got a certificate, and my ambition was to get a bachelor's degree in a way that ensures keeping my job, which means to study in the place and at the time which I choose myself—in other words, no commitment to regularly attend universities.

Yes, in these circumstances, finding a job is very difficult, so I thought of keeping my job and studying at the same time, as I thought that, after getting the bachelor's degree, I could get a promotion at work or find another job that suits my ambitions and fulfills my wishes.
1. Attending lectures anytime and anywhere
2. All the curricula is electronic and I can reach them anytime and anywhere
3. Communicating with staff members anytime and anywhere using technology

Participant #5 added almost the same reasons for joining an IBDE. He stated that as an employed professional, the convenience of not having to attend school at a formal/regular university is the top benefit, and that the ability to work on both his educational and professional career simultaneously is another great advantage:

1. I do not need to come to campus every day, only when there is an exam. This greatly benefits those who are employed;
2. It is possible to attend all lectures at certain times;
3. I can take the test in my hometown without the need to travel to campus; and
4. Yes, I can balance my study and my work without the need to leave my job.

Participant #6 also shared several advantages of the IBDE program over other programs for her situation. She stated that the flexibility of this type of education helps a lot in prioritizing her education, personal responsibilities, and career simultaneously, as well as providing the flexibility to complete her requirements:

1. Doing assignments at any time and any place:
2. There is some kind of privacy in terms of maintaining my own religious identity;
3. Flexibility.

Participant #7 stated that in her condition of having personal responsibilities and a family already, time is the main hindrance in completing her education. However, with the convenience that IBDE offers, she can enhance her education and self-needs without having to sacrifice her duties as a mother:

Because I am a married woman with children… I have no time to attend the university every day. Therefore, this mode of education fits me well:

1. You can attend lectures at any time from home;
2. You can submit assignments and participate in discussions at home with no need to go to campus;
3. You do not need to travel to campus since the university provides a testing center for each city/area.

As a mother, I do not have the time to attend regular university classes every day. Nevertheless, distance learning allows me to attend lectures whenever I have free time. It enhances my educational level without sacrificing my role and family responsibilities as a housewife.

**Theme #2: Accredited university and recognized certificates.** The second main theme or reason to enroll in IBDE is the existence of proper accreditation and recognized certificates. The participants enrolled in an IBDE program because they were encouraged by the reputation of the online university, which has recognized certificates and degree values that are equal to those of regular universities. All of these factors help to increase students’ values in the labor market. The theme of accreditation and
recognized certificates is one of the most vital findings of the study. This theme indicates the impact and appeal that a university’s good reputation has on current students as well as future students.

With respect to this theme, Participant #1 mainly indicated the recognition of the university and its good reputation, which gained her trust. She stated that IBDE is similar to traditional education and that her university has the necessary recognition and accreditations, just like a regular university:

Yes, I trust it for the following reasons:

1. The university is recognized.
2. The certificate is recognized.

Participant #2 stated that, although she first preferred joining a regular education program to joining an IBDE program, what increased her trust was the number of individuals enrolled in the program, as well as the recognized certificate that the IBDE program presented, which was the same as that of a regular university:

Yet, what increased my trust in it is the big numbers, who register at the program, the recognized certificate, and the certificate I will receive is the same as the certificate from regular education programs. The other factor, as I said before, is the state-recognized certificate, which copes with the labor market.

Participant #3 shared that having the reputation of a well recognized and accredited university increased his confidence in joining an IBDE program. He stated, “A recognized certificate and recognized university encourage me to enroll and adopt online learning courses.”
Theme #3: Attitude toward using internet-based distance education. The majority of participants in the interviews stated that the effectiveness of online learning is the key factor in its integration into education. If online learning does not result in better learning outcomes for students, then the value of online learning will decrease dramatically. For example, Participant #1 indicated, “some colleagues advised me to enroll in it because of its effectiveness.” She also stated that passing one level successfully and going to another level is the main reason to enroll in and to adopt IBDE programs, saying, “In addition, passing one level successfully and going to another level has persuaded them to join electronic education.” Participant #5 also added that he chose to trust and enroll in an IBDE program because this type of education has been proven to be effective internationally, which assured the participant that it would be the same in Saudi Arabia:

Yes… because this type of education is new in Saudi Arabia, but it is well developed in other countries. It was implemented in Saudi Arabia because it is successful in other countries… otherwise they won’t implement it here.

Since students have positive experience using IBDE, it positively affects attitudes towards adoption of IBDE. In other words, students will continuously use IBDE in their study. Some examples of positive attitudes statements towards IBDE are as follows:

Participant #7 intimated that “This kind of education allows me to participate in small group to share and do my assignment with others”. Participant #5 mentioned “I really appreciate the Internet technology, it made an alternative learning for me and I can keep my job”. Participant #3 stated “the low cost of programs encourages studying using
IBDE in comparison with the private regular education programs”. In addition, since this type of education is Internet-based, students thought that it could improve their internet skills as well as their technology skills.

**Theme #4: Usefulness and communication.** Findings from the interviews indicate that the participants who enrolled in the IBDE program find it very useful for learning. The majority of the respondents stated that the usefulness of the IBDE program positively influenced their decision to enroll in an IBDE program as a new learning method in Saudi universities.

Of the six who responded to a follow-up question asking how useful they find learning when using IBDE, four perceived the learning process to be “useful,” “very useful,” or “very, very useful.” For example, one participant stated:

> It is a very useful program for me. I thought of keeping my job and studying at the same time because I thought that after getting my bachelor's degree, I could get a promotion at work or find another job that suits my ambitions and fulfills my wishes.

The participants interviewed believed that communication with course instructors and students increased their desire to enroll in the IBDE programs. As stated by one of the interviewees, “Participating with the other students in answering assignments, as well as holding discussions about the exams and how to answer the assignments will encourage students to enroll in IBDE programs.”

**Theme #5: Ease of learning and ease to use.** It is more likely that a student will enroll in this kind of technology “IBDE” if it is easy to use. The interview data
suggests that students find learning to use IBDE easy and that this positively influences their decisions to enroll in IBDE programs as a new learning method in Saudi universities.

Participant #2 stated that the systems of IBDE are very easy for students to use. She also indicated that using the Arabic language might make learning slightly easier for the students, saying, “For me, I find IBDE easy to use because the using internet and technology are easy to use, in terms of especially of using the Arabic language.”

Participant #6 added that not needing prior experience or knowledge about using the Internet was one of the reasons he finally decided to join an IBDE program, citing “the ease of the system, which does not require prior experience.”

**Theme #6: Encouragement.** The sixth theme of the qualitative portion of the study was encouragement. The participants enrolled in an IBDE program because their families and friends, who had positive experiences in IBDE programs, encouraged them. This theme received responses from six of the seven overall sample participants. This factor indicates the role of others' positive experiences and feedback regarding IBDE programs, which encouraged the study participants to try IBDE.

Participant #1 stated that the experiences of others influenced her to finally join an IBDE program:

Others' experiences have also had an influence on me and engaging in this program or rather, this kind of education, since those who have had the experience before me encouraged me and influenced my decision on moving towards this kind of education.
Participant #2 shared that her relatives and family had a big say in her decision, since they were the ones who primarily encouraged her to join the IBDE program because it could open doors for her in the labor market and help her become a distinguished career woman:

Yes, at first, I was worried about registering or joining electronic education, but my relatives and family are the ones who encouraged me to register for it—better than obtaining nothing. In addition, my family at home, such as my brothers, encouraged me and told me that there could be one day in the my field when I become distinguished.

Participant #6 added that her family and friends encouraged her to try out IBDE, rather than not having any education at all, in order to have a better future:

My family and my friends are the ones who encouraged me to get involved in this form of education. The way relatives look at those who are un-educated was the main motivation to enroll in this form of education.

**Theme #7: Admission requirement.** The majority of participants enrolled in an IBDE program because they had no other option; they thus considered the IBDE to be another opportunity to learn, given that they did not meet the requirements to be accepted at a regular university. This factor pertains to the hindrance of not meeting the requirements and grades required to attend a regular university. The participants had no choice but to join an IBDE program. This theme was evident in responses from five of the seven participants in the sample population.
Participant #1 stated that she had no other choice but to join an IBDE program because her grades did not meet the requirements for the regular university she applied to:

Because I had no option and my ambition was to get the bachelor's degree.

Nevertheless, when I registered at the university, I was not accepted because I did not have the grades required for acceptance. Therefore, I had no options other than joining electronic education.

Participant #2 had an experience very similar to that of Participant #1. She added that she did not want to waste her time or energy at home and thus thought of another opportunity to enhance her education by applying to an IBDE program:

When electronic education first started, I registered for it because I was not accepted in regular education, and I found it would be a loss to stay at home and waste my time. Therefore, I registered for an electronic education program to compensate for the fact that I was unable to get into a regular university.

Participant #3 also stated that:

Since I am an employee and I was not accepted in the universities, I found that electronic education is the distinctive field that helps me to balance between my job and studying at the same time, and, as you know, it is difficult these days to find a suitable job. Therefore, I decided to keep my job and continue studying and gaining knowledge.

Participant #6 stated that IBDE was her alternative when she was not accepted to a regular university and that the IBDE program provided her another chance to enhance
her education, not waste the opportunity to learn, and just become a better individual overall.

**Theme #8: Technology infrastructure by university.** According to the facilitating conditions portion of the conceptual framework (Venkatesh et al., 2003), if users or students believe technology infrastructure exists to support IBDE, they will be more likely to use IBDE for learning. Interview data showed that the participants enrolled in IBDE because the online university offered several new technologies. This theme received responses from only four of the seven participants in the sample population.

Participant #4 shared that he had some classes in which the instructor used video conferencing, stating, “When I was at home, I had some lectures, which were broadcasted live from Britain using conference calling, through which we discussed with the instructor and asked about everything.”

Participants stated that universities used variety of technology to make education happen for their students. For example, university provides learning management systems LMS such as Blackboard to help their teachers to deliver their lecture. In addition, university provides a great system that help their students to register for online class when they sit in their home without attending to university. Online university add more functions that can attain students interest such as link to Twitter, Facebook, etc … to make the communication with students very easy.

**Theme #9: Special courses.** The participants enrolled in an IBDE program because the online education offered special courses that catered to their needs and preferences. This factor indicates how the wide array of courses and programs offered by
the IBDE program convinced the students to join, since this variety catered to their needs better than the limited courses offered in traditional universities. This factor received responses from only four of the seven participants in the sample population.

Participant #1 stated that the IBDE program offers very important majors that give a great advantage to the students enrolled in terms of coping better in the labor market. Participant #1 also said that IBDE provides appropriateness in the labor field:

Yes, at the beginning, the university introduced important majors that cope with the labor market, such as educational majors ("special-needs education"). However, after a while, they were cancelled because there were no full-time staff members, which annoyed the students and especially the girls.

The main reason for the student to enroll in the electronic education programs is the appropriateness of the certificate to the labor market, availability of majors, and encouragement by the Ministry of Higher Education to enroll in the electronic education programs.

Participant #2 added that an IBDE university provides a greater number of departments and courses that are better able to cater to students' educational and career preferences compared to those of traditional universities, saying, “Yes, the big number of departments provided by the university especially the required departments encouraged me as my major is English and it is required.”

In addition, some of the participants enrolled in an IBDE because the curriculum contains international standards, which increases its educational and career value. This factor pertains to the international standards followed by IBDE programs, which is a
redeeming factor for the type of education. Additionally, such an aspect adds more value and benefit for the enrolled students.

Participant #4 stated that the English language employed in IBDE programs is provides another advantage that is followed and recognized in the international scene. This characteristic is another main consideration in the labor market, and this aids IBDE students after completion of the program:

The English language, the curricula is recognized from Britain, based on the labor market, which helps one to continue studies to get a master's degree in Britain without studying the English language because the university is recognized by a high British body specialized in electronic education.

**Theme #10: Training by university.** According to the facilitating conditions portion of UTAUT model (Venkatesh et al., 2003), if students believe organizational training exists to support IBDE, they will be more likely to use IBDE for learning. Participants were asked, *Did the university provide suitable training for using the electronic education programs in terms of training on the electronic education systems, the recorded lectures, and other aspects?* The interview data shows that five out of the seven participants in the overall sample population were knowledgeable about the availability of university training for IBDE.

Participant #1 stated that the online university simply provided an online training icon on the university page, saying, “As for training, there is an option or an icon on the university page to train for the use of electronic education, to train on how to register, and to train on how to download the live lectures.”
Participant #4 added that the online university developed online training and on-campus training to create a special program for the new students on how to learn through electronic education:

Yes, at the beginning of each year, the universities develop a special program for the new students on how to learn through electronic education and how to send assignments and attend lectures and other things.

**Theme #11: Love of education and self-fulfillment.** Findings from the qualitative portion of the study showed that the participants enrolled in an IBDE program because they wanted to pursue their studies for the love of education and for self-fulfillment. This theme received responses from five out of the seven participants in the overall sample population. This factor pertains to the students’ love of education and desire for self-fulfillment as the main decision making factors for joining an IBDE program.

Participant #3 stated that his love for studying encouraged him in pursuing another educational venture, saying, "No, it is my love for study which encouraged me to continue studying."

Participant #4 added that he did not need any push or encouragement from friends or family members in order to be convinced to join electronic-based education. He said, “But it was self-encouragement rather than encouragement by colleagues and friends, as the society rejects thinking about study in terms of electronic education."

Participant #5 stated that self and career fulfillment were his main reasons for joining an IBDE program, since he wanted to excel in his career by gaining greater
educational attainment. He stated that his reason was, "To get promoted in my job and to
increase the level of my education."

Participant #6 simply cited "educational and professional advancement" as the
driving factors for her joining an IBDE program.

Participant #7 shared that IBDE was the only available option for her, given her
current personal and familial responsibilities. "Self-development" was her main reason
for choosing to join an IBDE. She stated, "Because it is the only mode that suites me to
elevate my educational level. The factor of self-development is what matters."

Theme #12: Enjoyment. According to the perceived enjoyment component in
Technology Acceptance Model 3 (TAM 3) (Venkatesh & Bala, 2008), it is more probable
that students will utilize IBDE if they enjoy interaction. Results from interviews found
that four participants perceived enjoyment when using IBDE. Terms used to describe the
experience included enjoyable and interesting. Participant #3 stated, “Because its
programs are linked to the labor market, I became more interested in it with satisfaction
and I would like to continue with my master's using the same system.” Two of the four
stated that they found this kind of education “enjoyable”. Participant #1 stated that she
enjoyed studying using IBDE because “this kind of education is interesting.”

Theme #13: Technical support. According to the facilitating conditions portion
of the UTAUT model, if students believe university infrastructure exists to support IBDE,
they will be more likely to use IBDE for learning. Participants were asked, In other
words, is there technical support in the university to communicate with students to solve
their problems? The interview data showed that four out of the seven participants in the
overall sample population were knowledgeable about the 24-hour availability of technical
support in the online university. For example, one participant stated, “the university
offers a 24 hours technical support.”

**Theme #14: Incentive.** Findings from the qualitative portion of the study
showed that the participants enrolled in an IBDE program because the online university
offers various material and social incentives. This theme or factor received responses
from only three out of the seven participants in the overall sample population. This factor
pertains to the various incentives offered by the IBDE in order for students to fully join
the type of education.

Participant #2 stated that the IBDE program encouraged her to join by offering a
distinguished award with prizes to be given away, saying, “Yes, it encouraged us by
having an icon for electronic education. This icon is named ‘the distinguished students
icon’ as the university gives a cash prize.”

Participant #4 added that incentives were also one of the methods used by the
IBDE program to encourage him to finally take the leap and try an innovative form of
learning:

Yes, I encouraged many colleagues as I followed the technique of encouragement
through saying that electronic education is easy, through speaking about the
curricula I study, the incentives, the certificate I will get, how the company wants
it in order to be able to promote me, how fees are high but the quality of education
is high, international cooperation with the other universities, graduation parties,
interest by officials responsible for it, and the grades I get or the results of exams.
Participant #6 simply stated that the IBDE program provided her with material and social incentives to further convince her to join them, citing, "Material and social incentives provided by the university."

