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# Saudi Arabian Students' Attitudes Toward E-Learning in Select Pennsylvania Universities

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SAUDI ARABIAN STUDENTS' ATTITUDES TOWARD E-LEARNING IN  
SELECT PENNSYLVANIA UNIVERSITIES

A Dissertation

Submitted to the School of Graduate Studies and Research

in Partial Fulfillment of the

Requirements for the Degree

Doctor of Education

Naif M. Alsayyali

Indiana University of Pennsylvania

May 2018

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An integral part of the higher education system, technology is continuing to grow in importance. In the delivery of courses, e-learning is becoming more widely used given that it provides easy access to education asynchronously and across geographic borders, thereby meeting the diverse needs of students. The research for this quantitative study was conducted in the state of Pennsylvania with the purpose of determining the readiness of Saudi students studying in the e-learning context, whether through an entirely online format or through blended courses, based on gender, educational level, and anxiety. Recruited via a questionnaire distributed online, the participants comprised 178 Saudi students: 127 male students and 51 female students. The results showed no statistically significant difference between Saudi students in regard to their attitudes toward e-learning on the basis of gender (male or female) or educational level (undergraduate or graduate). Moreover, the participants reported having a positive attitude toward e-learning. However, in regard to the items designed to assess anxiety, the participants indicated that they experienced slightly high anxiety in regard to taking an online course, followed by moderate anxiety in regard to using a computer, but very low anxiety in regard to using Internet. On the basis of the study results, it is recommended that the Saudi educational authorities change their regulations in order to approve degrees obtained entirely online to increase enrollment in courses delivered through this platform. Further research is

needed, however, to determine how factors other than gender and educational level relate to the online educational experience of Saudi students studying online.

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## CHAPTER I

### INTRODUCTION

The continually evolving technological landscape has created many changes in the ways whereby individuals acquire information, especially in relation to education. The impact that technological advancements have made on education is particularly evident in the shift among universities from primarily face-to-face classroom learning to more Internet-based classroom options (Afifi & Alamri, 2014). The introduction of e-learning by universities in the United States has revolutionized the education experience for students by offering more flexibility and opportunities for learning; however, e-learning is also associated with problems related to implementation, quality, and end-user barriers (Afifi & Alamri, 2014). Furthermore, e-learning can be difficult for students unfamiliar with online learning platforms, such as those from nations where e-learning is in its infancy (Taylor & Albasri, 2014). One such nation that has recently begun the process of implementing e-learning platforms into its universities is Saudi Arabia. As After a 2005 educational agreement with the U.S. government (Al Gamdi & Samarji, 2016), as of 2013-2014, there were over 100,000 students from Saudi Arabia studying at U.S. universities (Taylor & Albasri, 2014).

Since e-learning is a rather new concept in Saudi Arabia, the e-learning readiness of Saudi students studying in the United States is of special interest due to their increasing numbers in universities over the last decade (Taylor & Albasri, 2014). While many researchers have investigated the barriers to learning encountered by students transitioning from traditional classroom learning to e-learning, there is a paucity of research focused on students from nations where Internet access and e-learning are not readily available. In this study, the researcher will

highlight university students from Saudi Arabia and their e-learning experiences. Findings from this study could potentially influence how professors teach their Saudi students.

In this chapter, the researcher will discuss the background of e-learning and of students studying in the United States. In the next section, the researcher will present the problem this study seeks to address. The problem statement is followed by the purpose of the study. The researcher will then present the research questions, followed by a section explaining the conceptual model informing the current study. The remaining sections of this chapter include the study's underlying assumptions, its scope and delimitations, its limitations, and the significance of this study.

### **Background**

E-learning and its associated terminology emerged during the 1980s (Moore, Dickson-Deane, & Galyen, 2011). As Clark and Mayer (2011) explained, e-learning is an approach by which teachers deliver instruction via computers, which may include CD-ROMs, the Internet, or the intranet. E-learning generally includes multimedia elements, as well as content that reflects the learning objectives combined with practical examples that explain instructions; however, one of the primary functions of e-learning is to offer a flexible education platform predicated on building knowledge for learners and organizations (Afifi & Alamri, 2014). In e-learning, the “e” refers the electronic format of the lessons. The overarching purpose is to help individuals achieve educational goals and develop organizations. The e-learning approach has three different formats: synchronous, asynchronous, and blended/hybrid learning (Caruth & Caruth, 2013). Synchronous learning is defined as learning in which the instructor and students are physically separate but online at the same time. Asynchronous learning is defined as a situation in which the instructor and students are physically separate but not online at the same time;

instead, they interact through forums and emails. Blended/hybrid learning describes instruction in which teachers deliver materials via a combination of face-to-face and online interaction (Caruth & Caruth, 2013).

In 2005, the government of Saudi Arabia launched the King Abdullah Scholarship Program (KASP) to support Saudi students in various academic fields (Saudi Arabian Cultural Mission, 2012). The scholarship program provides sponsorship for students throughout the world, but the majority of those students who receive KASP sponsorship study in the United States (Taylor & Albasri, 2014). The latest statistics released by the Saudi Arabian Cultural Mission (SACM) showed that the number of Saudi students studying throughout the United States has reached 111,000 (Naffee, 2014). The revolution in technology has changed the landscape of educational settings in many countries, particularly the United States. E-learning has become the model for many educational institutions regarding the ways in which materials, such as for research, are delivered (Afifi & Alamri, 2014; Saqlain & Mahmood, 2013). International students, specifically Saudi Arabian students, might have had different experiences in relation to the use of technology; these differences in experiences with technology might affect their overall academic performance at U.S. universities.

There may also be differences in Saudi students' educational experiences based on their gender. Whether in elementary schools or colleges, Saudi Arabia's educational system is segregated on the basis of religion and other powerful cultural factors, and it is evident that this segregated environment is having a negative impact on Saudi Arabia's ability to educate its population because it is contributing to the shortage of instructors, leading to, in at least some places, limits on some courses (Alanazy, 2013). Furthermore, the Ministry of Higher Education (MHE) has found it necessary to devote significant resources to provide two kinds of schools:

one for male students and another for female students. Compared with male students, female students have fewer opportunities to enroll in certain science and technology majors thanks to a dearth of female faculty trained in those areas. In the 2011–2012 academic year, a total of 1,206,007 students were enrolled at Saudi universities, of whom 611,861 were male and 594,146 were female (Alanazy, 2013). Of the 23,211 faculty members who had earned a doctoral degree, 16,668 were male and 6,543 were female. In terms of the number of faculty available to teach, the male student to faculty ratio is 37 to 1 whereas the female student to faculty ratio is far less favorable at 91 to 1 (Alanazy, 2013).