**Theme #15: High grades.** The participants enrolled in an IBDE program because they were encouraged that if they got high grades and degrees upon joining electronic education, they could then get into a regular university. This theme received responses from only two out of the seven participants in the overall sample population. This factor pertains to the promised qualifications of the IBDE program, such that if the students perform well with high grades, they then have a greater chance of subsequently joining a regular university.

Participant #1 stated that it was the IBDE program that mainly encouraged her to join and that it also promised that whoever got high grades could accelerate and subsequently join a regular university:

> At first, I did not have the intention to continue studies through electronic education because I wanted to join regular education system, but it is the university, which encouraged me. At the beginning of the program, they encouraged us to join electronic education as whoever gets high grades (GPA) can join regular education. By the way, from my experience, I found that electronic education is very difficult in comparison with regular education, as it needs continuous revision and searching for information yourself.

Participant #2 added that the university also promised her that whoever got high grades would have the right to transfer from electronic education to regular education:
No, there is no reason. The most important thing for me is getting a certificate and the certificate is recognized. However, at the beginning, the university encouraged us as when you get a high degree (GPA), you have the right to transfer from the electronic education to regular education and attend lectures in class.

**Themes & UTAUT model**

Through these seven interviews with Saudi Arabian students, the researcher rationally examined and analyzed these students' main reasons for preferring an IBDE program to traditional education. Phase I, the qualitative analysis, presented the sample description of the participants, the research design utilized, and the general findings, including tables, numbers, and verbatim texts to better explain the experiences and perceptions of the participants in the IBDE program. The researcher was able to develop fifteen themes that students consider in using or joining IBDE programs in Saudi Electronic University, all of which are central to addressing the main qualitative research question formed earlier. The researcher of this study examined the themes and comments of the participants. This phase found that most of the themes fit well within the framework for the UTAUT determinants of perceived convenience, admission requirements, and perceived enjoyment. The breakdown of the UTAUT model and the participants’ themes can be seen in Table 6.
Table 6

*UTAUT and Themes*

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<td>Perceived Convenience</td>
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<td>Facilitating Conditions</td>
<td>Accredited University &amp; Recognized Certificates</td>
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<td>Technology Infrastructure</td>
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<td>Effort Expectancy</td>
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<td>Acceptance and Grade Requirement</td>
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<td>Perceived Enjoyment</td>
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Expanded Research Questions.

The two main research questions, which were stated in Chapter 1 (p. 27), were not changed. These are as follows:
1. What are the main factors that influence Saudi students’ decisions to enroll in IBDE as a new learning method in Saudi universities?

2. Which factors are more significant predictors of the acceptance and use of IBDE as a new learning method in Saudi universities?

The supplementary questions were expanded based on the results of Phase I. These questions addressed the factors that likely influence Saudi students’ decisions to enroll in IBDE as a new learning method in Saudi universities and therefore should be investigated quantitatively in Phase III. These questions are as follows:

1. Are the UTAUT model and the additional variables—perceived enjoyment, perceived convenience, and admission requirements—significant predictors of Saudi Electronic University students’ behavioral intention to accept and use IBDE as a new learning method in Saudi universities?

2. Is there a statistically significant difference between gender (male and female) Saudi students regarding behavioral intention BI to accept and use IBDE as a new learning method in Saudi universities?

3. Is there a statistically significant difference between Saudi students’ occupations and their behavioral intention BI to accept and use IBDE as a new learning method in Saudi universities?

4. Is there a statistically significant relationship between the students’ ages and their behavioral intention to accept and use IBDE as a new learning method in Saudi universities?
Phase II: Develop and Pilot the Survey Instrument

As mentioned before, Phase II allowed the researcher to develop and pilot the survey instrument to use in quantitative research. Results from the qualitative research, or Phase I, helped the researcher to generate and develop the survey instrument.

**Developing the survey instrument.** The researcher adopted the survey instrument utilized in the UTAUT study by Venkatesh et al. (2003) and based on the qualitative results in this study to develop the instrument. First, the researcher obtained permission from Venkatesh et al. (2003) to use and modify their instruments in this study (see appendices B and C). The UTAUT survey’s items were divided into six categories: performance-expectancy (PE), effort-expectancy (EE), attitude toward technology, social-Influence (SI), facilitating-conditions (FC), and behavior-intention (BI) (see Appendix C). The researcher then adjusted the UTAUT survey instrument to investigate and examine the factors influencing Saudi students’ decisions regarding their acceptance and use of IBDE, as well as to determine which factors have more impact on the adoption of this technology as a new learning method in Saudi universities. Analyzing the qualitative data provided three additional factors or themes these individuals associated with accepting and using IBDE as new learning method in Saudi universities. The three additional factors included perceived-convenience (PC), admission-requirement (AR), and perceived-enjoyment (PJ). Copies of the original and modified UTAUT instruments were provided in Appendices (C & G).

The survey instrument used consisted of 35 items, each on a 7-point Likert scale (1 = completely disagree, and 7 = completely agree). Finally, the instrument contained
five demographic items related to participants’ level within the university: gender, age, major of study, level of study, and their job. The UTAUT instrument has been used several times by different scholars and has been proved to be a valid, reliable survey instrument (Almutairi, 2008; Nassuora, 2012; Oshlyansky, Cairns, & Thimbleby, 2007; Sundaravej, 2010; Venkatesh et al., 2003; Wang & Shih, 2009).

**Description of modified UTAUT instrument and research hypothesis.** Seven factors might influence Saudi students’ decisions about acceptance and use of IBDE as a new learning method in Saudi universities as suggested by the result of the interview data.

**Performance Expectancy (PE).** In this study, the researcher examined the relationship between the Performance-Expectancy (PE) and the students’ intention BI to use IBDE. The UTAUT performance expectancy statements were modified to address IBDE, as follows:

1. I find IBDE useful in my learning.
2. Using IBDE enables me to accomplish learning activities more quickly.
3. Using IBDE increases my learning productivity.
4. If I use IBDE, I will increase my chances of getting better grades

**H1:** The independent variable of Performance-Expectancy (PE) will not be a significant predictor of the BI to adopt and use IBDE.

**Effort Expectancy (EE).** For this study, the researcher examined the relationship between the Effort Expectancy (EE) and students’ intention BI. The UTAUT effort expectancy statements were modified to address IBDE, as follows:
1. My interaction with IBDE is clear and understandable.

2. It is easy for me to become skillful at using IBDE.

3. I find IBDE easy to use.

4. Learning to operate IBDE is easy for me.

**H2: The independent variable Effort Expectancy (EE) will not be a significant predictor of the BI to adopt and use IBDE.**

*Attitude toward Internet-based distance education (IBDE).* For this study, the researcher examined the relationship between the independent variable Attitude toward using Internet-based distance education (IBDE) and the students’ intention BI. The UTAUT attitude toward using IBDE statements were modified to address IBDE, as follows:

1. Using IBDE is a bad idea.

2. Using IBDE is a good idea.

3. Using IBDE is beneficial for me.

4. I like working with IBDE.

5. Working with IBDE is fun.

**H3: The independent variable of Attitude toward using IBDE (AT) will not be a significant predictor of the BI to adopt and use IBDE.**

*Social Influence (SI).* For this study, the researcher examined the relationship between Social Influence (SI) and students’ intention BI. The UTAUT social influence statements were modified to address IBDE, as follows:

1. People who influence my behavior think that I should use IBDE.
2. People who are important to me think that I should use IBDE.
3. My close friends in my university have been helpful in the use of IBDE.
4. The university has supported the use of IBDE.

**H4:** *The independent variable Social Influence (SI) will not be a significant predictor of the BI to adopt and use IBDE.*

**Facilitating Conditions (FC).** For this study, the researcher examined the relationship between the Facilitating Conditions (FC) and students’ intention BI. The UTAUT facilitating conditions statements were modified to address IBDE, as follows:

1. My university has provided me with recognized certificates.
2. My university has offered special courses.
3. The university ICT infrastructure is available when I need it.
4. My university provides incentives to students who use IBDE.
5. My university has provided training for me to use IBDE.
6. A specific person is available for assistance with system difficulties.

**H5:** *The independent variable Facilitating Conditions (FC) will not be a significant predictor of the BI to adopt and use IBDE.*

**Perceived Enjoyment (PJ).** This study defines PJ as the level to which a student believes that enrolling of IBDE is interesting and associates adoption with enjoyment. This research examined the relationship between BI and the independent variable of PJ. The perceived enjoyment statements were modified to address IBDE tools, as follows:

1. Using IBDE makes me feel joy.
2. Using IBDE makes me feel frustrated.
3. Using IBDE is interesting.

**H6:** The independent variable Perceived Enjoyment (PJ) will not be a significant predictor of the BI to adopt and use IBDE.

**Perceived Convenience (PC).** This research examined the relationship between BI and the independent variable PC. The perceived convenience statements were modified to address IBDE tools, as follows:

1. I can learn at any time via IBDE.
2. I can learn at any place via IBDE.
3. IBDE is convenient for me to engage in learning.
4. I feel that IBDE is convenient for me to learn.

**H7:** The independent variable Perceived Convenience (PC) will not be a significant predictor of the BI to adopt and use IBDE.

**Admission Requirement (AR).** Admission Requirements (AR) is defined as the minimum standards that students must meet in order to be a student in a college or university. Many online degree programs have no specific entry requirements; others have the same requirements as regular programs. This research examined the relationship between BI and the independent variable AR. The admission requirement statements were modified to address IBDE tools:

1. The IBDE University’s AR are the same as those of regular universities.
2. The IBDE University’s AR are easy compared to those of regular universities.
**H8**: The independent variable Admission Requirements (AR) will not be a significant predictor of the BI to adopt and use IBDE.

The researcher first adopted Venkatesh et al. (2003) framework. Then, the literature reviewed and the result of qualitative phase were used to build on it and address factors or element that influence Saudi students’ decisions to accept and use IBDE programs. Figure 6 showed the visual representation of the result of qualitative phase that addressed students' main reasons for preferring an IBDE program to traditional education.
Figure 6: Theoretical research framework.

**Piloting the survey instrument.** First, the researcher piloted the survey instrument by using the think-aloud method and calculating the Cronbach (α) coefficient of internal consistency. Through the think-aloud approach, the researcher sent the survey instrument link via e-mail to three colleagues: a Director of E-Learning at Washington
State Community College; a PhD student in instructional technology at Ohio University; and a PhD candidate in curriculum and instruction at Ohio University. The researcher sought suggestions and comments from these individuals. Based on the responses, some items of the survey instrument were revised, eliminated, and added. Upon completion of the think-aloud method, the survey instrument was ready to be translated from English to Arabic and administered for the pilot study.

Upon completion of the think-aloud approach, the reliability of the survey instrument entitled “Students’ Acceptance and Use of Internet-Based Distance Education in Saudi Electronic University (SEU)” was assessed using Cronbach's alpha coefficient of internal consistency (α). In this procedure, the researcher checked a high acceptability and reliability value of survey items. Research survey consisted of 35 items used to measure the dependent variable, student acceptance and use of IBDE.

To pilot the survey instrument, the researcher sent the survey URL to male and female Arabic-speaking undergraduate and graduate (master and doctoral) students studying different majors at Ohio University, Hocking College, and Marietta College. A group of 35 students participated in piloting the questionnaire during the last week of fall semester of the 2013.

The students in the survey pilot study consisted of 21 (61.8%) undergraduates and 13 (38.2%) graduates; 18 (52.9%) males and 16 (47.1%) females; and 14 (41.2%) government employees, 6 (17.6%) private sector employees, 10 (29.4%) unemployed people, and 4 (11.8%) housewives. Cronbach's alpha coefficient for the survey instrument revealed that the following subscales demonstrated sufficient levels (alpha
.924 or greater) of internal consistency reliability: performance-expectancy, effort expectancy, attitude toward IBDE, social-influence, facilitating-condition, perceived enjoyment, perceived-convenience, admission-requirements, and behavioral intention to accept and use IBDE as new learning method in Saudi universities (see Table 9 & Appendix I).

**Phase III: Quantitative Data Analysis**

The main purpose of quantitative phase was to explore and examine elements that influencing Saudi students’ decisions regarding their acceptance and use of IBDE. In addition, an understanding of the factors that prevent or encourage student participation in IBDE will facilitate decisions regarding the use of IBDE in the Saudi education system. In line with this, this study addressed the following research questions and hypotheses:

**Research question 1.** Are the UTAUT model and the additional variables—perceived enjoyment, perceived convenience, and admission requirements—significant predictors of Saudi Electronic University students’ behavioral intention BI to accept and use IBDE as a new learning method in Saudi universities?

- **H1:** The independent variable Performance Expectancy (PE) will not be a significant predictor of the BI to adopt and use IBDE.
- **H2:** The independent variable Effort Expectancy (EE) will not be a significant predictor of the BI to adopt and use IBDE.
\textbf{H_3:} The independent variable Attitude toward using Internet-based distance education (AT) will not be a significant predictor of the BI to adopt and use IBDE.

\textbf{H_4:} The independent variable Social Influence (SI) will not be a significant predictor of the BI to adopt and use IBDE.

\textbf{H_5:} The independent variables Facilitating Conditions (FC) will not be a significant predictor of the BI to adopt and use IBDE.

\textbf{H_6:} The independent variable Perceived Enjoyment (PJ) will not be a significant predictor of the BI to adopt and use IBDE.

\textbf{H_7:} The independent variable Perceived Convenience (PC) will not be a significant predictor of the BI to adopt and use IBDE.

\textbf{H_8:} The independent variable Admission Requirements (AR) will not be a significant predictor of the BI to adopt and use IBDE.

**Research question 2.** Which factors are more significant predictors of the acceptance and use of IBDE as a new learning method in Saudi universities?

**Research question 3.** Is there a statistically significant difference between male and female Saudi students regarding their BI to accept and use IBDE as a new learning method in Saudi universities?

\textbf{H_9:} There is no statistically significant difference between Saudi students (male and female) regarding their BI to accept and use IBDE as a new learning method in Saudi universities.
**Research question 4.** Is there a statistically significant difference between Saudi students with different occupations regarding their BI to accept and use IBDE as a new learning method in Saudi universities?

\( H_{10}: \text{There is no statistically significant difference between Saudi students with different occupations regarding their BI to accept and use IBDE as a new learning method in Saudi universities.} \)

**Research question 5.** Is there a statistically significant relationship between the students’ ages and their BI to accept and use IBDE as a new learning method in Saudi universities?

\( H_{11}: \text{There is no statistically significant relationship between the students’ ages and their BI to accept and use IBDE as a new learning method in Saudi universities.} \)

This section starts with a frequency and percentage to summarize the sample of Saudi students’ demographic information that used in this study. This was followed by descriptive statistics for the independent variables of the UTAUT model, the additional variables of perceived enjoyment, perceived convenience, and admission requirements, and the dependent variable of behavioral intention to accept and use IBDE as a new learning method in Saudi universities. Lastly, this was followed by the results of multiple linear regression, independent sample t-test, ANOVA, and simple linear regression, which address the research question presented.