Moreover, there may be a difference in how Saudi students approach education at the undergraduate and graduate levels. Graduate work is often self-directed, independent, and active. This is in contrast to high school and undergraduate education, which are traditionally lecture- and test-based, and may be considered more passive (Alzahrani, 2016). Alzahrani (2016) emphasized that passive learning is the most commonly encountered form of education in Saudi Arabia, whereas active learning styles are more common in North America. Therefore, Saudi students who may not have had difficulties absorbing information at the undergraduate level may struggle with the creative engagement required for graduate studies in the United States (Alzahrani, 2016). Alraddadi (2015) described this phenomenon in relation to individualistic versus collectivist societies, whereby Saudi Arabia is the latter and North America is the former.

Computer anxiety, defined as apprehension or fear when faced with the possibility of using computers, describes the tendency to experience a level of discomfort over the impending use of a computer (Alenezi, Karim, & Veloo, 2010). Students using e-learning as a new educational tool may feel some anxiety regarding its use (Howard & Smith, 1986). In brief, computer anxiety is a crucial factor that could influence e-learning adoption in higher education

institutions. In this study, the researcher will focus on critical factors contributing to computer anxiety, as well as its impact on performance and relationship to gender among Saudi students in Pennsylvania universities in their new context.

### **Problem Statement**

The problem highlighted in this study is that the Saudi students may hold negative attitudes toward e-learning and may thus report a high level of anxiety when learning via e-courses offered by U.S. universities. Based on Saudi students' experience, the study seeks to identify a transition from negative to positive attitudes and provide a way to reduce anxiety regarding e-learning environments. The implementation of e-learning platforms in universities has created numerous opportunities for students and professors alike; however, while e-learning offers a flexible and dynamic way for students and professors to interact with classwork, the efficacy of e-learning in relation to student outcomes is still in question (Bolliger & Halupa, 2012). With more universities transitioning traditional classrooms to Internet-based classrooms, the quality of the e-learning experience has become a primary objective. Moreover, the focus on quality has resulted in the development of numerous theories related to designing effective e-courses (Afifi & Alamari, 2014). Many researchers have failed to take into account confounding variables that can affect the performance of students, such as computer anxiety and language barriers. According to Bolliger and Halupa (2012), the convenience that online classes offer students is sometimes overshadowed by barriers to e-learning, such as low student performance, academic and technological capabilities, motivation, and access to resources. This study explores the experiences of Saudi students studying online as part of their program of higher education in the United States, with the study sample drawn from institutions of higher education in Pennsylvania. In their home country, Saudi students experience a gender-segregated



educational system that depends on a traditional approach to education rather than on e-learning. Moreover, the Saudi educational policy makers refuse to recognize degrees earned fully online and restrict the number of e-learning courses permitted for scholarship approval, thereby putting e-learning in a negative light for Saudi students. However, in the United States, Saudi students confront a gender-integrated educational system that is moving toward e-learning.

### **Study Purpose**

In this study, the researcher aims to examine the readiness of Saudi Arabian students enrolled in Pennsylvania universities to perform in e-learning courses. The researcher will consider the participants' level of anxiety, level of education, and gender. The results of this research may serve to inform the development of e-learning guidelines by educational policymakers in Saudi Arabia. Additionally, instructors at Pennsylvania universities may use the implications of the proposed research to revisit the implementation of e-learning in their teaching practices and address the needs of their Saudi students.

### **Research Questions**

The research questions informing the current study are as follows:

1. What are the differences between male and female Saudi students' attitudes toward e-learning at Pennsylvania universities?
2. What are the differences between the attitudes of undergraduate and graduate Saudi students toward e-learning at Pennsylvania universities?
3. How much computer anxiety do male and female Saudi students report in e-learning environments at Pennsylvania universities?

### **Null Hypotheses**

H1: There is no statistically significant difference between male and female Saudi students' attitudes toward e-learning at Pennsylvania universities.

H2. There is no statistically significant difference between graduate and undergraduate Saudi students' attitudes toward e-learning at Pennsylvania universities.

H3.: There is no statistically significant difference between male and female Saudi students' level of computer anxiety toward e-learning at Pennsylvania universities.

### **Conceptual Framework**

The researcher adapted the conceptual model informing the current study from the path model proposed by Igbaria and Parasuraman (1989). Igbaria and Parasuraman designed their path model to address what they saw as a failure of other models to identify the potential interrelated nature of computer anxiety and attitudes toward computers. More specifically, Igbaria and Parasuraman noted that previous theoretical approaches to studying computer anxiety and attitudes toward computers were based on bivariate associations, rather than on multivariate ones. As such, Igbaria and Parasuraman sought to develop a multivariate path model that addressed the interrelated nature of computer anxiety and attitudes toward computers. In part, the present work is applying this relatively old theory to a new population, Saudi students, thereby expanding the utility of the framework in discussions of computer anxiety.

Initially, Igbaria and Parasuraman (1989) developed the path model to investigate adult managers' computer anxiety and attitudes toward computers; however, the researchers determined that the model could also be applied to study students' attitudes toward e-learning. The researchers reached this conclusion after reviewing more commonly used conceptual and theoretical models for researching students' attitudes toward e-learning, such as the Technology

Acceptance Model (TAM), Innovation Diffusion Theory (IDT), Social Cognitive Theory (SCT), Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), and the Unified Theory of Acceptance and Use of Technology (UTAUT). While some of these conceptual models factored in individual differences and attitudes, researchers have failed to adequately address computer anxiety and attitudes toward e-learning as interrelated variables. The path model developed by Igbaria and Parasuraman (1989) was therefore an appropriate choice for the current study because it enables the researcher to identify the extent to which individual characteristics influence computer anxiety and computer attitudes, as well as the relationship between Saudi students' computer anxiety and their attitudes toward e-learning.

Since the researcher seeks to describe the e-learning readiness of Saudi students studying in universities located in Pennsylvania, potential participants must meet specific inclusion requirements: participants must be male and female students from Saudi Arabia who are currently enrolled in either an undergraduate or a graduate program in a Pennsylvania university. Furthermore, since the researcher will administer the questionnaires through the Internet, participants should also have Internet access and a subscription to the SACM's Facebook page.

### **Assumptions**

The primary assumption involved in this study is that the participants are originally from Saudi Arabia. The researcher will attempt to verify participants' country of origin by contacting the Saudi Arabian Cultural Mission (SACM). The Saudi Arabian Cultural Mission keeps detailed statistics on Saudi students' locations and contact information. In addition, there are Saudi Arabian Student Associations in most Pennsylvania universities, whereby the researcher may contact the presidents of each association in order to obtain membership contact information if needed.

The second assumption regards the educational level of potential participants. More specifically, the researcher assumes that potential participants will be honest about whether they are enrolled as undergraduates or graduate students. The researcher also assumes that participants are being honest about their gender and their anxiety levels related to computers. Furthermore, the researcher assumes that participants are being honest about other demographic variables, such as their age and enrollment status.

### **Scope and Delimitations**

The scope of this study is delimited to Saudi students studying at Pennsylvania universities. This study is delimited to Saudi university students who have Internet access. In addition, only those who subscribe to the SACM's Facebook page will be given access to the survey link. Therefore, not all Saudi students studying in the Pennsylvania may participate in the survey. Thus, the sample is considered convenient in design.

### **Limitations**

A potential limitation to this study is related to receiving a low response rate. While Internet surveys are a convenient method of administering evaluative questionnaires, potential participants may be apprehensive of online surveys due to concerns related to confidentiality and ease of use (Nulty, 2008). The researcher will address this potential limitation by providing potential participants with assurance of confidentiality and anonymity. Potential participants will also be informed that their names will not be associated with the surveys. Another potential response rate limitation to this study is that there may not be an equal distribution of participants among males and females. In the event that at least 75 percent of respondents are of one gender, then significant conclusions regarding gender differences will not be reliable; therefore, the

researcher will only use the participants' gender data to identify unique findings, rather than to show associations.

### **Significance**

Saudi Arabia is the fourth-largest foreign sponsor of students in the United States, with over 100,000 Saudi students in the 2013-2014 school year studying at universities throughout the United States (Afifi & Alamri, 2014). While Saudi students study at universities throughout the world, 54 % of Saudi students studying in foreign countries do so in the United States (Taylor & Abasri, 2014). In regards to the distribution of Saudi students who graduated from universities in the United States, the top 10 states or districts with the most Saudi graduates from 1995 to 2005 are the District of Columbia, Florida, Ohio, Massachusetts, Colorado, Pennsylvania, California, Virginia, Michigan, and Indiana (Taylor & Abasri, 2014). As of 2014, California had over 11,000 Saudi students enrolled in its 80 approved universities, and Pennsylvania had over 4,000 Saudi students enrolled at 90 approved universities (Taylor & Abasri, 2014). Since the focus of this study is on Saudi students studying in Pennsylvania, where over 300 Saudi students graduated from universities between 1995 and 2005 (Taylor & Abasri, 2014).

As previously mentioned, numerous variables affect the performance and success of students who receive their lessons through e-courses, such as computer anxiety and individual student characteristics. Accordingly, with the prevalence of Saudi students in universities throughout the United States, as well as the increasing implementation of e-learning platforms, this study has the potential to offer much-needed insight into factors affecting Saudi students' e-learning readiness. In addition, this study may offer significant contributions to how instructors at universities design their e-courses, specifically in relation to their Saudi students.

Furthermore, the findings from this study could help inform the development of e-learning guidelines developed by education policy makers in Saudi Arabia.

### **Definitions**

*Attitude* is defined as “learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object” (Fishbein & Ajzen, 1975, p. 6).

*Students’ attitudes* describe the learned predisposition of students toward the online class regarding behavior, satisfaction, and appreciation of class materials, assignments, and student-instructor relationship.

*E-learning* in the current study is defined as an instruction approach that is entirely mediated by technology, whether web-, computer-, or Internet-based learning (Afifi & Alamari, 2014; Alraddadi & Eid, 2012; Clark & Mayer, 2011; Khan & Zaman, 2011).

*Anxiety* is defined in this study as situational negative responses to computer use, which can manifest as worry, fear, apprehension, and agitation (Achim & Kassim, 2015).

*E-course* in the context of this study is defined as a class that is delivered through the Internet, whereby a learning management system provides electronic activities and instructional materials (Afifi & Alamri, 2014).

### **Summary**

In this chapter, the researcher introduced the current study. The researcher began the chapter by explaining the background informing this research. Included in the background section was an outline of how e-learning has changed the ways in which universities disseminate information to their students, moving from traditional face-to-face classrooms to virtual classrooms. The background section was immediately followed by an elaboration of the problem that the researcher seeks to remedy. The problem statement identified the changes in learning

platforms as an essential element to the current study and discussed why Saudi students were selected as the population of interest, placing emphasis on the literature gap related to the factors influencing Saudi students' e-learning readiness.

The background and problem statement sections established the foundation for the purpose of the current study. As such, the goal of the current study is to determine the influencing factors contributing to Saudi Arabian students' e-learning readiness in light of gender, anxiety, and education level. Directly after the purpose statement, the researcher presented the questions directing this study. The researcher discussed the conceptual framework informing this study: Igbaria and Parasuraman's (1989) path model. The remainder of this chapter included relevant definitions, assumptions, scope and delimitations, limitations, and the study's significance. In Chapter 2, the researcher presents a review of related studies and a more detailed explanation of the conceptual framework informing the current study.

## CHAPTER II

### REVIEW OF THE LITERATURE

Technological advancements over the last few decades have ushered in many changes to the ways in which institutions of higher education disseminate information to students. The impacts that technology has on how students are educated is evidenced in the increasing availability of online programs offered by many universities (Faulk & King, 2013). As such, with universities shifting to more Internet-based classrooms in lieu of traditional classrooms, approaches to learning have also transitioned from teacher-centered to student-centered concepts (Afifi & Alamri, 2014; Al Gamdi & Samarji, 2016). The benefits associated with advancements in technology have not only added value to the educational experience by offering students more flexible learning avenues, but proponents of online courses have claimed that the interactive nature of computer-mediated classrooms facilitates the refinement of students' critical thinking skills (Dumitrache, 2014). Some scholars, however, have questioned the efficacy of online classrooms regarding student outcomes, especially since distance learning is characterized by the separation of students and professors (Dumitrache, 2014).

While the transition to e-learning formats offers students and professors more flexibility and convenience, the interactive nature of the instructional tools used in distance learning involves a great deal of technological support (Al Gamdi & Samarji, 2016). Indeed, the technological and infrastructure demands of e-learning must be adequately addressed to ensure that requirements are met, including the quality of the educational content, delivery of course materials, and students and professors' ability to reliably communicate with each other (Al Gamdi & Samarji, 2016).



According to Wang (2010), one of the benefits of distance learning is that it provides effective teaching materials through the implementation of multimedia applications, encouraging students to learn easily and understand subject matter effectively. Moreover, applying a multimedia platform to online learning reveals no significance difference between learning in traditional classes or online classes with respect to the professional cognition (Wang, 2010). Zhang (2013) asserted that interaction in an online setting may incorporate learner-to-instructor, learner-to-learner, and learner-to-content that is either synchronous or asynchronous. Furthermore, distance learning allows students to learn at their own pace, have broader access to information, and learn with individuals from different cultures.