**Summary of demographic information.** The demographic information for the Saudi students is summarized in Table 7. The summary is provided in terms of frequencies and percentages. There were total of 231 Saudi students in the sample.
Table 7  
*Frequency and Percentage Breakdown of Demographic Information*

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>88</td>
<td>38.1</td>
</tr>
<tr>
<td>Female</td>
<td>143</td>
<td>61.9</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-22</td>
<td>81</td>
<td>35.1</td>
</tr>
<tr>
<td>23-27</td>
<td>76</td>
<td>32.9</td>
</tr>
<tr>
<td>28-32</td>
<td>22</td>
<td>9.5</td>
</tr>
<tr>
<td>33-37</td>
<td>44</td>
<td>19</td>
</tr>
<tr>
<td>38-over</td>
<td>8</td>
<td>3.5</td>
</tr>
<tr>
<td><strong>Major</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative Sciences.</td>
<td>51</td>
<td>22.1</td>
</tr>
<tr>
<td>Computer and information systems</td>
<td>24</td>
<td>10.4</td>
</tr>
<tr>
<td>Administrative science</td>
<td>34</td>
<td>14.7</td>
</tr>
<tr>
<td>Not decided yet “Preparatory Year”</td>
<td>122</td>
<td>52.8</td>
</tr>
<tr>
<td><strong>Student of</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate</td>
<td>163</td>
<td>70.6</td>
</tr>
<tr>
<td>Graduate</td>
<td>68</td>
<td>29.4</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government employees</td>
<td>72</td>
<td>31.2</td>
</tr>
<tr>
<td>Private sector employee</td>
<td>47</td>
<td>20.3</td>
</tr>
<tr>
<td>Unemployed</td>
<td>97</td>
<td>42</td>
</tr>
<tr>
<td>Housewife</td>
<td>15</td>
<td>6.5</td>
</tr>
</tbody>
</table>
Based on Table 7, more than half (61.9%) of the 231 Saudi students were female, and only 88 (38.1%) of the 231 sampled students were male. Regarding the age of the Saudi students, 81 (35.1%) were between 18 and 22 years old, 76 (32.9%) were between 23 and 27 years old, and 44 (19%) were between 33 to 37 years old. Only eight (3.5%) were 38 years old or over. With respect to majors, 51 (22.1%) of the students were business majors, 34 (14.7%) were administrative science majors, and 24 (10.4%) were computer and information systems majors. The majority (70.6%) of the Saudi students were undergraduate students. Regarding occupation, almost half, or 97 (42%), of the students were unemployed, 72 (31.2%) were government employees, 47 (20.3%) were private sector employees, and 15 (6.5%) were housewives.

**Descriptive statistics of study variables.** The descriptive statistics of the study variables are presented in this section. The descriptive statistics include the central tendency measures of mean and standard deviation. The study variables include the independent variables of the UTAUT model and the additional variables; and the dependent variable of BI to accept and use IBDE as a new learning method in Saudi universities. The scores were obtained using the average scores of the responses of each item’s measure of each variable in the survey. Higher value indicates a higher level of agreement with the statements describing the variable. Table 8 summarizes the descriptive statistics of the study variables.

Investigation of the minimum and maximum values showed that there were no outliers in the dataset for all study variables, since the data were within the minimum and maximum values of 1 for “completely strongly disagree” and 7 for “completely strongly
agree”. The mean scores showed that Saudi students agreed with the statement describing the independent variables of the UTAUT model categories of PE ($M = 5.50$), EE ($M = 5.57$), and AT ($M = 5.55$); with the additional independent variables of PJ ($M = 5.37$), PC ($M = 5.75$), and AR ($M = 5.75$); and with the SEU students’ BI to accept and use IBDE as a new learning method in Saudi universities ($M = 5.26$), since the values were between 5 (somewhat agree) and 6 (agree) on the scale. The UTAUT model, on the other hand, categories of SI ($M = 4.77$) and FC ($M = 4.87$) had lower scores of between 4 (neutral) and 5 (somewhat agree) on the scale.

Table 8

**Descriptive Statistics of Study Variables**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE</td>
<td>231</td>
<td>1.5</td>
<td>7</td>
<td>5.50</td>
<td>1.14</td>
</tr>
<tr>
<td>EE</td>
<td>231</td>
<td>2</td>
<td>7</td>
<td>5.57</td>
<td>0.98</td>
</tr>
<tr>
<td>AT</td>
<td>231</td>
<td>1.8</td>
<td>7</td>
<td>5.55</td>
<td>1.02</td>
</tr>
<tr>
<td>SI</td>
<td>231</td>
<td>1</td>
<td>7</td>
<td>4.77</td>
<td>1.19</td>
</tr>
<tr>
<td>FC</td>
<td>231</td>
<td>1</td>
<td>7</td>
<td>4.87</td>
<td>1.14</td>
</tr>
<tr>
<td>PJ</td>
<td>231</td>
<td>1.67</td>
<td>7</td>
<td>5.37</td>
<td>1.09</td>
</tr>
<tr>
<td>PC</td>
<td>231</td>
<td>2</td>
<td>7</td>
<td>5.75</td>
<td>0.93</td>
</tr>
<tr>
<td>AR</td>
<td>231</td>
<td>1</td>
<td>7</td>
<td>5.75</td>
<td>1.12</td>
</tr>
<tr>
<td>BI</td>
<td>231</td>
<td>1</td>
<td>7</td>
<td>5.26</td>
<td>1.32</td>
</tr>
</tbody>
</table>
Overall, the scores were more or less identical based on the mean comparisons, indicating that Saudi students agree with the statements describing their views on the UTAUT model categories; the additional variables; and the dependent variable of BI to accept and use IBDE as a new learning method in Saudi universities.

**Internal consistency reliability.** To assess the level of internal consistency reliability for the nine continuous variables of this study, Cronbach’s alphas (α) were calculated. A value between .7 and .8 or higher is an acceptable value of Cronbach’s alpha coefficient (Field, 2013). Table 9 summarizes the results of the pilot study and compares them with those of the target population of this study, students in SEU. The reliability coefficients reveal that PE, EE, AT, FC, PC, and BI demonstrate sufficient levels (α = .70 or greater) of internal consistency.
Table 9

*Internal Consistency Reliability for IBDE Scale (Pilot study + whole study)*

<table>
<thead>
<tr>
<th>Scale</th>
<th># of items</th>
<th>Pilot study</th>
<th>Whole study</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE</td>
<td>1,2,3,4</td>
<td>.70</td>
<td>.78</td>
</tr>
<tr>
<td>EE</td>
<td>5,6,7,8</td>
<td>.77</td>
<td>.76</td>
</tr>
<tr>
<td>AT</td>
<td>9,10,11,12,13</td>
<td>.76</td>
<td>.77</td>
</tr>
<tr>
<td>SI</td>
<td>14,15,16,17</td>
<td>.62</td>
<td>.62</td>
</tr>
<tr>
<td>FC</td>
<td>18,19,20,21,22,23</td>
<td>.80</td>
<td>.80</td>
</tr>
<tr>
<td>PJ</td>
<td>24,25,26</td>
<td>.64</td>
<td>.54</td>
</tr>
<tr>
<td>PC</td>
<td>27,28,29,30</td>
<td>.84</td>
<td>.80</td>
</tr>
<tr>
<td>AR</td>
<td>31,32</td>
<td>.84</td>
<td>.51</td>
</tr>
<tr>
<td>BI</td>
<td>33,34,35</td>
<td>.87</td>
<td>.83</td>
</tr>
<tr>
<td>All</td>
<td>35</td>
<td>.92</td>
<td>.92</td>
</tr>
</tbody>
</table>

**The convergent validity.** To assess convergent validity of this study, Composite reliability (CR), Item reliability of the measure, and Average Variance Extracted (AVE) were applied as recommended by Fornell and Larcker (1981). Composite reliability (CR) was applied to check the validity of the scale used in the survey instrument. Regarding the reliability of the scales, the result of the Cronbach’s indicator revealed acceptable levels of internal consistency in all the factors as Appendix J demonstrates.
In the next stage, the factor loading was applied to assess the reliability of the measure. A factor loading less than 0.5 should be eliminated (Fornell & Larcker, 1981). The higher the value of the loading means that the question item contributes more in measuring the variable. Based on the results in Appendix J, only question 25 measuring perceived enjoyment (0.45) have a factor loading less than 0.5. This means that this question item did not have much contribution in measuring perceived enjoyment. It can be recommended that this question item will be removed in future measurements.

Finally, Average variance extracted (AVE) was applied to assess the convergent validity. AVE should be higher than .5 but if the AVE is less than .5 and CR is higher than 0.6, the convergent validity is still adequate as mentioned by Fornell and Larcker (1981). Based on the results in Appendix J, only admission requirement factor have a CR less than 0.6. It can be recommended that this factor will be removed or add more questions in future measurements.

**Checking assumptions of the statistical analysis.** Prior to conducting the statistical analyses of regression, t-test, and ANOVA to address the research questions of the study, preliminary screening of the data was conducted to make sure the data of study is clean and ready to conduct advance procedures of analyzes. The dataset for each study variable should exhibit normal distribution, since this is the required assumption for a parametric test such as regression, t-test, or ANOVA.

There is no problem with missing data in this study because the study used a web-based survey using Qualtrics survey tool that provided by Ohio University. The online survey was designed to require the SEU students to answer all questions on the page
before they could continue to the next page with the next set of questions. For example, if SEU students skipped or missed a question, they received a message about missing the question, which looked like this: “You cannot continue in the questionnaire until you answer the question numbered.” Therefore, all participants who participated in this online survey completed the survey fully.

The skewness and kurtosis statistics of the data of the independent variables and dependent variable were obtained and investigated to test whether the data were normally distributed or not. The results of the normality testing through the skewness and kurtosis of the data for each study variable were summarized in Table 10. Regarding whether the data follow a normal distribution, skewness statistics greater than three indicate strong non-normality, while kurtosis statistics between 10 and 20 also indicate non-normality (Kline, 2005). Looking at Table 9, the skewness statistic values of the study variables range between -1.02 and -0.57, while the kurtosis values range between -0.02 and 2.04.

The skewness and kurtosis statistics of all study variables fall within the criteria enumerated by Kline (2005), indicating that the data for the independent variables of the UTAUT model categories (Venkatesh et al., 2003), along with the additional variables; and the dependent variable of BI to accept and use IBDE as a new learning method in Saudi universities are all normally distributed.
Table 10

*Kurtosis and Skewness Statistics*

<table>
<thead>
<tr>
<th>Factors</th>
<th>Skewness Statistic</th>
<th>Std. Error</th>
<th>Kurtosis Statistic</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE</td>
<td>-1.02</td>
<td>0.16</td>
<td>0.86</td>
<td>0.32</td>
</tr>
<tr>
<td>EE</td>
<td>-1.05</td>
<td>0.16</td>
<td>1.74</td>
<td>0.32</td>
</tr>
<tr>
<td>AT</td>
<td>-0.68</td>
<td>0.16</td>
<td>-0.02</td>
<td>0.32</td>
</tr>
<tr>
<td>SI</td>
<td>-0.94</td>
<td>0.16</td>
<td>0.82</td>
<td>0.32</td>
</tr>
<tr>
<td>FC</td>
<td>-0.91</td>
<td>0.16</td>
<td>0.78</td>
<td>0.32</td>
</tr>
<tr>
<td>PJ</td>
<td>-0.57</td>
<td>0.16</td>
<td>0.25</td>
<td>0.32</td>
</tr>
<tr>
<td>PC</td>
<td>-0.78</td>
<td>0.16</td>
<td>0.93</td>
<td>0.32</td>
</tr>
<tr>
<td>AR</td>
<td>-1.26</td>
<td>0.16</td>
<td>2.04</td>
<td>0.32</td>
</tr>
<tr>
<td>BI</td>
<td>-0.81</td>
<td>0.16</td>
<td>0.10</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Bivariate scatterplots were used to look at any liner relationship between a dependent variable and independent variable. Linearity was also examined by looking at the scatterplots of standardized residuals versus standardized predicted values. The plots in Figures 7 and 8 showed that assumption of linearity was met.
Figure 7: The Bivariate Scatterplots (Dependent: BI)

Figure 8: The Residuals against the Predicted Values (Dependent: BI)
The assumption of homoscedasticity (homogeneity of variance) between the predicted scores, dependent variable, and the errors of prediction was examined by residual scatterplots. A residual scatterplot is a figure that shows one axis for standardized residuals and another axis for standardized predicted residuals. Figure 9 below shows a random displacement of scores that take on a rectangular shape with no clustering or systematic pattern, which means that the assumption of homoscedasticity was met.

![Scatterplot](image)

*Figure 9: The Residuals against the Predicted Values (Dependent: BI).*

The level of the association among the independent (or predictor) variables is known as Multicollinearity. If two or more independent variables are highly correlated, then these variables are collinear and the results show multicollinearity, which increases the standard errors of the coefficients. To diagnose multicollinearity, the Variance...
Inflation Factor (VIF) and tolerance statistic values were examined. A VIF value exceeding 10 indicates a serious problem with multicollinearity (Warner, 2007). Similarly, a tolerance statistic value below 0.1 also indicates a serious problem with multicollinearity (Field, 2012). In the regression model conducted in this study, the tolerance values ranged between 0.251 and 0.799, and the VIF values ranged between 1.252 and 3.987, confirming that the multicollinearity assumption was not a problem for the regression model. Table 11 presents the values of the VIF and the tolerance values.

Table 11  
*Coefficients* 

<table>
<thead>
<tr>
<th>Model</th>
<th>Collinearity Statistics</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tolerance</td>
<td>VIF</td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>.296</td>
<td>3.375</td>
</tr>
<tr>
<td></td>
<td>PE</td>
<td>.461</td>
<td>2.170</td>
</tr>
<tr>
<td></td>
<td>EE</td>
<td>.251</td>
<td>3.987</td>
</tr>
<tr>
<td></td>
<td>AT</td>
<td>.799</td>
<td>1.252</td>
</tr>
<tr>
<td></td>
<td>SI</td>
<td>.635</td>
<td>1.575</td>
</tr>
<tr>
<td></td>
<td>FC</td>
<td>.422</td>
<td>2.368</td>
</tr>
<tr>
<td></td>
<td>PJ</td>
<td>.396</td>
<td>2.525</td>
</tr>
<tr>
<td></td>
<td>PC</td>
<td>.739</td>
<td>1.354</td>
</tr>
</tbody>
</table>

a. Dependent Variable: BI
To detect possible outliers and influential points, standardized residuals, and Cook’s Distance were examined as recommended by Field (2013). Field (2013) mentioned that standardized residuals with an absolute value of 3 or greater (or -3 or less) are unusual. The residuals statistics in Table 12 showed that with regard to the dependent variable, BI to accept and use the IBDE, there was a standardized residual greater than 3 in absolute value (-3.193). By checking the casewise diagnostics table, it was found only case number 187. The researcher ran the regression analysis with and without this case, and the findings were not affected.

Table 12

*Residuals Statistics for the Dependent Variable, BI to use the IBDE*

<table>
<thead>
<tr>
<th></th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicted Value</td>
<td>2.44</td>
<td>6.60</td>
<td>5.26</td>
<td>.73</td>
<td>231</td>
</tr>
<tr>
<td>Residual</td>
<td>-3.61</td>
<td>2.45</td>
<td>.00</td>
<td>1.10</td>
<td>231</td>
</tr>
<tr>
<td>Std. Predicted Value</td>
<td>-3.83</td>
<td>1.83</td>
<td>.00</td>
<td>1.00</td>
<td>231</td>
</tr>
<tr>
<td>Std. Residual</td>
<td>-3.19</td>
<td>2.18</td>
<td>.00</td>
<td>.98</td>
<td>231</td>
</tr>
</tbody>
</table>

a. Dependent Variable: BI

Cook’s distance was used to check if there were any possible influential data points. Cook and Weisberg (cited in Field, 2013) pointed out that values > 1, and thus, are influential points. Table 13 shows that the Cook’s distance values were below 1.
Table 13

*Cook’s Distance Result*

<table>
<thead>
<tr>
<th></th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cook’s Distance</td>
<td>.000</td>
<td>.179</td>
<td>.006</td>
<td>.017</td>
<td>231</td>
</tr>
</tbody>
</table>

a. Dependent Variable: BI

To test for the presence of serial correlation among the residuals, the Durbin-Watson Statistic was used in this study. The Durbin-Watson test (as cited in Field, 2013) points out that a value close to 0 indicates a positive correlation between one observation and another, while a value of 4 indicates a negative correlation. In addition, if the value of the Durbin-Waston test is approximately equal to 2, this indicates there is no serial correlation. The model summary of the regression models showed that the Durbin-Waston test values were 1.695, approximately close to 2, indicating no serial correlation.

Correlation coefficients were also calculated to determine the correlations between independent variables, and behavioral intention (BI). Table 14 shows the correlations among all variables in this study. As can be seen, all the independent and dependent variables were positively and significantly correlated.
Table 14

Correlations between independent and dependent variable

<table>
<thead>
<tr>
<th></th>
<th>PE</th>
<th>EE</th>
<th>AT</th>
<th>SI</th>
<th>FC</th>
<th>PJ</th>
<th>PC</th>
<th>AR</th>
<th>BI</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>.693**</td>
<td>.809**</td>
<td>.219**</td>
<td>.272**</td>
<td>.547**</td>
<td>.560**</td>
<td>.171**</td>
<td>.424**</td>
</tr>
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<td></td>
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<td></td>
<td>1</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed)  N=231
*. Correlation is significant at the 0.05 level (2-tailed)  N=231
Multiple linear regression results for research question one. A multiple linear regression model was generated to determine which among the UTAUT model categories and the additional variables are significant predictors of the dependent variable of Saudi Electronic University students’ BI to accept and use IBDE as a new learning method in Saudi universities. This analysis addresses research question one. A level of significance of 0.05 was used in the hypothesis testing. The independent variables are significant predictors if the probability value of significance (sig) is less than or equal to the level of the significance value.

The results in Table 15 show that the overall multiple regression to predict the BI from PE, EE, AT, SI, and FC, along with the additional variables of PJ, PC, and AR results in $R = .55$ and $R^2 = .31$. That is, when all eight independent variables were used as predictors, about 31% of the variance in behavior intention could be predicted. The adjusted $R^2$ was .28. The overall regression was statistically significant with $F(8, 222) = 12.326$ and $p = .000$ as seen in Table 15. Complete results for this procedure are presented in Table 16.

Table 15

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.555a</td>
<td>.308</td>
<td>.283</td>
<td>1.12104</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), AR, AT, SI, FC, EE, PJ, PC, PE
The results in Table 17 show that none of the UTAUT model categories were significant predictors of SEU students’ BI to accept and use IBDE as a new learning method in Saudi universities, since all the p-values were greater than the level of significance value (0.05). The regression results showed that the additional independent variables of PJ ($t_{(230)} = 2.21, p = 0.03$), PC ($t_{(230)} = 2.25, p = 0.03$), and AR ($t_{(230)} = 2.36, p = 0.02$) were significant predictors of the dependent variable of SEU students’ BI to accept and use IBDE as a new learning method in Saudi universities, since the p-values were less than the level of significance value (0.05). The results showed that only Null Hypothesis #6 (“The independent variable perceived enjoyment (PJ) will not be a significant predictor of the BI to adopt and use IBDE”), Null Hypothesis #7 (“The independent variable perceived convenience (PC) will not be a significant predictor of the BI to adopt and use IBDE”), and Null Hypothesis #8 (“The independent variable admission requirement (AR) will not be a significant predictor of the BI to adopt and use IBDE”) were rejected by the statistical analysis.
Table 17

Multiple Linear Regression Results of UTAUT Model and the Additional Variables

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>0.07</td>
<td>0.58</td>
</tr>
<tr>
<td>PE</td>
<td>0.16</td>
<td>0.12</td>
</tr>
<tr>
<td>EE</td>
<td>0.07</td>
<td>0.11</td>
</tr>
<tr>
<td>AT</td>
<td>0.03</td>
<td>0.15</td>
</tr>
<tr>
<td>SI</td>
<td>0.01</td>
<td>0.07</td>
</tr>
<tr>
<td>FC</td>
<td>-0.03</td>
<td>0.08</td>
</tr>
<tr>
<td>PJ</td>
<td>0.23</td>
<td>0.10</td>
</tr>
<tr>
<td>PC</td>
<td>0.28</td>
<td>0.13</td>
</tr>
<tr>
<td>AR</td>
<td>0.18</td>
<td>0.08</td>
</tr>
</tbody>
</table>

a. Dependent Variable: BI
b. Predictors: (Constant), AR, AT, SI, FC, EE, PJ, PC, PE

The standardized beta coefficient \( \beta \) was analyzed to determine the independent contribution and the relative importance of the significant predictor variables of PJ, PC, and AR in predicting the dependent variable BI. The standardized coefficient values (\( \beta \)) of PJ, PC, and AR were 0.19, 0.20, and 0.15, respectively. This suggested that each of this has a positive contribution to the model in predicting the dependent variable, such that the SEU students’ BI to accept and use IBDE as a new learning method in Saudi universities increased when the Saudi students’ PJ, PC, and AR also increased. In other
words, each time the score values of PJ, PC, and AR increase by one standard deviation, it is predicted that the students’ BI to enroll in IBDE will increase by 0.23, 0.28, and 0.18 standard deviations, respectively. The regression equation is as follows:

\[ \hat{Y}_{BI} = 0.07 + 0.23 \times PJ + 0.28 \times PC + 0.18 \times AR \]

\( \hat{Y}_{BI} \) = predicted value for the dependent variable, BI to accept and use IBDE

PJ = Perceived Enjoyment Score.

PC = Perceived Convenience Score.

AR = Admission Requirements Score.

Multiple regression results for research question two. A Multiple regression model was generated to determine which among the UTAUT model, along with the additional variables, were more significant predictors of the dependent variable of SEU students’ BI to accept and use IBDE as a new learning method in Saudi universities. The independent variables were entered into the forward regression model. This analysis addresses research question two. A level of significance of 0.05 was used in the hypothesis testing. Tables 18 and 19 summarize the results of the regression model.

The results in Tables 18 show that the overall multiple regression to predict the BI from PE and the additional variables of PJ, PC, and AR were statistically significant with \( F(4, 226) = 24.845 \) and \( p = .000 \) and that they accounted for approximately 30% of the variance of BI (\( R^2 = .305 \), Adjusted \( R^2 = .295 \)).
Table 18

*Multiple regression to predict (BI) from UTAUT Model and the additional variables*

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>$R^2$</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.489$^a$</td>
<td>.239</td>
<td>.235</td>
<td>1.15734</td>
</tr>
<tr>
<td>2</td>
<td>.521$^b$</td>
<td>.272</td>
<td>.265</td>
<td>1.13445</td>
</tr>
<tr>
<td>3</td>
<td>.535$^c$</td>
<td>.287</td>
<td>.277</td>
<td>1.12531</td>
</tr>
<tr>
<td>4</td>
<td>.553$^d$</td>
<td>.305</td>
<td>.293</td>
<td>1.11279</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), PC
b. Predictors: (Constant), PC, PE
c. Predictors: (Constant), PC, PE, PJ
d. Predictors: (Constant), PC, PE, PJ, AR

The results in Tables 19 show that in Step I, PC factor was entered, producing $R^2 = .235$, $F (1, 229) = 71.816$, and $p < .001$. In Step II, PE factor was entered, producing $R^2 = .265$, $F (2, 228) = 42.539$, and $p < .001$. In Step III, PJ factor was entered, producing $R^2 = .277$, $F (3, 227) = 30.393$, and $p < .001$. In Step IV, AR was entered, producing $R^2 = .29$, $F (4, 226) = 24.845$, and $p < .001$. 
Table 19

ANOVA Results among BI to accept and use the IBDE, PE, PJ, PC, and AR

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>96.193</td>
<td>1</td>
<td>96.193</td>
<td>71.816</td>
<td>.000&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Residual</td>
<td>306.729</td>
<td>229</td>
<td>1.339</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>402.922</td>
<td>230</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regression</td>
<td>109.492</td>
<td>2</td>
<td>54.746</td>
<td>42.539</td>
<td>.000&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Residual</td>
<td>293.429</td>
<td>228</td>
<td>1.287</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>402.922</td>
<td>230</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Regression</td>
<td>115.464</td>
<td>3</td>
<td>38.488</td>
<td>30.393</td>
<td>.000&lt;sup&gt;c&lt;/sup&gt;</td>
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<tr>
<td>Residual</td>
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<td>227</td>
<td>1.266</td>
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</tr>
<tr>
<td>Total</td>
<td>402.922</td>
<td>230</td>
<td></td>
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<tr>
<td>Regression</td>
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<td>4</td>
<td>30.766</td>
<td>24.845</td>
<td>.000&lt;sup&gt;d&lt;/sup&gt;</td>
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<tr>
<td>Residual</td>
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<td>226</td>
<td>1.238</td>
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<tr>
<td>Total</td>
<td>402.922</td>
<td>230</td>
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</table>

a. Predictors: (Constant), PC  
b. Predictors: (Constant), PC, PE  
c. Predictors: (Constant), PC, PE, PJ  
d. Predictors: (Constant), PC, PE, PJ, AR

The results in Table 20 shows that the independent variable of perceived convenience \( t (230) = 2.43, p = 0.02 \) was the best predictor of the dependent variable of acceptance and use of IBDE as a new learning method for the included Saudi universities.
Table 20

Multiple Regression Results of UTAUT Model and the Additional Variables

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig</th>
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<tbody>
<tr>
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<td>Std. Error</td>
<td>Beta</td>
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<tr>
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<td>1.28</td>
<td>0.48</td>
<td>2.70</td>
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<tr>
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<td>0.75</td>
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<td>2.17</td>
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<tr>
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<td>0.18</td>
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<tr>
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<td>0.19</td>
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<tr>
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<td>AR</td>
<td>0.18</td>
<td>0.15</td>
<td>2.48</td>
</tr>
</tbody>
</table>

a. Dependent Variable: BI
b. Predictors for model 1: (Constant), PC
c. Predictors for model 2: (Constant), PC, PE
d. Predictors for model 3: (Constant), PC, PE, PJ
e. Predictors for model 4: (Constant), PC, PE, PJ, AR
This was followed by the independent variables of performance expectancy ($t(230) = 2.57, p = 0.01$), perceived enjoyment ($t(230) = 2.50, p = 0.01$), and admission requirements ($t(230) = 2.48, p = 0.01$), which were also significant predictors of the dependent variable. These were the only independent variables entered in the stepwise regression model.

Upon investigation of the standardized beta coefficient, all the significant predictors of PC ($\beta = 0.20$), PE ($\beta = 0.18$), PJ ($\beta = 0.19$), and AR ($\beta = 0.15$) had positive influences on the dependent variable of BI to accept and use the IBDE. This means that the SEU students’ behavioral intention to accept and use IBDE as a new learning method in Saudi universities increases as each of the independent variables of PC, PE, PJ, and AR increases. The regression equation is as follows:

$$\hat{Y}_{BI} = 0.18 + 0.29 X_{PC} + 0.21 X_{PE} + 0.23 X_{PJ} + 0.18 X_{AR}$$

$\hat{Y}_{BI}$ = predicted value for the dependent variable, BI to accept and use IBDE

PC = Perceived Convenience Score.

PE = Performance Expectancy Score.

PJ = Perceived Enjoyment Score.

AR = Admission Requirements Score.

**Independent sample t-test result for research question three.** The independent sample $t$-tests were conducted to determine the significance of the difference in the BI to accept and use IBDE as a new learning method in Saudi universities between male and female Saudi students. The mean comparison was conducted to determine the degree of difference. Table 21 shows the results of the t-test.
Table 21

*Descriptive Statistics of Behavioral Intention to Use IBDE by Gender*

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>88</td>
<td>5.80</td>
<td>0.97</td>
<td>0.10</td>
</tr>
<tr>
<td>Female</td>
<td>143</td>
<td>4.93</td>
<td>1.40</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Mean comparisons were conducted to determine the students’ BI between male and female students. The mean comparison in Table 21 shows that the behavioral intention to accept and use IBDE as a new learning method in Saudi universities was higher in male students ($M = 5.80$) than in female students ($M = 4.93$). The mean difference was 0.87 higher for the male Saudi students.

The t-test results of the “equal variances not assumed” row were used because the Levene’s test, shown in Table 22, showed that the variances ($F (230) = 19.65, p = 0.00$) were not equal, since the $p$-values were less than the level of significance value (0.05). The analysis of the independent sample t-test revealed there was a statistically significant difference between the behavioral intention to accept and use IBDE as a new learning method in Saudi universities for male and female Saudi students ($t (230) = 5.59; p = 0.00$). The results of the t-test showed that Null Hypothesis #9 (“There is no statistically significant difference between male and female Saudi students regarding their BI to accept and use IBDE as a new learning method in Saudi universities”) was rejected.
Table 22

*T-test Results of Difference of by Gender of Saudi Students*

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
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<tr>
<td></td>
<td><em>F</em></td>
<td><em>Sig</em></td>
<td><em>t</em></td>
</tr>
<tr>
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<td>.00</td>
<td>5.14</td>
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<td>.00</td>
</tr>
<tr>
<td>assumed</td>
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</tbody>
</table>

**ANOVA results for research question four.** A one-way ANOVA was used to determine whether the behavioral intention to accept and use IBDE as a new learning method in Saudi universities was significantly different for Saudi students with different occupations. ANOVA was used to show the contrast and test the mean difference of the dependent variable on the four categorical groups of occupation. A level of significance of 0.05 was used in the statistical testing.

First, the mean comparison was conducted to determine which occupation type among the Saudi students had the highest behavioral intention to accept and use IBDE as a new learning method in Saudi universities. The means are summarized in Table 23. The
mean comparison showed that students with occupation of housewife ($M = 6.09$) had the highest behavioral intention to accept and use IBDE as a new learning method in Saudi universities. The next highest behavioral intentions were found in students with occupations in the private sector ($M = 5.67$) and the government ($M = 5.36$). Students that were unemployed ($M = 4.86$) had the lowest BI to accept and use IBDE as a new learning method in Saudi universities.

Table 23

Descriptive Statistics of BI to Use the IBDE by Occupation Type

<table>
<thead>
<tr>
<th>Occupation Type</th>
<th>N</th>
<th>$M$</th>
<th>$SD$</th>
<th>$SE$</th>
<th>Mean</th>
<th>95% Confidence Interval for</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>72</td>
<td>5.36</td>
<td>1.43</td>
<td>0.17</td>
<td>5.02</td>
<td>5.69</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Private sector</td>
<td>47</td>
<td>5.67</td>
<td>0.86</td>
<td>0.12</td>
<td>5.42</td>
<td>5.92</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Unemployed</td>
<td>97</td>
<td>4.86</td>
<td>1.39</td>
<td>0.14</td>
<td>4.58</td>
<td>5.14</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Housewife</td>
<td>15</td>
<td>6.09</td>
<td>0.62</td>
<td>0.16</td>
<td>5.74</td>
<td>6.43</td>
<td>4.67</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>231</td>
<td>5.26</td>
<td>1.32</td>
<td>0.09</td>
<td>5.09</td>
<td>5.43</td>
<td>1</td>
<td>7</td>
</tr>
</tbody>
</table>

The ANOVA results to determine the differences in BI by occupation of the Saudi students are summarized in Table 24.
As shown in Table 24, the analysis revealed a significant difference in students’ BI to accept and use IBDE as a new learning method in Saudi universities based on their occupations ($F(3) = 7.17; p = 0.00$), since the $p$-value was less than the level of significance value of 0.05. Therefore, Null Hypothesis #11 (“There is no statistically significant difference between Saudi students’ occupations and their BI to accept and use IBDE as a new learning method in Saudi universities”) was rejected.