Show and Griffith (2014) asserted that distance learning environments can provide cognitive and socio-cultural collaborative learning benefits, as well as enhance writing skills, critical thinking skills, and participation. Singh and Pan (2004) also pointed out that accessibility is an attribute of distance learning that provides learning opportunities to those who cannot attend traditional on-campus classes. In addition, Liu and Lee (2013) contended that most feedback is productive in an online setting because, unlike traditional classrooms where the professor offers the majority of the feedback, online platforms usually involve peer assessments, which can be more effective and efficient than traditional classroom settings. Cabuk Anaper, Ulucay, and Cabuk (2013) stated that distance learning provides accreditation processes similar to those found within traditional classroom settings. In order to assure high-quality education, leaders must address major factors such as student educational goals, programs outcomes, faculty evaluation, infrastructure, and financial support.

Mayor and Ivars (2007) found that e-courses that implemented a learner-centered method enabled students to be responsible for their own learning processes; however, while the learner-

centered approach to distance learning supported self-regulation, it also required learners to be self-motivated. While e-learning courses are generally student-centered, the role of the instructor should not be understated. As Baghdadi (2011) asserted, due to the nature of online classes, the primary materials used for online lessons should already be in place before the semester begins, thereby enabling distance learning instructors to have more available time for student interactions since preparing lessons prior to each class is unnecessary. Baghdadi also noted that the quality of the online experience is directly related to the student-professor ratio, in that instructors need to have enough available time to develop engaging course material as well as interact with their students online. Nevertheless, the student-instructor ratio continues to increase as the number of students who participate at least one online course each year continues to grow (Hoskins, 2011). Accordingly, *The Chronicle of Higher Education* reported significant growth in online education in 2009, with 2.14 million students enrolled in online courses, which represented a 20 percent increase over 2008.

In 2005, the government of Saudi Arabia launched a scholarship program with the United States, and, as of 2014, the number of Saudi students studying in United States universities has reached 111,000 (Naffee, 2014). Since 2005, the King Abdullah for Scholarship Program (KASP) has sent undergraduate and graduate level students to the United States to develop individuals academically and culturally, as well as to broaden educational opportunities and experiences for Saudi citizens (Saudi Arabian Cultural Mission, 2012). While the academic focus of the program has varied throughout the years based on political shifts in the country, most recently, the KASP scholarship has been given primarily to graduate students focusing on engineering and medicine (Taylor & Albasri, 2014). These thousands of students come to the United States with different educational experiences and backgrounds from their American

counterparts, especially in relation to technology use in the classroom. As a result, Saudi students might face problems working with e-learning approaches, which may affect their attitudes toward Internet-based classrooms. Saudi Arabian students may also face difficulties in dealing with the technological requirements of higher education in the United States, especially when considering that most Saudi Arabian students are accustomed to traditional class formats in the Saudi context (Hamdan, 2014). With the knowledge that Saudi students' experiences with e-learning platforms may be varied, their anxiety should be of special concern to administrators and instructors in America's higher education system. As such, the researcher will examine previous studies on anxiety in relation to an academic setting and e-learning, with Saudi Arabian students studying both in Saudi Arabia and in the United States.

### **Conceptual Model**

Over the last few decades, many theoretical approaches to studying the computer readiness of students in an e-learning context have been developed (Njihia & Oketch, 2014). Some of the most commonly used models and theories include Innovation Diffusion Theory (IDT), Social Cognitive Theory (SCT), Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM), and Unified Theory of Acceptance and Use of Technology (UTAUT) (Punnoose, 2012). As shown in Figure 1, these models take individual differences into account, while only the Theory of Reasoned Action, Theory of Planned Behavior, and Technology Acceptance Model consider attitudes toward a behavior as an important aspect of behavioral intentions.

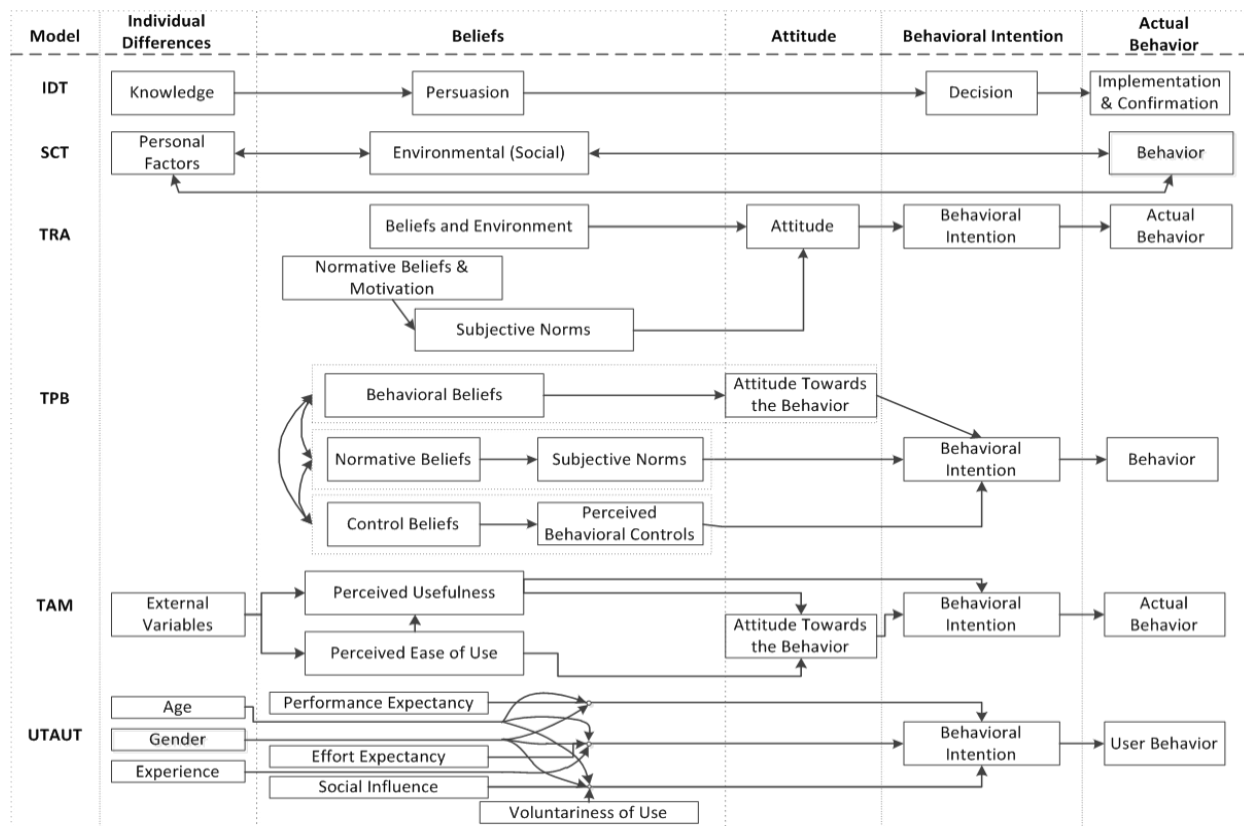


Figure 1. Comparison of Innovation Diffusion Theory (IDT), Social Cognitive Theory (SCT), Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM), and Unified Theory of Acceptance and Use of Technology (UTAUT). Adapted from “Determinants of intention to use e-learning based on the technology acceptance model,” by A. Punnoose, 2012, *Journal of Information Technology Education*, 11 p. 305. Copyright 2012 by Informing Science Institute.

Although the path models for many of these theories explore the relationships between specific individual differences and attitudes toward computers, they are primarily concerned with behavioral outcomes, and they fail to explicitly explore the relationship between computer anxiety and attitudes toward computers. Despite this shortcoming, TAM has emerged as a predominant method for studying and explaining the contributing factors to end-user behavior intentions and actual behavioral outcomes related to e-learning (Njihia & Oketch, 2014; Punnoose, 2012). TAM draws from the Theory of Reasoned Action and redirects the model by taking individual differences into account and emphasizing the notion that perceived usefulness and perceived ease of use directly affect an individual’s intentions to use a computer. In a study

using TAM, Abedalaziz, Jamaluddin, and Chin (2013) explored Malaysian postgraduate students' attitudes toward computer and Internet usage by surveying 600 postgraduate students. The findings revealed that respondents had positive views of the usefulness of computers and their individual abilities to use computers (Abedalaziz et al., 2013). The researchers also found no significant differences between participants' attitudes toward technology when gender, field of study, ethnicity, and age were taken into account (Abedalaziz et al., 2013). Nevertheless, while these models are all concerned with predictors of end-user behavior, they do not view computer anxiety and attitude as interrelated variables. As such, the researcher reviewed the path model proposed by Igbaria and Parasuraman (1989) to determine its applicability to studying the computer readiness of Saudi students studying in the United States.

In 1989, Igbaria and Parasuraman developed and tested a path model focused on identifying individual characteristics that predicted managers' computer anxiety and attitudes toward microcomputers. After an examination of previous empirical studies, Igbaria and Parasuraman noted that most of the research focused on bivariate relationships regarding computer anxiety and the attitudes of students in an academic setting, which led them to question the applicability of those findings to adult managers in a professional setting. In addition, Igbaria and Parasuraman found that, while some previous studies treated computer anxiety and attitudes toward computers as separate and distinct phenomenon, other researchers used the terms interchangeably; however, there was a paucity of research approaching computer anxiety and attitudes as interrelated phenomena. As such, Igbaria and Parasuraman (1989) devised a study that "sought to extend previous research by investigating in a single study the network of multivariate relationships among demographic and psychological variables, computer anxiety, and attitudes toward microcomputers among managers" (p. 374). Using a synthesis of Zmud's

(1979) model of management information systems success along with Howard's and Smith's (1986) model of computer anxiety, Igbaria and Parasuraman (1989) designed a multivariate path model and tested it using information collected from 166 managers (see Figure 2). Findings from the multivariate factor analysis indicated that computer anxiety was a significant predictor of manager attitudes toward microcomputers; however, the path model was only moderately supported by the results. Ultimately, Igbaria and Parasurama recommended further research on managers utilizing multivariate analysis to examine individual factors and organizational factors that serve as possible predictors of attitudes toward microcomputers.

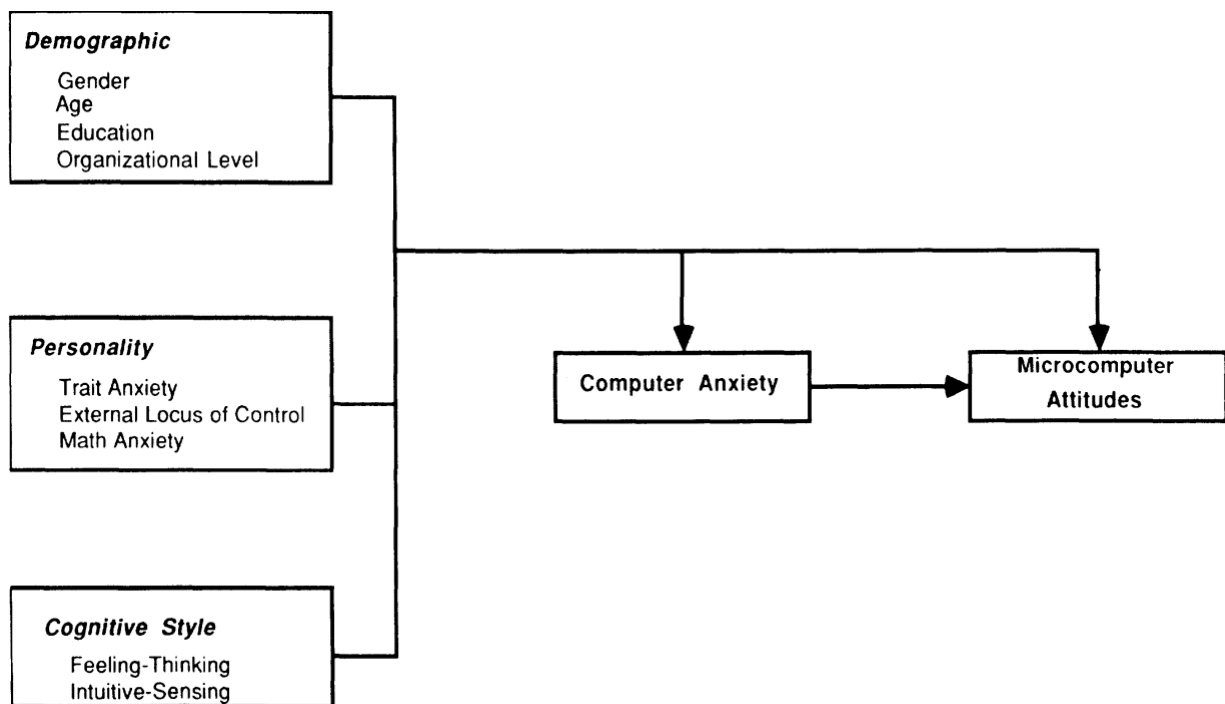


Figure 2. Igbaria and Parasuraman's path model for computer anxiety. Adapted from "A path analytic study of individual characteristics, computer anxiety and attitudes toward microcomputers" by M. Igbaria, and S. Parasuraman, 1989, *Journal of Management*, 15, p. 375. Copyright 1989 by the Southern Management Association.

Although the path model proposed by Igrabria and Parasuraman (1989) was designed specifically to address employed adult managers, the current researcher determined that its multivariate approach to testing predictors for attitudes toward computers and computer anxiety were applicable to the current study. Since the individual characteristics of interest in the current study are somewhat different than those in the path model tested by Igrabria and Parasuraman, the researcher adapted the original model to meet the current study's objectives. Accordingly, in the current study, computer anxiety and attitude toward computers are variables that the researcher considered as interrelated, while the researcher will modify the three individual characteristics include gender, education level, and age, rather than demographics, personality, and cognitive styles.