Table 24

ANOVA Results between Occupation Type and BI to Use the IBDE of Saudi Students

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>34.879</td>
<td>3</td>
<td>11.63</td>
<td>7.17</td>
<td>0.00</td>
</tr>
<tr>
<td>Within Groups</td>
<td>368.042</td>
<td>227</td>
<td>1.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>402.922</td>
<td>230</td>
<td>1.62</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 25

*Tukey’s Post hoc test of BI to Use the IBDE per Occupation Type of Saudi Students*

<table>
<thead>
<tr>
<th>(I) Occupation</th>
<th>(J) Occupation</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>Private sector</td>
<td>-0.32</td>
<td>0.24</td>
<td>0.55</td>
<td>-0.94 - 0.30</td>
</tr>
<tr>
<td></td>
<td>Unemployed</td>
<td>0.50</td>
<td>0.20</td>
<td>0.06</td>
<td>-0.01 - 1.01</td>
</tr>
<tr>
<td></td>
<td>Housewife</td>
<td>-0.73</td>
<td>0.36</td>
<td>0.18</td>
<td>-1.67 - 0.20</td>
</tr>
<tr>
<td>Private sector</td>
<td>Government</td>
<td>0.32</td>
<td>0.24</td>
<td>0.55</td>
<td>-0.30 - 0.94</td>
</tr>
<tr>
<td></td>
<td>Unemployed</td>
<td>0.82*</td>
<td>0.23</td>
<td>0.00</td>
<td>0.23 - 1.40</td>
</tr>
<tr>
<td></td>
<td>Housewife</td>
<td>-0.42</td>
<td>0.38</td>
<td>0.69</td>
<td>-1.39 - 0.56</td>
</tr>
<tr>
<td>Unemployed</td>
<td>Government</td>
<td>-0.50</td>
<td>0.20</td>
<td>0.06</td>
<td>-1.01 - 0.01</td>
</tr>
<tr>
<td></td>
<td>Private sector</td>
<td>-0.82*</td>
<td>0.23</td>
<td>0.00</td>
<td>-1.40 - 0.23</td>
</tr>
<tr>
<td></td>
<td>Housewife</td>
<td>-1.23*</td>
<td>0.35</td>
<td>0.00</td>
<td>-2.15 - 0.32</td>
</tr>
<tr>
<td>Housewife</td>
<td>Government</td>
<td>0.73</td>
<td>0.36</td>
<td>0.18</td>
<td>-0.20 - 1.67</td>
</tr>
<tr>
<td></td>
<td>Private sector</td>
<td>0.42</td>
<td>0.38</td>
<td>0.69</td>
<td>-0.56 - 1.39</td>
</tr>
<tr>
<td></td>
<td>Unemployed</td>
<td>1.23*</td>
<td>0.35</td>
<td>0.00</td>
<td>0.32 - 2.15</td>
</tr>
</tbody>
</table>

* The mean difference is significant at the 0.05 level.

Dependent Variable: BI to accept and use the IBDE

In Table 25, a post-hoc test was conducted to further investigate the difference between Saudi students with different occupations regarding their (BI) to accept and use
IBDE as a new learning method in Saudi universities. As shown in the Table 25, there was a significant difference in students’ BI to accept and use IBDE between the Saudi students employed as private sector employees and those who were unemployed ($M_{\text{diff}} = -0.82; \ p = 0.00$) and between those who were unemployed and those who were housewives ($M_{\text{diff}} = -1.23; \ p = 0.00$). Based on the mean comparison, Saudi students who worked in the private sector had higher BI to accept and use IBDE than those who were unemployed, while Saudi students who worked as housewives had higher BI to accept and use IBDE than those who were unemployed.

**Simple linear regression results for research question five.** A simple linear regression model was generated to determine whether the Saudi students’ ages significantly influenced the dependent variable of SEU students’ BI to accept and use IBDE as a new learning method in Saudi universities. This analysis addresses research question five. A level of significance of 0.05 was used in the hypothesis testing.

The results in Table 26 and 27 show that the overall multiple regression to predict the BI from ages produced $R = .35$ and $R^2 = .13$. In other words, when independent variables were used as predictors, about 13% of the variance in BI could be predicted. The adjusted $R^2$ was .12. The overall regression was statistically significant, with $F(1, 229) = 32.910$ and $p = .000$. Complete results for the multiple regression analysis are presented in Table 28.
Table 26

**Simple Linear Regression Model**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R^2</th>
<th>Adjusted R^2</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.354a</td>
<td>.126</td>
<td>.122</td>
<td>1.24032</td>
</tr>
</tbody>
</table>

Table 27

**ANOVA Results between Age and BI to Use the IBDE of Saudi Students**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>50.628</td>
<td>1</td>
<td>50.628</td>
<td>32.910</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>352.293</td>
<td>229</td>
<td>1.538</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>402.922</td>
<td>230</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Age  
b. Dependent Variable: BI to accept and use the IBDE

The results in Table 28 show that age (t (230) = 5.74, p = 0.00) was a significant predictor of the dependent variable of Saudi Electronic University students’ BI to accept and use IBDE as a new learning method in Saudi universities, since the p-value was less than the level of significance value of 0.05. The results showed that only Null Hypothesis #11 (“There is no statistically significant relationship between the students’ ages and their behavioral intention (BI) to accept and use IBDE as a new learning method in Saudi universities”) was rejected by the statistical analysis.
Table 28

*Regression Results of Age as Predictor of BI to Accept and Use the IBDE*

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>4.40</td>
<td>0.17</td>
<td></td>
<td>25.72</td>
</tr>
<tr>
<td>1</td>
<td>Age</td>
<td>0.39</td>
<td>0.07</td>
<td>0.35</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Behavioral intention to use the system
b. Predictors: (Constant), Age

The standardized beta coefficient was analyzed to determine the independent contribution and the relative importance of the significant predictor variable of age in predicting the dependent variable. The standardized coefficient value ($\beta$) of age was 0.35. This suggested that age had a positive contribution to the model in predicting the dependent variable, such that the SEU students’ BI to accept and use IBDE as a new learning method in Saudi universities increases when the Saudi students’ ages increase. This suggests that each time the score value of the age increases by one standard deviation, it is predicted that the behavioral intention to use the system will increase by 0.35 standard deviations. The regression equation is as follows:

$$\hat{Y}_{BI} = 4.40 + 0.35 \times \text{Age}$$

$\hat{Y}_{BI}$ = predicted value for the dependent variable, BI to accept and use IBDE

$\text{Age}$ = Age of participants.
Chapter Summary

This chapter presented the results of the study’s qualitative and quantitative data analyses. The important findings of these analyses are summarized as follows:

Qualitative phase. The first phase discussed the qualitative portion of the study. Through the seven collected interviews with Saudi Arabian students, the researcher rationally examined and analyzed these students' main reasons for preferring IBDE over traditional education. This phase also presented the sample description of the participants, the research design utilized, and the general presentation of findings, including tables, numbers, and verbatim texts to better explain the experiences and perceptions of the IBDE participants. The researcher was then able to develop fifteen themes, which can be understood as the factors that students consider when deciding to use or join IDE in Saudi Electronic University, all of which are central in addressing the main qualitative research question formed earlier.

Developing and piloting the survey instrument phase. This phase presented the process of developing the survey instrument, the results and analysis of the pilot study, and the procedure used to edit the UTAUT model. The results of pilot study were reported in this phase.

Quantitative phase. The objective of this phase was to explore and examine factors influencing Saudi students’ decisions regarding their acceptance and use of IBDE. This phase provided the results of the statistical analysis to address the research objective of the quantitative study. For the first research question, the results of the multiple linear regression showed that the independent variables of perceived enjoyment, perceived
convenience, and admission requirements were significant predictors of the dependent variable of Saudi Electronic University students’ behavioral intention to accept and use IBDE as a new learning method in Saudi universities. These variables’ influences were all positive with respect to the dependent variable. For the second research question, the results of the stepwise regression showed that the best predictors of the dependent variable of Saudi Electronic University students’ behavioral intention to accept and use IBDE as a new learning method in Saudi universities were, in the following order, perceived convenience, performance expectancy, perceived enjoyment, and admission requirements. For the third research question, the results of the t-test showed that there was a statistically significant difference between male and female Saudi students regarding their behavioral intention to accept and use IBDE as a new learning method in Saudi universities. Male Saudi students had higher behavioral intentions than female students. For the fourth research question, the result of the ANOVA showed that there was a statistically significant difference between Saudi students with different occupations regarding their behavioral intention to accept and use IBDE as a new learning method in Saudi universities. For the fifth research question, the results of the simple linear regression showed that there was a statistically significant positive relationship between the students’ ages and their behavioral intention to accept and use IBDE as a new learning method in Saudi universities. Higher ages among Saudi students resulted in higher behavioral intentions. Chapter 5 will further interpret the results of the study with the conclusion.
Chapter 5: Discussion, Meta-Inferences, Conclusion, and Recommendation

Introduction

This chapter provides an overview of the study’s findings and presents a discussion, conclusions, and recommendations based on the exploration of the data and literature review, interviews, and survey instruments. The chapter is divided into sections. The first section presents an overview of the study and its research questions. The second section presents the discussion and an interpretation of the results gathered from both the qualitative and quantitative data collected during this study, as well as from the literature review. The last section presents the study’s conclusions and recommendations for further research.

Overview of the Study

The objective of this dissertation was to explore and examine the factors influencing Saudi students’ decisions to accept and use IBDE, as well as to determine which factors have the most impact on the adoption of this technology as a new learning method in Saudi universities.

The UTAUT model by Venkatesh et al. (2003) was selected as the theoretical framework for this dissertation’s research because it can explain an individual’s adoption and use of existing technology (Venkatesh et al., 2003). The UTAUT model builds on eight theories and models from social psychology and sociology (see appendix L), so it is very comprehensive and measures users’ BI in different ways. This framework can explain 70% of the dependent variable variance of BI compared to the variances of the other eight theoretical models (Venkatesh et al., 2003).
To achieve the main purpose of this study, a sequential exploratory mixed method was utilized for data collection and analysis. Qualitative data were collected through interviews with seven students, and quantitative data were collected using an online survey instrument, which was completed by 231 online students at Saudi Electronic University (SEU).

This exploratory, sequential, mixed-method (ESMM) study attempted to answer the following main dissertation questions:

1. What are the main factors influencing Saudi students’ decisions to enroll in IBDE as a new learning method in Saudi universities?
2. Which factors are the most significant predictors of the acceptance and use of IBDE as a new learning method in Saudi universities?

Based on the results obtained from the above questions, the following questions were also explored and expanded:

1. Are the UTAUT Model and the additional variables, such as perceived enjoyment, perceived convenience and an admission requirement, significant predictors of SEU students’ behavioral intention to accept and use IBDE as a new learning method in Saudi universities?
2. Is there a statistically significant difference between male and female Saudi students on the behavioral intention (BI) to accept and use IBDE as a new learning method in Saudi universities?
3. Is there a statistically significant difference between Saudi students’ occupation and their BI to accept and use IBDE as a new learning method in Saudi universities?

4. Is there a statistically significant relationship between the students’ age and their BI to accept and use IBDE as a new learning method in Saudi universities?

**Findings and Discussion.**

The next few sections address both the qualitative and the quantitative portions of the mixed-method research approach that was taken. The research questions asked, the variables, and the findings are addressed in detail.

**Qualitative findings and discussion.** Through the interviews with the seven Saudi Arabian students, the researcher rationally examined and analyzed students' main reasons for preferring IBDE to traditional education. Phase I in Chapter 4 presented a sample description of the participants and outlined the research design utilized. It also presented general findings, including tables, numbers, and verbatim texts, to better explain the experiences and perceptions of the participants with IBDE. The researcher then developed fifteen main themes, which can be considered as the factors that students consider when deciding to use or join IBDE in online universities in Saudi Arabia. These themes are all central in addressing the main qualitative research question:

What factors influence Saudi students’ decisions to enroll in IBDE as a new learning method in Saudi universities?
The results found in Phase I embody the students' various views on IBDE, as well as their main reasons for joining an IBDE program instead of a regular university. The themes or factors that received the highest responses—or those that can be considered the top reasons for the students’ choices—were: (1) convenience and practicality, (2) accreditations and recognized certificates, (3) attitude toward IBDE, (4) usefulness, (5) ease of learning and ease of use, (6) encouragement, (7) admission requirements, (8) technology infrastructure, (9) special courses, (10) training, (11) love of education and self-fulfillment, (12) enjoyment, (13) technical support, (14) incentives, and (15) high grades.

The researcher also examined the themes and comments provided by the participants. This phase found that most of the themes fit well within the framework of the UTAUT determinants of perceived convenience, admission requirements, and perceived enjoyment.

The results show that perceived convenience was the main theme of the qualitative study. The interview analysis suggested that 98% of participants perceive online learning to be a convenient alternative to traditional classroom learning. All students participating in the interviews stated that they enrolled in an IBDE program because it was much more convenient and practical than a regular university. Since the programs are online, students can study, work, and fulfill other personal and career-related responsibilities at the same time. Thus, perceived convenience was the major factor influencing Saudi students' decisions to enroll in IBDE programs as a new learning
method in Saudi universities. This finding confirmed past research results (Al-Arfaj, 2001; Armstrong, 2011; Chang, Yan & Tseng, 2012; Nasri, 2011; Park & Choi, 2009).

The themes of accreditations and recognized certificates, technology infrastructure, training, special courses, incentives, and technical support were mapped onto the UTAUT construct of facilitating conditions. Interview comments indicated that facilitating conditions have a great influence on Saudi students’ BI to enrolling in IBDE as a new learning method. The data showed that the interviewees were aware of the proper accreditation and recognized certificates for their online university. The participants enrolled in an IBDE program because they were encouraged by the online university’s reputation, which included recognized certificates and degrees with values equal to those of regular universities. This was the other main reason for which students accepted and used IBDE as a new learning method in Saudi Arabia.

In addition, interview data showed that the participants enrolled in an IBDE program because the online university offered social incentives, technical infrastructure to support IBDE, training to support IBDE, several new technologies to access learning materials, and special courses that catered to students’ needs and preferences. Previous studies found that facilitating conditions were a significant factor in the adoption of new information and communication technologies (Curtis et al., 2010; Marchewka et al., 2007; Pardamean & Susanto, 2012; Umarni-Khan & Iyer, 2009; Venkatesh et al., 2003).

The literature suggests that students’ attitudes toward IBDE are a positive predictor of their BI to enroll in online classes (Feng-Kuang et al., 2009; Venkatesh et al., 2003). Themes such as effectiveness and learning outcomes were mapped onto the
UTAUT construct of the students’ attitudes toward IBDE. The majority of the participants in the interviews stated that the effectiveness of online learning and its learning outcomes are key factors in IBDE’s integration into education. If online learning does not result in better learning outcomes for students, then the value of online learning will decrease dramatically. These results are consistent with those of previous research in this area (Al-Arfaj, 2001; Alenezi et al., 2010; Al-Harbi, 2011; Göğüş, Nistor & Lerche, 2012; Teo, 2011).

The theme of usefulness was mapped onto the UTAUT construct of performance expectancy (PE). The interview analysis for this study suggested that participants perceived IBDE to be useful in their academic endeavors. In the qualitative analysis for this study, the majority of the respondents stated that the usefulness of the IBDE program positively influenced their decision to enroll in an IBDE program. The literature confirmed that performance expectancy was a positive and direct predictor of students’ BI to participate in Internet learning (Al-Arfaj, 2001; Al-Harbi, 2011; Sumak, Polancic & Hericko, 2010; Umrani-Khan & Iyer, 2009). For example, Al-Harbi (2011) confirmed that PE has a strong and direct influence on Saudi students’ BI to accept and enroll in online classes.

The themes of ease of learning and ease of use of IBDE were mapped onto the UTAUT construct of effort expectancy. The interview analysis suggested that students believed that IBDE was relatively accessible for learning. The findings from the interviews showed that students found learning through IBDE easy and that this experience positively influenced their decisions to enroll in IBDE programs. Analysis of
the responses found that not needing prior experience with or knowledge of the Internet was one of the reasons that students ultimately decided to enroll in an IBDE program. The literature and this study therefore suggest that IBDE programs being perceived as easy to use significantly affects students’ BI to accept and use IBDE (Al-Arfaj, 2001; Al-Harbi, 2011).