### **Students Attitudes Toward E-Learning**

In general, students have positive attitudes toward e-learning. Adewole-Odeshi (2014) surveyed 387 Nigerian students on their experience with, attitudes toward, and intention to use various e-learning tools. The results indicated that a majority of the students had experiences with such tools as video conferencing, WebCT, virtual classrooms, search engines, and email. In addition, 80% of the students indicated that they had a "generally favorable" attitude toward e-learning tools, and 86% indicated that it is a "good idea" to use such tools. Up to 88.6% of respondents indicated that they would use e-learning tools whenever possible throughout their course work. Moreover, these attitudes were not affected by individual student demographics such as age or experience with computers (Adewole-Odeshi, 2014).

Rhema and Miliszewska (2014) found similar results when surveying Libyan engineering students at the university level. Although both male and female students had positive attitudes, their reasoning differed. Male students expressed that they were more confident in using

information and computer technology (ICT) and enjoyed it more than female students; female students more often indicated that e-learning enhanced their learning. Both genders, however, expressed that they were confident in using e-learning technology, enjoyed using it, believed in its benefits, and would be interested in taking courses that utilized it (Rhema & Miliszewska, 2014).

Wong (2012) found contradictory evidence regarding students' preference for online versus face-to-face course delivery. This author surveyed accounting students over three semesters about their preference of learning in-person versus viewing lectures via Lectorpia, Elluminate, or WebCT. The results indicated that, despite the new online options for learning, students demonstrated "strong support of traditional approaches," regarding both lectures and tutorials (Wong, 2012, p. 200). Wong suggested that this is due to students' preference for active rather than passive learning; therefore, it is possible that more active online approaches could improve students' attitudes toward such technology.

### **Anxiety**

Anxiety is a multifaceted term with many definitions that encompass a wide range of negative emotional responses (Achim & Kassim, 2015). According to Al-Khasawneh (2016), "anxiety is a state of apprehension and fear resulting from predicting a threatening situation or event" (p. 138). In contrast, Alrabai (2014) defined anxiety as a phenomenon characterized by a feeling of discomfort, nervousness, vague fear, and apprehension that is not associated with a specific situation or event. High levels of anxiety can affect an individual's performance in a number of areas, such as academic achievement (Amiri & Ghonsooly, 2015). In an academic context, anxiety can manifest in many ways, including test anxiety, math anxiety, English anxiety, writing anxiety, and computer anxiety (Cambre & Cook, 1985); however, in accordance



with the focus of this study, the following discussions will focus on English anxiety and computer anxiety.

### **English Anxiety**

In a study investigating the relationship between the anxiety associated with learning English and non-native English-speaking students' achievement on examinations, Amiri and Ghonsooly (2015) evaluated the anxiety levels of 258 freshman medical students from Gonabad University of Medical Sciences. The researchers initially administered a five-point Likert scale questionnaire designed to measure levels of communicative anxiety, test anxiety, fear of negative evaluation, and English classroom anxiety (Amiri & Ghonsooly, 2015). At the end of the semester, the researchers administered an achievement test. Findings from the statistical analysis revealed that anxiety levels associated with learning English were significantly higher than the anxiety levels associated with taking tests, communication, and fears of negative evaluation (Amiri & Ghonsooly, 2015).

In another study, Liao and Wang (2015) investigated the effects of using post-structural feminist pedagogical learning intervention to reduce English classroom anxiety levels among 77 Taiwanese students taking freshman-level English classes. The researchers surveyed 37 students who were placed in a freshman English classroom where the intervention was applied and 40 students who were placed in a traditional English classroom (Liao & Wang, 2015). The instruments used to measure the outcomes of the classes included the English Classroom Anxiety Scale (ECAS), English proficiency tests, the Student Satisfaction Questionnaire (SSQ), and interviews with students (Liao & Wang, 2015). The findings revealed that students who were in the English classes where the feminist pedagogical learning intervention was implemented reported lower levels of anxiety regarding the English classroom and greater satisfaction with the

class than those who took the traditional English class (Liao & Wang, 2015). The researchers also found that students who took the class with the intervention scored higher on the English proficiency tests than students who were in the traditional English class (Liao & Wang, 2015).

In another study investigating foreign language learning anxiety, Al-Khasawneh (2016) explored the anxiety levels of Saudi students studying in King Khalid University. The researcher sought to determine whether there were any differences between students' anxiety levels and their academic levels (Al-Khasawneh, 2016). To this end, the investigator administered the Foreign Language Classroom Anxiety Scales questionnaire to 97 students majoring in English who were at different levels of their academic careers (Al-Khasawneh, 2016). The results of the survey analysis indicated that students had a moderate level of anxiety related to learning a foreign language, with no statistically significant differences associated with anxiety levels and academic level (Al-Khasawneh, 2016).

In one study focusing on graduate students learning English as a foreign language, Ho (2016) investigated the relationship between research writing anxiety and self-efficacy. The researcher conducted semi-structured interviews and administered two different Likert-type scale questionnaires to 282 participants who were either master's or doctoral students from five different engineering-related programs (Ho, 2016). The investigator designed the two questionnaires to measure writing anxiety and self-efficacy and designed the interviews to obtain supplemental data (Ho, 2016). Analysis of the collected data revealed that participants from both levels of education experienced low levels of anxiety related to research writing and moderate levels of self-efficacy regarding writing in English (Ho, 2016).

In another study investigating multimedia approaches to teaching English as a second language, Huang and Hwang (2013) conducted a quantitative study to determine the relationship

between adding e-learning methods to English instruction and the anxiety levels experienced by college students. To accomplish their objective, the researchers administered 124 Likert-scale questionnaires to freshman college students who had received previous English instruction (Huang & Hwang, 2013). The statistical analysis of the returned questionnaires indicated that the addition of technology aids to English classrooms was beneficial to the students learning English (Huang & Hwang, 2013). The researchers also discovered a positive correlation between the levels of anxiety experienced by participants and the addition of e-learning techniques (Huang & Hwang, 2013).

### **Computer Anxiety**

Computer anxiety is defined as hesitance or reluctance to engage in an Internet-based classroom environment (Alenezi et al., 2010). According to Howard and Smith (1986), computer anxiety is the inclination of an individual to experience nervousness when approaching use of a computer. E-learning has become a trend for most educational institutions worldwide, as well as for many students facing e-learning anxiety (Alenezi et al., 2010). This anxiety can arise as a result of teachers' approaches, students' genders, attitudes toward technology, and educational achievement (Alenezi et al., 2010). Researchers have suggested that students who are using e-learning as a new educational method may be anxious about engaging with online platforms, which may lead to overall negative attitudes about e-learning (Conrad & Munro, 2008). Since higher education online enrollment continues to increase, computer anxiety remains a critical matter in education (Saadé & Kira, 2009).

Several researchers have examined e-learning anxiety as a main component affecting the behavior intentions of students (Alenezi et al., 2010). Many researchers have conducted studies in the area of e-learning intentions in order to examine the function of computer anxiety on

students' behaviors (Saadé & Kira, 2009). According to Igarria and Parasuraman (1989), computer-related anxiety is defined as "someone being uneasy, apprehensive, or fearful about using computers" (p. 375). Beckers and Schmidt (2001) highlighted the multidimensional aspects of computer anxiety and identified students' positive and negative views about e-learning, insecurity, uneasiness, worry, distress, pressure, and unwillingness (Beckers & Schmidt, 2001; Heinssen, Glass, & Knight, 1987; Saadé & Kira, 2009). Negative feelings linked with computer usage can influence the whole learning process. As noted by Saadé and Kira (2009), "Frustration, confusion, anger, anxiety, and similar emotional states can affect not only the interaction itself, but also productivity, learning, social relationships, and overall well-being" (p. 179).

In a study focusing on the mediating effects of self-efficacy regarding how computer anxiety influences perceived ease of use in an e-learning context, Saadé and Kira (2009) administered surveys to 645 university students who were enrolled in online courses. The researchers designed the survey instrument used in the study to measure three aspects of the online courses: perceived ease of use, anxiety, and computer self-efficacy (Saadé & Kira, 2009). Analysis of the mediating effects of self-efficacy revealed that there was a statistically significant relationship between anxiety and computer self-efficacy (Saadé & Kira, 2009). The survey analysis also revealed that anxiety had a statistically significant effect on perceived ease of use. Overall, the researchers concluded that self-efficacy was a significant mediator of perceived ease of use (Saadé & Kira, 2009). Furthermore, e-learning anxiety was higher among undergraduates at the college level (Rosen & Weil, 1995; Saadé & Kira, 2009).

In another study looking at adults and teenage students, Rosen and Weil (1995) found that, although the number of students who have self-reported e-learning phobia has declined,

adults had more reluctance concerning e-learning; however, the results of this study conducted in the 1990s may not be applicable to universities in the Twenty-First Century. Despite its dated nature, the study provided valuable insight into student anxiety. The findings from the study enabled researchers to identify three aspects of anxiety for college students in the United States: interactive computer learning anxiety, consumer technology anxiety, and passive computer learning anxiety (Rosen & Weil, 1995). Due to these results, there has been a positive correlation found between the negative attitudes toward technology and anxiety by expert education researchers (Conrad & Munro, 2008; Rosen, Sears, & Weil, 1987).

In a world where integrated interfaces are consistently being developed and updated, the primary importance is being placed by instructors on students' anxieties about learning to execute tasks effectively and utilizing e-learning (Efe & Efe, 2016). As such, in a study aimed at explaining Swiss and Turkish pre-service science teachers' anxiety related to teaching e-courses from a cultural perspective, Efe and Efe (2016) surveyed 538 pre-service science teachers who were studying at University Ziya Gokalp Education Faculty and 188 pre-service science teachers at the University of Teacher Education between 2011 and 2012. The researchers were specifically interested in the following variables: experience with technology, frequency of use, access, attitudes toward e-learning, and self-efficacy related to teaching e-courses (Efe & Efe, 2016). The findings indicated that Turkish and Swiss instructors who had high degrees of technological experience also had high degrees of computer anxiety. The findings also revealed that self-efficacy, anxiety, and attitudes regarding educational technology were correlated (Efe & Efe, 2016).

## **E-Learning in English as a Second Language in Saudi Context**

Al-Jarf (2013) explored the effects of adding online reading and writing activities to college freshman English as a foreign language classroom in comparison with traditional textbook methods. Findings from the study indicated a positive correlation between the posttest scores of active and inactive participants, which suggested that the use of online instruction was a powerful tool for improving students' reading and writing skills in English as a foreign language classroom (Al-Jarf, 2013). The results also revealed that the integration of different types of technologies when teaching reading and writing skills was productive, particularly for students who have difficulty in reading (Al-Jarf, 2013). Technology played a significant role in learning English and enhanced the English language learning experience by fostering an easier, faster, less frustrating, and more engaging introduction to language (Al-Jarf, 2013). The researcher ultimately recommended that, in light of the enhancement in English writing and reading skills that technology facilitates, teachers should continue to engage their students (Al-Jarf, 2013).

In a similar study exploring the implementation of e-learning when teaching English as a foreign language to students, Farooq and Javid (2012) sought to identify Saudi students' attitudes toward e-learning at Taif University English Language Center. These researchers administered questionnaires designed to measure undergraduates' access, use, and attitudes toward e-learning when learning English (Farooq & Javid, 2012). Results from the survey responses indicated that computer access was not a significant indicator of attitudes toward using e-learning to learn English; while the majority of participants had access to computers at home, they were not motivated to learn English (Farooq & Javid, 2012). Findings also revealed that students believed that the classroom curriculum was not adequately integrated into the online platform. The

researchers argued for more succinct integration of technology and curriculum to improve the learning environment (Farooq & Javid, 2012).

In a more recent study on Saudi students' attitudes toward the integration of e-learning tools into English as a second language classroom, Ezza and Bakry (2014) investigated male and female students attending English classes at Majma'ah University and King Abdul Aziz University. The researchers administered questionnaires to 50 male and female students to determine whether there was a difference between their attitudes toward e-learning based on gender (Ezza & Bakry, 2014). Analysis of the responses revealed that both males and females had positive attitudes toward the addition of e-learning techniques to the traditional English classrooms, with no significant differences in attitudes related to gender (Ezza & Bakry, 2014). The researchers ultimately concluded that students preferred e-learning platforms over traditional classrooms, thereby indicating that professors should make efforts to integrate more multimedia options into their English as a second language classroom (Ezza & Bakry, 2014)

Fageeh (2011b) sought to identify English as a Second Language students' readiness for e-learning via surveys and in-depth interviews with students and teachers (Fageeh, 2011b). The results suggested that level of study was not significantly associated with participants' readiness for e-learning (Fageeh, 2011b). The researcher also found that teachers who had positive attitudes toward e-learning were more likely to integrate technology into the classroom, while students who had positive attitudes toward e-learning were more accepting of the addition of e-learning tools into the classroom environment (Fageeh, 2011b). Fageeh concluded that students preferred online platforms over traditional classroom interaction due to the autonomous nature of e-learning.

In another study, Fageeh (2011a) assessed English as a Second Language students' use of blogging to determine its efficacy in developing writing skills and enhancing attitudes toward learning English. In this exploratory study, Fageeh compared 25 students who used blogging with 25 students who did not. The findings indicated that students who used weblogs found it to be a valuable tool for improving their English proficiency (Fageeh, 2011a). Participants also perceived weblogs as an opportunity to give them a voice on a global scale and to enhance their social interaction skills (Fageeh, 2011a). The overall research findings indicated that weblogs motivated students to engage with the English language more effectively than in traditional classrooms (Fageeh, 2011a).