The interview analysis for this study showed that social influence affects Saudi students’ BI to accept and use IBDE. The theme of others' positive experiences and feedback regarding IBDE programs was mapped onto the UTAUT construct of social influence. The findings indicated that students joined the IBDE program because their families and friends, who also had positive experiences with IBDE programs, encouraged them. This theme received responses from six of the seven overall sample participants. This result is in agreement with the literature and studies conducted to address the impact of social influence on the BI to accept and use IBDE, such as the studies by Al-Harbi (2011), Al Ghamdi and Dasgupta (2012), and Aleshidi and Ramdane (2012).

These studies also suggested that perceived enjoyment is a positive predictor of students’ BI to enroll in an IBDE program (Aleshidi & Ramdane, 2012). The theme of enjoyment was mapped onto the qualitative construct of perceived enjoyment. Four participants identified a perceived enjoyment component in their use of IBDE. Comments from participants also suggested that the use of the Internet and the flexibility to access information anytime and anywhere contributed to their enjoyment. In agreement with this dissertation’s findings, Donaldson (2011) found that perceived playfulness or enjoyment significantly affects students’ BI to engage in mobile learning.
The interview analysis for this study also implied that online university admission requirements influence Saudi students’ intentions to accept and use IBDE. The themes of incomplete admission requirements and of not being accepted to traditional universities were mapped onto the qualitative construct of admission requirements. These themes received responses from five of the seven overall participants. Comments from participants showed that there is a difference in admission requirements between online universities and traditional universities. Comments from participants also suggested that they identified other learning options, but that the ease of being accepted to an online university led them to accept and use IBDE.

**Quantitative phase findings and discussion.** The primary objective of this phase was to explore and examine the factors influencing SEU students’ decisions to accept and use IBDE. Understanding the factors that prevent or encourage student participation in IBDE will facilitate decisions regarding the use of IBDE in the Saudi education system. This section discusses the survey results based on the examining of the hypotheses.

**Quantitative research question 1.** Which factors are the most significant predictors of the acceptance and use of IBDE as a new learning method in Saudi universities?

A multiple linear regression model was generated to determine which of the UTAUT model variables and the additional variables (i.e., perceived enjoyment, perceived convenience, and admission requirements) were the most significant predictors of the dependent variable of SEU students’ BI to accept and use IBDE as a new learning method in Saudi universities.
The results indicated that all the significant predictors—including perceived convenience PC ($\beta = 0.20$), performance expectancy PE ($\beta = 0.18$), perceived enjoyment PJ ($\beta = 0.19$), and admission requirements AR ($\beta = 0.15$)—had a positive influence on the dependent variable of students’ BI to use an IBDE system. This means that the SEU students’ BI to accept and use IBDE as a new learning method in Saudi universities increases if any of the independent variables (i.e., perceived convenience, performance expectancy, perceived enjoyment, or admission requirements) increases.

Perceived convenience PC is defined as “a level of convenience toward time, place and execution that one feels during the participation in new systems” (Chang, Yan & Tseng, 2012, p. 812). The literature suggests that perceived convenience significantly affects users’ BI to accept and use IBDE (Al-Arfaj, 2001; Chang, Yan & Tseng, 2012; Nasri, 2011). Nasir (2011) reported that PC to be the strongest factor of users’ BI to accept and use the Internet.

The results obtained from the present study are in keeping with these findings; they indicate that perceived convenience is the strongest positive predictor of acceptance ($\beta =0.29$), but at a lower level of significance than that found in the study conducted by Nasir (2011). The findings for PC were anticipated, and its significance as a predictor of students’ BI to accept and use the Internet is supported by prior research from Al-Arfaj (2001); Chang, Yan and Tseng (2012); and Nasri (2011). The results from both this study and previous studies suggest that PC is the strongest predictor for students’ BI to accept and use IBDE as a new learning method in Saudi universities. Saudi Arabia’s Ministry of Higher Education, along with its online universities, should find ways to increase the
flexibility of online courses. For example, universities should develop online courses that allow students to deliver content and communicate with peers or instructors at convenient times and places.

Performance expectancy (PE) is defined as “the degree to which the individual expects that using the new technology will help him or her attain gains in job performance” (Venkatesh et al., 2003, p. 447). PE is a multi-dimensional concept with five constructs: perceived usefulness, extrinsic motivation, job fit, relative advantage, and outcome expectancy (Venkatesh et al., 2003). Prior literature have found that PE is a direct predictor of users’ BI to adopt new ICT (Curtis et al., 2010; Marchewka et al., 2007; Pardamean & Susanto, 2012; Umranı-Khan & Iyer, 2009; Venkatesh et al., 2003).

Both this study and previous studies have found that PE is a significant positive predictor of students’ BI to use IBDE ($\beta=0.21$). The findings for performance expectancy were anticipated and supported by UTAUT and the IBDE literature PE significantly encourage students’ BI to accept and use IBDE as a new learning method (Dwivedi et al., 2011; Jairak et al., 2009; Pardamean & Susanto, 2012; Sedana & Wijaya, 2010).

Perceived enjoyment (PJ) is defined as “The extent to which the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use” (Venkatesh, 2000, pg. 351). This study defines PJ as the level of which a user believes that the adoption of IBDE is interesting and enjoyable. Research has found that PJ is a positive predictor of the use and enroll of IBDE (Danaldson, 2011; Iqbal & Qureshi, 2012). Alenezi, Abdul Karim, and Veloo’s (2010) findings suggested that PJ could predict students’ BI to use IBDE.
Both this dissertation and the work of Alenezi et al. (2010) have found that PJ is a significant positive predictor ($\beta = 0.23$) of students’ BI to accept and use IBDE. This finding is anticipated and supported by the literature; however, the level of significance in this study is not as high as that found in the research by Alenezi et al. (2010). This study suggest that the SEU students’ BI to accept and use IBDE as a new learning method in Saudi universities is higher if the independent variable of perceived enjoyment increases.

Finally, admission requirements (AR) define the minimum standards that students must meet in order to be admitted to a college or university. Many online degree programs have no specific entry requirements, while others have the same requirements as regular university programs. The objective of this dissertation was to identify the predictors of the dependent variable of SEU students’ BI to accept and use IBDE. Thus, the items were analyzed to determine the level of significance of admission requirements as a predictor.

The results of this dissertation indicate that the admission requirements factor is a significant positive predictor ($\beta = 0.18$) of students’ BI to accept and use IBDE. This finding suggests that the SEU students’ BI to accept and use IBDE as a new learning method in Saudi universities is higher if the independent variable of admission requirements increases. When comparing this study result to those of previous studies, the researcher found that there were no similar studies showing university admission requirements as a predictor of students’ acceptance and use of IBDE. However, there exist studies focusing on students’ opinions and attitudes about university admission policies, as well as on how these attitudes link to development plans and meet the needs
of the community, while maintaining the quality of output in traditional universities (e.g., Khalifa, 2007).

**Quantitative research question 2.** Are the UTAUT model and the additional variables (i.e., perceived enjoyment, perceived convenience, and admission requirements) significant predictors of SEU students’ BI to accept and use IBDE as a new learning method in Saudi universities?

A multiple linear regression model was generated to determine which of the UTAUT model categories and the additional variables of perceived enjoyment, perceived convenience, and admission requirements were significant predictors of the dependent variable of SEU students’ BI to accept and use IBDE.

The results of this study indicated that, together, the UTAUT predictors and the additional predictor variables (i.e., perceived enjoyment, perceived convenience, and admission requirements) accounted for 31% of the variance in students’ BI to accept and use IBDE as a new learning method in Saudi universities. This is less than the variance percentage found in the original Venkatesh et al. (2003) UTAUT model (70%).

This study result supported rejecting the hypotheses for the predictor variables (i.e., perceived enjoyment, perceived convenience, and admission requirements), indicating that the SEU students’ BI to accept and use IBDE increases, or becomes more positive, when the Saudi students’ perceived enjoyment, perceived convenience, or admission requirements also increase. The UTAUT model categories of performance expectancy, effort expectancy, attitude toward using IBDE technology, social influence, and facilitating conditions were not found to be significant predictors. The results fail to
reject the hypotheses for the variables in the UTAUT model, which indicates that there is no relationship between behavioral intention BI, performance expectancy PE, effort expectancy EE, attitude toward using IBDE technology AT, social influence SI, and facilitating conditions.

**Quantitative research question 3.** Is there a statistically significant difference between male and female Saudi students regarding their BI to accept and use IBDE as a new learning method in Saudi universities?

Independent sample *t*-tests were conducted to determine the significance of the difference between Saudi male and female students regarding their BI to accept and use IBDE as a new learning method in Saudi universities. The analysis of the independent sample *t*-tests revealed that there was a statistically significant difference between Saudi male and female students’ BI to accept and use IBDE as a new learning method in Saudi universities (*t*(230) = 5.59; *p* = 0.00). Hence, the results of the *t*-test rejected null hypothesis 9 (i.e., “There is no statistically significant difference between male and female Saudi students regarding their BI to accept and use IBDE as a new learning method in Saudi universities”). These findings were consistent with past studies in this area (Alenezi et al., 2010; Mardikyan, Beşiroğlu & Uzmaya, 2012).

In this study, the results showed that, with respect to different genders’ attitudes toward using IBDE, males’ scores (*M* = 5.80) were higher than those of females (*M* = 4.93). Thus, males had a greater BI to accept and use IBDE. The findings of the current study are consistent with those of Alkhalaf et al. (2011), who found that online male students feel more confident and comfortable than female students to enroll in online
learning classes. However, this result was unexpected based on prior research, which examined gender differences in students’ BI to use online learning and found that female students have greater BI to accept and use IBDE (Alenezi et al., 2010; Al-Arfaj, 2001; Al-Jarf, 2005; Essam & Al-Ammary, 2013; Hamdan, 2012). This may occur because Saudi women have more social and cultural issues than men (such as their inability to drive cars to attend classes, which may prevent them from attending universities or colleges). Taking classes through IBDE may appeal to female students in Saudi Arabia as a great alternative learning method.

**Quantitative research question 4.** Is there a statistically significant difference between Saudi students with different occupations regarding their BI to accept and use IBDE as a new learning method in Saudi universities?

A one-way ANOVA was used to find whether students’ BI to accept and use IBDE as a new learning method in Saudi universities was significantly different for each occupation group of Saudi students. As the one-way ANOVA in Chapter 4 (Table 4.5) indicated, the null hypothesis 11 (i.e., “There is no statistically significant difference between Saudi students with different occupations regarding their BI to accept and use IBDE as a new learning method in Saudi universities.”) was rejected. These results are consistent with previous research in this area (Alenezi et al., 2010; Nasri, 2011).

The other findings of this dissertation indicated that there was a significant difference regarding students’ BI to accept and use IBDE between Saudi students with occupations in the private sector and those who were unemployed ($M = -0.82; p = 0.00$) and between those who were unemployed and those who were housewives ($M = -1.23; p$
Based on the mean comparison, Saudi students who worked in the private sector had higher BI to accept and use IBDE than those who were unemployed. Similarly, Saudi students who were housewives had higher BI to accept and use IBDE than those who were unemployed. This means that housewives and private sector employees have higher BI to accept and use IBDE than students with other occupations. This finding is consistent with those of past studies (e.g., Al-Arfaj, 2001, 2005; Al-Kinani & Al-Besher, 2008; Essam & Al-Ammary, 2013; Hamdan, 2012; Khan et al., 2001; Khumrat & Pusaksrikit, 2012).

**Quantitative research question 5.** Is there a statistically significant relationship between students’ ages and their BI to accept and use IBDE as a new learning method in Saudi universities?

A simple linear regression model was generated to determine whether Saudi students’ ages significantly influenced the dependent variable of SEU students’ BI to accept and use IBDE as a new learning method in Saudi universities. The results in Table 14 showed that age \( t(230) = 5.74; p = 0.00 \) was a significant predictor of students’ BI. Thus, the null hypothesis was rejected by the statistical analysis.

Both this dissertation and previous research have found that a student’s age is a significant positive predictor of his or her BI to accept and use IBDE \( (\beta= 0.39) \). This result is consistent with other studies done by Nasri (2011), Khumrat and Pusaksrikit (2012); Essam and Al-Ammary (2013). The results suggest that the SEU students’ BI to accept and use IBDE increases or becomes more positive when a Saudi student’s age increases. This study reported that older students were more likely to enroll in IBDE than
younger students. This supports the findings of Xu and Jaggars’ (2013) study, which found that older students are more successful in online courses than younger students are. This researcher believes that older students’ success in online learning may be due to their higher levels of critical thinking, self-motivation, self-monitoring, self-fulfillment, and self-regulation (Xu and Jaggars, 2013). It can be concluded that a student’s age influences students’ decision to enroll in IBDE program in Saudi Arabia.

### Meta-Inferences Regarding Qualitative and Quantitative Approaches

This research proposed a model to identify factors influencing Saudi students’ decisions to accept and use IBDE, as well as to determine which factors have the most impact on the adoption of IBDE as a new learning method in Saudi universities. The model in this study highlighted four factors that may have direct influences on students’ intention to use or join IBDE in online universities in Saudi Arabia: perceived convenience (PC), performance expectancy (PE) or perceived usefulness, perceived enjoyment (PJ), and admission requirements (AR).

**Perceived convenience.** PC emerged as the first significant factor influencing the students’ intention to accept and use IBDE. The qualitative interview results indicated that a vast majority (98%) of the participants found that the IBDE program is much more convenient and practical than a face-to-face traditional classroom program. A multiple case study analysis revealed that all participants found that IBDE gave them a perfect opportunity to study and learn without compromising their jobs or life obligations. Online learning offers the learners the opportunity to study anywhere and anytime without the need to attend or be physically present in a classroom. It allows students to interact
with and access information in timeframes that fit to their schedule. The quantitative findings revealed that a majority of the participants found IBDE to make education more convenient and flexible for students with busy lifestyles, long work hours or families or who were living in rural areas. PC was the strongest factor shaping students’ intention to accept and use IBDE. The students who perceived convenience and flexibility in IBDE tended to have a more favorable BI for accepting and using of IBDE.

These findings were supported by other studies that have explored the advantages and disadvantages of online learning (Al-Arfaj, 2001; Chang, Yan & Tseng, 2012; Nasri, 2011). Flexibility and convenience were reported to be two of the contributing factors that positively affected students’ decisions to accept and enroll in distance education.

**Performance expectancy.** PE emerged as the second most significant factor influencing Saudi students’ BI to enroll IBDE program in Saudi universities. The semi-structural interview results revealed that students, who participated in this study, perceived IBDE to be useful in their academic endeavors. As was found in the qualitative phase, the majority of the respondents stated that the usefulness of the IBDE program positively affected their decision to accept and enroll in an IBDE program. Quantitatively, PE was a significant positive predictor affecting students’ BI to enroll in IBDE program. This result suggests that students believe IBDE will be a useful tool for teaching and learning.

These findings of this study were consistent with those of previous research in the field of technology acceptance, with PE having a significant, positive influence on students’ BI to use IBDE. Dwivedi et al. (2011), Jairak et al. (2009), Pardamean and
Susanto (2012), and Sedana and Wijaya (2010), For example, have demonstrated that PE or perceived usefulness is an important factor in students’ acceptance and use of IBDE programs. It seems that students with high PEs, who believe that using IBDE will be useful to them in their studies, have a greater tendency to accept and enroll in IBDE programs than students with lower PEs.

**Perceived enjoyment.** The research model also posited that PJ plays an important role in user technology acceptance and can predict students’ BI to accept and use IBDE programs in Saudi Arabia. As was found in the qualitative analysis for this study, comments from participants suggested that enjoyment and satisfaction motivate Saudi students’ BI to enroll in IBDE. Statistically, “perceived enjoyment” significantly affected the participants’ BI to accept and use IBDE.

A number of studies of PJ have indicated that PJ significantly affects people’s BI to accept and use the Internet (Alenezi et al., 2010; Danaldson, 2011; Iqbal & Qureshi, 2012; Venkatesh, 2000). Prior studies of Internet usage have empirically added PJ to the TAM to predict individual acceptance of specific sources and found the factor to have a positive effect on attitudes towards using specified systems (Davis et al., 1989).

**Admission requirements.** The results of both the qualitative and quantitative phases highlighted that the admission requirements significantly influenced students’ BI to use and enroll in IBDE. In the qualitative analysis, “admission requirements” was found to be a major determinant for enrolling in online courses. The majority of participants (90%) felt that it would be either easy or not particularly difficult to enroll in an online degree program. Similarly, the analysis of the quantitative data found that 62%
of the students strongly agreed that the admission requirements of online universities are
easier than those of traditional universities.

**Recommendations.**

Based on the findings of this research regarding the acceptance and use of IBDE by Saudi students, the following recommendations are presented to achieve the goals of this study:

1. The Ministry of Higher Education in Saudi Arabia, as well as Saudi online universities, need to create plans and policies that consider all critical factors for sustainable deployment of IBDE and its acceptance among students.

2. The Ministry of Higher Education in Saudi Arabia needs to be aware of the value of online universities, which can have recognized certificates and degrees that are equal in value to those of regular universities.

3. More effort and programs are needed to encourage female Saudi students to become more involved in using IBDE as a new learning method in Saudi Arabia.

4. Perceived convenience, performance expectancy, perceived enjoyment, and admission requirements were four major factors leading to the success of IBDE in Saudi Arabia.

5. For more convince, Saudi online universities should develop mobile applications for utilizing IBDE tools for teaching and learning.
6. Online universities should focus on online curricula that offer international standards, which will increase such universities’ educational and career values.

7. Educators and administrators should find ways to increase perceived convenience to students. For example, they could emphasize to students how the students can use their mobile devices to complete learning activities, improve their performance, and communicate with their instructors anytime and anywhere.

8. The Ministry of Higher Education, as well as Saudi universities that adopt IBDE as a new learning method, should pay attention to admission requirements and try to link these requirements to development plans to meet the needs of the Saudi community.

9. Electronic universities in Saudi Arabia should utilize standardized tests to determine students' technology abilities and include these tests in university admission requirements.

10. Before implementing IBDE, the Ministry of Higher Education and online universities should work with organizations and businesses in Saudi Arabia to offer programs and degrees that fit with the most-demanded job skills.

11. Successful implementation of IBDE should endeavor to satisfy and understand the needs and concerns of all stakeholder groups, including
faculty, students, universities and academic institutions, technology providers, accreditation organizations, and employers.

12. Online universities should ensure that every program and degree offered is accredited by a regional and international accreditation agency.

**Suggestions for Further Research.**

The following are some suggestions for future research on the acceptance and use of IBDE:

1. Results from this study found no significance of the UTAUT model. Future research may concentrate on analyzing this variable in more details.

2. Future studies could examine students’ satisfaction with IBDE.

3. Future studies could examine the actual use of IBDE.

4. Future research may look at whether there are differences between Saudi students and faculty members concerning UTAUT determinants and the additional determinants of perceived enjoyment, convenience, and admission requirements.

5. Future research could replicate this study in contexts other than Saudi online universities (e.g., in other Saudi universities or in universities in other Arabian countries) to extend the research model.

6. Future research could conduct a similar in-depth study on the impacts of factors that were not addressed in the current study, but that may affect the students’ decisions to accept and use IBDE in Saudi Arabia.
7. More studies ought to be done on the acceptance of IBDE in the private sector to further support this study.

8. Future investigation may analyze whether there are differences in admissions requirements between online and traditional learning.

9. Future research could extend the investigation to identify factors influencing other population groups (including instructors, faculty members, principals, supervisors, and parents) to accept and use IBDE in order to determine how closely student factors match those of other groups.

10. Considerably more research is needed to study the quality of online learning programs in Saudi Arabia.

11. Additional studies should examine and measure family attitudes toward using online learning.

12. With Internet use in higher education becoming globally pervasive, comparative studies across countries or cultures could be conducted to identify the social variables that influence students’ BI to use IBDE.

13. Because the participants in this study were enrolled in programs that required them to take online classes, a replication of this study with students enrolled in both online and campus classes may be relevant.

14. The research model used in this study can be more comprehensively examined through the advance statistical application techniques, such as Structural Equation Modeling (SEM) or path analysis.
Summary and Conclusions.

Investigation and examining the factors influencing Saudi students’ decisions regarding their acceptance and use of IBDE, as well as to determine which factors have the most impact on the adoption of this technology as a new learning method in Saudi universities was the main goal of this dissertation. This study identifies some factors that are more influential than others in IBDE adoption in Saudi universities.

Based on the findings of the qualitative approach, several tendencies affecting the acceptance and use of IBDE as a new method in Saudi universities were identified. The data showed that the UTAUT model and the additional variables of perceived enjoyment, perceived convenience, and admission requirements are key reasons for and factors in why Saudi students prefer IBDE as a new learning method in Saudi universities.

The quantitative results showed that perceived convenience, performance expectancy, perceived enjoyment, and admission requirements have significant effects on students’ BI to accept and use IBDE as a new learning method in Saudi universities. A significant finding was that perceived convenience is a very important factor in students’ BI to accept and use IBDE. Performance expectancy, perceived enjoyment, and admission requirements were also shown to be important factors influencing Saudi students’ BI to accept and use IBDE (though these were secondary to convenience). An understanding of the factors identified in this study will allow developers in Saudi universities to direct efforts and resources in the most effective and efficient ways to increase IBDE usage in the long run and to encourage Saudi students to accept and use IBDE as a new learning method in Saudi universities.
Based on the data result, this study found a significant difference between male and female Saudi students regarding their BI to accept and use IBDE. Males scored higher than females and, thus, had greater BI to accept and use IBDE. A significant difference was also found between Saudi students of different occupations regarding their BI to accept and use IBDE as a new learning method in Saudi universities. Housewives and private sector employees had higher BI to accept and use IBDE than students with other occupations. This study also found a significant relationship between students’ age and their BI to accept and use IBDE, with older students being more likely to accept and use IBDE than younger students.

Finally, several implications of this study’s findings were discussed, and recommendations for future research were given.
References


Alajmi, M (2010). *Faculty members' readiness for e-learning in the College of Basic Education in Kuwait*. Denton, Tex.: University of North Texas.


The annual meeting of the Asia Association of Computer Assisted Language Learning, Geongju, South Korea. Retrieved from

http://www.eric.ed.gov/ERICWebPortal/search/detailmini.jsp?_nfpb=true&_&ERICExtSearch_SearchValue_0=ED497940&ERICExtSearch_SearchType_0=no&accno=ED497940


http://elearnmag.acm.org/featured.cfm?aid=1735849


Chang, C., Yan, C., & Tseng, J. (2012). Perceived convenience in an extended technology acceptance model: Mobile technology and English learning for


ntrez&rendertype=abstract


http://dx.doi.org/10.1016/j.compedu.2010.05.018


http://stu.hksyu.edu/~wkma/ref/ma_yuen_2011_Teo(Ed)BkChapter.pdf


Robertson, J. S., Grant, M. M., & Jackson, L. (2005). Is online instruction perceived as effective as campus instruction by graduate students in education? *The Internet and Higher Education, 8*(1), 73-86.


Appendix A: Semi-structured Interview Guiding Framework

The following are the open-ended questions that will be used in approximately 45-60 min interviews with 9-10 interviewees during the qualitative phase. The questions will not be used in any specific order. Moreover, follow-up questions will be used as appropriate.

1. Let’s start by talking about your background in online learning. What makes you willing to use your Internet-based distance education for academic learning?

(a) Performance Expectancy and Effort Expectancy

1. Do you take an Internet-based distance education courses?
2. What are the benefits of Internet-based distance education?
3. What are the advantages compared with traditional learning?
4. What are the disadvantages of Internet-based distance education?
5. How comfortable are you using Internet-based distance education?
6. How do you apply Internet-based distance education to enhance your performances and outcomes?
7. How did you come to trust this kind of learning?

(b) Social Influence

1. Have you encouraged your colleagues to adopt Internet-based distance education?
2. What have you done to encourage them?
3. How enthusiastically have you encouraged the use of Internet-based distance education?
4. What factors influence your opinion since you started getting involved in Internet-based distance education?

5. Since your organization has already adopted this kind of learning, why have you adopted this technology?

6. Your experience in Internet-based distance education course? What do you think about it?

(c) Facilitating Conditions

1. What do you think the training program should be?

2. What kind of technical support do you receive?

3. How do you feel about the support you are receiving from management?

4. What does management in your institution do to encourage you to adopt and use Internet-based distance education?

5. Are you satisfied with the kind of support you have received?

6. What kind of motivations do you receive from Ministry of Higher Education for using Internet-based distance education?

(d) Attitude toward Use

1. What do you expect from distance education?

2. What would you expect from this kind of learning before you would be willing to adopt it learning?

What, in your opinion, the other factors that might influence Saudi students' decisions toward adoption of Internet-based distance education as a new learning method?
Appendix B: Permission to Draw the TAM2 and UTAUT Model

Al-Youssef, Ibrahim

From: Viswanath Venkatesh <vvenkatesh@vvenkatesh.us>
Sent: Thursday, April 11, 2013 11:2 PM
To: Al-Youssef, Ibrahim
Subject: RE: Seeking your permission

Follow Up Flag: Follow Up
Flag Status:Flagged

Thanks for your interest,
You have my permission.
You will find related papers at:
http://vvenkatesh.com/Downloads/Papers/fulltext/downloadpapers.htm
You may also find my book (that can be purchased for a significant student discount and faculty member discount) to be of use:
http://vvenkatesh.com/book
Hope this helps.
Sincerely,
Viswanath Venkatesh
Distinguished Professor and George and Boyce Billingsley Chair in Information Systems Walton College of Business
University of Arkansas Fayetteville, AR 72701
Phone: 479-575-2869; Fax: 479-575-3689
Email: vvenkatesh@vvenkatesh.us
Website: http://vvenkatesh.com
IS Research Rankings Website: http://vvenkatesh.com/ISRanking

Dear Professor, Venkatesh

My name is Ibrahim Al-Youssef, I am a PhD candidate at Ohio University in Athens, Ohio, currently working under the direction of Dr. Teresa Franklin, Professor of Instructional Technology. My dissertation is titled: Student Acceptance and Use of Internet-Based Distance Education in Saudi Community Colleges: A Mixed Method Study. The main goal of this study is to investigate and examine factors influencing Saudi community college students' decision regarding acceptance and use of internet-based distance
Appendix C: Permission to Use and Modify the UTAUT Model & Instrument

Al-Youssef, Ibrahim

From: Morris, Mike <mwm3p@comm.virginia.edu>
Sent: Thursday, April 04, 2013 11:12 AM
To: Al-Youssef, Ibrahim; Vijaynarath Venkatesh <vvenkatesh@vvenkatesh.us>
Subject: RE: Seeking your permission

Hi Ibrahim,

It is public domain and there are no restrictions on its use or modifying it to suit your context. Good luck with your study.

Best,
Mike

Michael G. Morris
Professor and Associate Dean for Graduate Programs
McIntire School of Commerce
University of Virginia
Charlottesville, VA 22904

Phone: 434-924-0776
FAX: 434-924-7074

-----Original Message-----
From: AlYoussef, Ibrahim [mailto:ia171106@ohio.edu]
Sent: Thursday, April 04, 2013 11:02 AM
To: vvenkatesh@rhsmith.umd.edu; nmorris@virginia.edu; gadas@csom.umn.edu; fdlavis@walton.uark.edu
Subject: Seeking your permission

Dear Professors

My name is Ibrahim Al-Youssef. I am a PhD candidate at Ohio University in Athens, Ohio, currently working under the direction of Dr. Teresa Franklin, Professor of Instructional Technology. My dissertation is titled: Student Acceptance and Use of Internet-Based Distance Education in Saudi Community Colleges: A Mixed Method Study. The main goal of this study is to investigate and examine factors influencing Saudi community college students' decision regarding acceptance and use of Internet-based distance education (IDE) and what factors have the most impact on the adoption of this technology as a new learning method in Saudi community colleges. After reviewing the literature for an appropriate model and instrument to measure students' acceptance and use of technology, I found that the "User Acceptance of Information Technology: Toward a Unified View" model and instrument that you and your team have adopted and used in your 2003 publication is suitable for my research.

I am sending this e-mail to seek permission from you and your team to adopt UTAUT model and instrument for my study.

If you have any concerns or need further clarification, do not hesitate to contact me by e-mail at ia171106@ohio.edu or by phone at 740-274-9116 or contact my adviser Dr. Teresa Franklin via e-mail at franklit@ohio.edu or franklinteresa@gmail.com or by telephone 740-541-8847.
## Appendix D: Instrument Items (adopted from Venkatesh et al., 2003)

Table C.1

Instrument Items (adopted from Venkatesh et al., 2003)

<table>
<thead>
<tr>
<th>Items</th>
<th>Performance Expectancy (PE)</th>
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<tbody>
<tr>
<td>PE1</td>
<td>I would find the system useful in my job</td>
</tr>
<tr>
<td>PE2</td>
<td>Using Internet-based distance education (IBDE) enables me to accomplish tasks more quickly</td>
</tr>
<tr>
<td>PE3</td>
<td>Using IBDE increases my productivity</td>
</tr>
<tr>
<td>PE4</td>
<td>If I use IBDE, I will increase my chances of getting a raise</td>
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</tbody>
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<thead>
<tr>
<th>Performance Expectancy (PE)</th>
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<tbody>
<tr>
<td>PE1</td>
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<tr>
<td>PE2</td>
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<tr>
<td>PE3</td>
</tr>
<tr>
<td>PE4</td>
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<tr>
<th>Effort expectancy (EE)</th>
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<tbody>
<tr>
<td>EE1</td>
</tr>
<tr>
<td>EE2</td>
</tr>
<tr>
<td>EE3</td>
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<tr>
<td>EE4</td>
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<table>
<thead>
<tr>
<th>Attitude toward using technology (AT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT1</td>
</tr>
<tr>
<td>AT2</td>
</tr>
<tr>
<td>AT3</td>
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<tr>
<td>AT4</td>
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</tbody>
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<tr>
<th>Social influence (SI)</th>
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<tbody>
<tr>
<td>SI1</td>
</tr>
<tr>
<td>SI2</td>
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<tr>
<td>SI3</td>
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<tr>
<td>SI4</td>
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<table>
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<tr>
<th>Facilitating conditions (FC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC1</td>
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<tr>
<td>FC2</td>
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<tr>
<td>FC3</td>
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<tr>
<td>FC4</td>
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</table>

<table>
<thead>
<tr>
<th>Behavioral intention to use the system (BI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI1</td>
</tr>
<tr>
<td>BI2</td>
</tr>
<tr>
<td>BI3</td>
</tr>
</tbody>
</table>
Appendix E: Dissertation Timeline

Timeline for each Phase Activity

<table>
<thead>
<tr>
<th>Phase</th>
<th>Procedure</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualitative Data Collection</td>
<td>Purposefully selecting participants using maximal variation technique 7 participants.</td>
<td>May 29 – September 15, 2013</td>
</tr>
<tr>
<td></td>
<td>Developing individual in-depth semi interview questions.</td>
<td>September 15, 2013</td>
</tr>
<tr>
<td></td>
<td>Interview: 30-45 min.</td>
<td>September 15, 2013</td>
</tr>
<tr>
<td></td>
<td>Coding and thematic analysis.</td>
<td>October 1-December 30, 2013</td>
</tr>
<tr>
<td></td>
<td>Theme development.</td>
<td>October 1-December 30, 2013</td>
</tr>
<tr>
<td></td>
<td>Writing analysis result.</td>
<td>October 1-December 30, 2013</td>
</tr>
<tr>
<td></td>
<td>QSR N10 qualitative software.</td>
<td>October 1-December 30, 2013</td>
</tr>
<tr>
<td></td>
<td>Extended initial model; extended research questions; developing the instrument.</td>
<td>January 12-31, 2014</td>
</tr>
<tr>
<td></td>
<td>Piloting the instrument; writing pilot result; and revising the instrument.</td>
<td>January 12-31, 2014</td>
</tr>
<tr>
<td></td>
<td>Probability selecting participants using stratified sampling method (N=231)</td>
<td>February 1-28, 2014</td>
</tr>
<tr>
<td></td>
<td>Sending letter to Saudi Electronic University and e-mail to potential participants.</td>
<td>February 1-28, 2014</td>
</tr>
<tr>
<td></td>
<td>Data screening.</td>
<td>March 1-29, 2014</td>
</tr>
<tr>
<td></td>
<td>Writing quantitative analysis result.</td>
<td>March 1-29, 2014</td>
</tr>
<tr>
<td></td>
<td>SPSS Software v.19.</td>
<td>March 1-29, 2014</td>
</tr>
<tr>
<td></td>
<td>Interpretation and mixing between Qualitative and Quantitative results.</td>
<td>March 1-29, 2014</td>
</tr>
</tbody>
</table>
Appendix F: IRB Approval

The amendment, detailed below, and submitted for the following research study has been approved by the Institutional Review Board at Ohio University.

Project: Student Acceptance and Use of Internet-Based Distance Education in Saudi Electronic University: A Mixed Method Study

Amendment: Change title, change school, change consent form to reflect this

Primary Investigator: Ibrahim Youssef Al Youssef
Co-Investigator(s):

Advisor: Teresa Franklin
Department: Instructional Technology

Jo Ellen Sherow, MPA
Office of Research Compliance

5/20/15 Date
Appendix G: Modified UTAUT Instrument (English Version)

Student Acceptance and Use of Internet-Based Distance Education in Saudi Electronic University SEU: A Mixed Method Study

Dear student,

Distance education uses a variety of media to deliver educational content to students in various geographical locations in an effort to serve the educational needs of growing populations.

This questionnaire, which is a part of doctoral dissertation, entitled “Student Acceptance and Use of Internet-Based Distance Education in Saudi Electronic University SEU: A Mixed Method Study”, is developed to explore and examine factors influencing Saudi students’ decisions regarding acceptance and use of Internet-based distance education.

I appreciate your time and your participation in this study. Please, try to make all the responses truly reflect your attitude as much as possible. Thanks for your responses, for sharing your thought, and for your attention given to this study.

Sincerely yours,

Ibrahim Youssef Al Youssef

Instructional Technology/ Ohio University
**Student Acceptance and Use of Internet-Based Distance Education in Saudi Electronic University SEU: A Mixed Method Study**

**Instructions:** Please indicate your level of agreement or disagreement with each of the following statements by choosing the appropriate response;

**IBDE** = Internet-Based Distance Education

<table>
<thead>
<tr>
<th>I</th>
<th>Performance Expectancy (PE)</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neutral</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I find IBDE useful in my learning.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>2.</td>
<td>Using IBDE enables me to accomplish learning activities more quickly.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>3.</td>
<td>Using IBDE increase my learning productivity.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>4.</td>
<td>If I use IBDE, I will increase my chances of getting better grade.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>II</th>
<th>Effort expectancy (EE)</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neutral</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>My interaction with the IBDE would be clear and understandable</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>6.</td>
<td>It is easy for me to become skillful at using IBDE</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>7.</td>
<td>I find IBDE easy to use</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>8.</td>
<td>Learning to operate IBDE is easy for me.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>III</th>
<th>Attitude toward using technology (AT)</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neutral</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.</td>
<td>Using IBDE is a bad</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>10.</td>
<td>Using IBDE is a good idea</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>11.</td>
<td>Using IBDE is beneficial for me.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>12.</td>
<td>I like working with IBDE</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>Working with <strong>IBDE</strong> is fun</td>
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</tr>
<tr>
<td></td>
<td>People who influence my behavior think that I should use <strong>IBDE</strong></td>
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<tr>
<td></td>
<td>People who are important to me think that I should use <strong>IBDE</strong></td>
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<tr>
<td></td>
<td>My close friends in my university has been helpful in the use of <strong>IBDE</strong></td>
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<tr>
<td></td>
<td>In general, the University has supported the use of <strong>IBDE</strong>.</td>
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<tr>
<td></td>
<td>My University has provided me recognized certificates</td>
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<tr>
<td></td>
<td>University has offered special courses</td>
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<tr>
<td></td>
<td>The ICT infrastructure at my University is available when I need it.</td>
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<tr>
<td></td>
<td>My University provides incentives to students who use <strong>IBDE</strong>.</td>
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<td></td>
<td>My University has provided training for me to use <strong>IBDE</strong> tools.</td>
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<td></td>
<td>A specific person (or group) is available for assistance with system difficulties</td>
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<tr>
<td></td>
<td>Using <strong>IBDE</strong> makes me feel enjoyable.</td>
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<tr>
<td></td>
<td>Using <strong>IBDE</strong> make me feel frustrated.</td>
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<tr>
<td></td>
<td>Using <strong>IBDE</strong> is interesting.</td>
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<tr>
<td></td>
<td>I can learn at any time via <strong>IBDE</strong>.</td>
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<tr>
<td></td>
<td>I can learn at any place via <strong>IBDE</strong>.</td>
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<td></td>
<td>The <strong>IBDE</strong> is convenient for me to engage in learning.</td>
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<td></td>
<td>I feel that <strong>IBDE</strong> is convenient for me to learn.</td>
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<td></td>
<td>The <strong>IBDE</strong> University admission requirement is the same compared to regular</td>
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</table>
University admission requirement is easy compared to regular University

**VIII Behavioral intention to use the system (BI)**

33. I intend to use IBDE in the coming future.
34. I predict I use IBDE in the coming future
35. I plan to use IBDE in the coming future

---

**Demographic Information**

**Instructions:** Kindly, take few more minutes to provide the following demographic information. This section is seeking information about your background. Please choose the answer that applies to you.

1. What is your gender?
   - Male
   - Female

2. What is your age?

3. I belong to, the
   - Department of Business.
   - Department of Computer and information systems.
   - Department of Administrative science.
   - Not decided yet “Preparatory Year”.

4. Occupation
   - Government employees.
   - Private sector employee.
   - Unemployed.
   - Housewife.

---

Thanks for your responses
Appendix H: Modified UTAUT Instrument (Arabic Version)

قبول واستخدام طلاب الجامعة السعودية الالكترونية للتعليم المتمحيد على الانترنت في المملكة العربية السعودية:

استخدام منهج الربح المختلط

حفظكم الله من كل ما يضر

أختي الطالبة

سآلام عليكم ورحمة الله وبركاته وبعد

يقوم الباحث بدراسة عنوانها: "قبول واستخدام طلاب الجامعة السعودية الالكترونية للتعليم المتمحيد على الانترنت في المملكة العربية السعودية" كمطلوب تكميلي لدبل درجة الدكتوراه في التربية من جامعة أوهايو بالولايات المتحدة الأمريكية.

والباحث إذ يشكر وينشى لكم ركيم فضلكم وقبولكم المشاركة في تعبير هذه الاستبانة والتي قد يستغرق 10 دقائق للإجابة عليها، والتي لا تتطلب ذكر الاسم أو أي معلومات خاصية، وجميع البيانات المقدمة منكم ستبقى سرية وتستخدم فقط لأغراض البحث العلمي. يأمل الباحث تعاونكم في جمع البيانات والمعلومات لإتمام هذه الدراسة، سالين الموالي أن يجعل مجهودكم في بيعان حسناتكم.

لأي سؤال أو استفسار، أو للحصول على نبذة مختصرة من النتائج: يرجى التواصل مع الباحث، وتفضلوا بقبول ممكن الربحية والفائدة والتقدير..............

وفقكم الله

الباحث

إبراهيم بن يوسف اليوسف

جامعة الملك فيصل كليية التربية

محاضر بقسم تقنيات التعليم

ia171106@ohio.edu

ialyoussef@kfup.edu.sa
ologi الالكترونية للتعليم المعتمد على الانترنت في المملكة العربية السعودية:

استخدام منهج البحث المختلط

تعليقات: يرجى الإشارة إلى مستواك في الاتفاق أو الاختلاف مع كل من العبارات التالية عن طريق اختيار الاستجابة المناسبة:

<p>| | | | | | | |</p>
<table>
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</tr>
</tbody>
</table>

### I. Performance Expectancy (PE)

1. أعد أن التعليم عن بعد الفائتم على الانترنت مفيد في عملية التعليم.
2. يؤدي استخدام التعليم عن بعد الفائتم على الانترنت إلى أنجاز ن ula
g الأدوار المعمول بها بسرعة أكبر.
3. يزيد استخدام التعليم عن بعد الفائتم على الانترنت من إنتاجيتي في التعلم.
4. استخدام التعليم عن بعد الفائتم على الانترنت فرصتي للحصول على درجات أفضل.

### II. Effort expectancy (EE)

5. التفاعل مع التعليم عن بعد الفائتم على الانترنت مفهوم واضح بالنسبة لي.
6. من السهل بالنسبة لي أن أصبح ناجيًا في استخدام التعليم عن بعد الفائتم على الانترنت.
7. أعد أن التعليم عن بعد الفائتم على الانترنت سهل الاستخدام.
8. العمل في بيئة التعليم عن بعد الفائتم على الانترنت سهل بالنسبة لي.

### III. Attitude toward using technology (AT)

9. أعد أن التعليم عن بعد الفائتم على الانترنت سيبن.
10. أحب العمل مع بيئة التعليم عن بعد الفائتم على الانترنت.
11. أعد أن التعليم عن بعد الفائتم على الانترنت يحسن من العملية التعليمية.
12. أعد أن التعليم عن بعد الفائتم على الانترنت فكرة جيدة.
13. أعد أن استخدام التعليم عن بعد الفائتم على الانترنت يوفر بيئة تعليمية جاذبة.

### IV. Social influence (SI)

14. أعتقد أن أقراني لهم تأثير على قراري تجاه استخدام التعليم عن بعد الفائتم على الانترنت.
15. أعتقد أن الناس المهمين بالنسبة لي بصريوني باستخدام التعليم عن بعد الفائتم على الانترنت.
16. أعتقد أن زملائي بصريوني باستخدام التعليم عن بعد الفائتم على الانترنت.
17. أعتقد أن الإدارة في الجامعة شجاعي على استخدام التعليم عن بعد القائم على الإنترنت

<table>
<thead>
<tr>
<th>V</th>
<th>Facilitating conditions (FC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.</td>
<td>توفير الجامعة شهادة معترف بها وموثوقة</td>
</tr>
<tr>
<td>19.</td>
<td>توفير الجامعة التخصصات التي توافق سوق العمل</td>
</tr>
<tr>
<td>20.</td>
<td>توفير الجامعة التدريبات اللازمة لاستخدام التعليم عن بعد القائم على الإنترنت</td>
</tr>
<tr>
<td>21.</td>
<td>توفير الجامعة الحوافز المالية والمعنوية لاستخدام التعليم عن بعد القائم على الإنترنت</td>
</tr>
<tr>
<td>22.</td>
<td>توفير الجامعة التدريب في استخدام التعليم عن بعد القائم على الإنترنت</td>
</tr>
<tr>
<td>23.</td>
<td>توفير الجامعة المساعدة في استخدام التعليم عن بعد القائم على الإنترنت</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VI</th>
<th>Perceived Enjoyment (PJ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.</td>
<td>استخدام التعليم عن بعد المعتمد على الإنترنت يشعرني بالسعادة</td>
</tr>
<tr>
<td>25.</td>
<td>استخدام التعليم عن بعد المعتمد على الإنترنت يشعرني بالإحباط</td>
</tr>
<tr>
<td>26.</td>
<td>استخدام التعليم عن بعد القائم على الإنترنت مثير للإعجاب</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VII</th>
<th>Perceived Convenience (PC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>27.</td>
<td>يستطيع إنهاء أنشطة التعلم في أي وقت باستخدام التعليم عن بعد القائم على الإنترنت</td>
</tr>
<tr>
<td>28.</td>
<td>يستطيع إنهاء أنشطة التعلم في أي مكان باستخدام التعليم عن بعد القائم على الإنترنت</td>
</tr>
<tr>
<td>29.</td>
<td>استخدام التعليم عن بعد القائم على الإنترنت مريح بالنسبة لي</td>
</tr>
<tr>
<td>30.</td>
<td>يشعرني الارتياح في التعليم عن بعد القائم على الإنترنت</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VIII</th>
<th>Admission requirements (ER)</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.</td>
<td>متطلبات القبول في الجامعة الإلكترونية متلائمة بمجالات التقنية</td>
</tr>
<tr>
<td>32.</td>
<td>متطلبات القبول في الجامعة الإلكترونية متساوية مقارنة بالجامعات التقليدية</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>XI</th>
<th>Behavioral intention to use the system (BI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>33.</td>
<td>أنا سوف استخدام التعليم عن بعد القائم على الإنترنت في المستقبل القريب</td>
</tr>
<tr>
<td>34.</td>
<td>أنا أتوقع استخدام التعليم عن بعد القائم على الإنترنت في المستقبل القريب</td>
</tr>
<tr>
<td>35.</td>
<td>أنا لدي حجة لاستخدام التعليم عن بعد القائم على الإنترنت في المستقبل القريب</td>
</tr>
</tbody>
</table>
المعلومات الشخصية

تعليمات: يسعى هذا القسم للتعرف على بعض المعلومات الخاصة بك. الرجاء اختيار الإجابة التي تنطبق عليك

1. الجنس
   - ذكر
   - أنثى

2. العمر

3. أنا طالب
   - بكالوريوس
   - دراسات عليا

   □ كلية العلوم الإدارية والمالية
   □ كلية الحوسبة والمعلوماتية
   □ كلية العلوم الصحية
   □ لم أقرر بعد " السنة التحضيرية "

4. الوظيفة
   - موظف حكومي
   - موظف قطاع خاص
   - بدون وظيفة
   - ربة منزل

شكرًا لتقديمك جزء من وقتك الثمين
Appendix I: Cronbach's Alpha Coefficient of Internal Consistency ($\alpha$)

<table>
<thead>
<tr>
<th>Item</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
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</thead>
<tbody>
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Appendix K: Permission from Saudi Electronic University SEU to Collect Data
الموضوع:

سعادة / عميد الدراسات العليا بالجامعة الإلكترونية السعودية بالرياض المحترم

السلام عليكم ورحمة الله وبركاته... وبعد...

تحية طيبة لسعادةكم الكريم وآمني ان تكون بصحة وعافية...

أشير إلى برقيتي متعطش المحاضر / إبراهيم بن يوسف الهوسفي رسلي مدني 1970، والذي
يدرس لدرجة الدكتوراه بجامعة أوهايو بأمريكا في تخصص تنفيذ التعليم ورغبته في توزيع
اجتماع كبير من إتمام رسالته لدرجة الدكتوراه.

أمل من سعادتكم التكرار بالتوهين له في تمهيد مهداه ومساعدته في إتمام رسالته مع إبلاغنا
باسم الشخص المسؤول حتى يتمكن المبتعث من التواصل معه.

ونقبلوا فائق تحياتي وتقدري...

عميد الدراسات العليا

د. محمد بن محمد الدغيم
## Appendix L: Theories of Unified Theory of Acceptance and Use Technology

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