### **E-Learning and Saudi Students**

Saudi Arabia has only recently started introducing e-learning to university students. Al-Fahad (2010) investigated female students' satisfaction with e-learning at King Saudi University. Beyond female students' e-learning satisfaction, Al-Fahad was also interested in whether e-learning could effectively replace traditional classroom learning. Participants in the study included 201 female students who were attending the College of Applied Academic Studies and Community Service located in Riyadh, Saudi Arabia (Al-Fahad, 2010). The researcher administered surveys that asked the participants 10 Likert-scale questions designed to measure their satisfaction with e-learning and whether they felt that e-learning would be an effective replacement for traditional classroom instruction (Al-Fahad, 2010). Results indicated that the female students who participated in the study had an overall positive perception of e-learning, and that there were tangible benefits of e-learning when compared with traditional classroom learning (Al-Fahad, 2010).



The integration of male and female students in universities does not happen in Saudi Arabia due to religious influences in policymaking; however, the introduction of e-learning has shifted the education landscape from segregation based on gender to more coeducational realities (Alanazy, 2013). As such, studies on e-learning and students conducted in Saudi Arabia usually involve gender variables from the onset. In one such study, Alanazy sought to address the dearth of literature focused on Saudi female students' perceptions of online discussions versus face-to-face discussion in the United States (Alanazy, 2013). Alanazy surveyed 277 Saudi female students studying at universities in the United States. The results of the analysis revealed that Saudi female students felt comfortable when they participated in both face-to-face and online learning discussion environments; however, marital status and attitudes toward technology significantly influenced participants' levels of comfort when engaging in online discussions (Alanazy, 2013).

Taking a slightly different approach to studying e-learning, Alanazy (2011) explored Saudi students' attitudes, beliefs, and preferences toward coeducational online cooperative learning in the United States. The researcher administered online surveys to 707 Saudi students in the United States. Results indicated that both males and females believed that the introduction of co-educational online platforms in Saudi Arabia would be beneficial and effective (Alanazy, 2011). Alanazy also found that marital status significantly affected participants' perspectives of coeducational learning online. The findings indicated that both males and females had positive attitudes with respect to online coeducational learning (Alanazy, 2011).

Zabadi and Al-Alawi (2016) investigated Saudi students' attitudes toward e-learning in the University of Business and Technology in Jeddah, Saudi Arabia. The objectives of the study were to determine whether there was a difference in students' attitudes toward e-learning based

upon gender and individual experience and the use of technology (Zabadi & Al-Alawi, 2016). The researchers collected data using questionnaires divided into three sections designed to elicit responses related to computer usage and skills: e-learning, demographic information, and overall attitudes toward computers (Zabadi & Al-Alawi, 2016). Respondents to the survey were predominantly male (76%), with the majority being between the ages of 20 and 26 (58%) (Zabadi & Al-Alawi, 2016). Findings indicated that participants generally had positive attitudes toward e-learning; however, student attitudes toward technology varied significantly according to gender, technology usage, and skills (Zabadi & Al-Alawi, 2016). More specifically, male respondents had more positive attitudes toward e-learning than their female counterparts (Zabadi & Al-Alawi, 2016). The researchers concluded that, in order to decrease students' negative attitudes toward e-learning, Saudi teachers should implement e-learning courses earlier in students' education experience (Zabadi & Al-Alawi, 2016).

In another study exploring Saudi students' attitudes toward e-learning, Samarkandi (2011) focused on male and female nursing students attending King Saud University. This investigator distributed surveys based on the computer attitude scale to 195 male students and 405 female students during the 2009-2010 academic school year (Samarkandi, 2011). The computer attitude scale measures the factors contributing to individual attitudes toward computers: computer anxiety, computer confidence, computer liking, and computer usefulness (Samarkandi, 2011). In light of the response rates being skewed in favor of females, findings revealed that females overall experienced more anxiety toward e-learning than males (Samarkandi, 2011). Results also indicated that, when students had access to computers at home and at the university, they experienced less computer anxiety related to e-learning (Samarkandi,

2011). The researcher ultimately concluded that further research related to cultural influences on attitudes toward e-learning is needed (Samarkandi, 2011).

### **Summary**

In this chapter, the current researcher identified the related literature regarding e-learning anxiety and Saudi Arabian students studying in the United States. The literature review began with an explanation of the various theories and models used to research computer anxiety, whereby the researcher identified the path model proposed by Igrabria and Parasuraman (1989) as the conceptual model informing the current study. In the next section in this literature review, the researcher identified the various ways in which anxiety manifests in an academic context, with emphasis on computer anxiety and English anxiety.

The researcher began the subsequent sections by exploring studies related to e-learning implementation in English as a foreign language classroom. The reviewed studies in this section indicated that the addition of e-learning tools to classrooms enhanced Saudi students' English learning experience (Al-Jarf, 2013; Ezza & Bakry, 2014; Fageeh, 2011a, 2011b; Farooq & Javid, 2012). In the next section, the researcher presented studies related to e-learning and Saudi students, which revealed that Saudi students had overall positive attitudes toward e-learning (Alanazy, 2011, 2013; Al-Fahad, 2010; Samarkandi, 2011; Zabadi & Al-Alawi, 2016). Through this literature review, the researcher has summarized studies that help to explain some of the contributing factors to e-learning anxiety experienced by Saudi students.

This chapter is followed by Chapter 3, wherein the researcher will present the methodology implemented to collect and analyze data. In Chapter 4, the researcher will offer detailed discussion regarding the results. Chapter 5 will conclude this report by offering interpretations and implications of the results.

### CHAPTER III

#### METHODOLOGY

In 2005, Saudi King Abdullah bin Abdulaziz Al Saud expanded the Saudi Arabian international sponsorship program for students in response to an education agreement with the United States, which has resulted in an increase of Saudi students studying at American universities (Taylor & Albasri, 2014). The Saudi scholarship program has enabled more Saudi students to study internationally; however, the United States has a very different approach to educating students than Saudi Arabia, especially regarding learning environments. Since Saudi Arabia has strict policies about intermingling males and females within university classrooms, these disparate approaches to learning are especially evident with the coed nature of classrooms in the United States (Afifi & Alamri, 2014). Furthermore, the increasing availability of e-learning courses at universities within the United States has brought about numerous transformations to the ways in which information reaches students, which may cause difficulties for Saudi students who are accustomed to traditional classroom learning environments (Afifi & Alamri, 2014).

Along with offering more interactive and flexible learning experiences to students, e-learning has also ushered in a conceptual paradigm shift from teacher-centered learning approaches to more student-centered learning approaches (Afifi & Alamri, 2014; Al Gamdi & Samarji, 2016). This student-centered approach to learning has additionally inspired a greater focus on the quality of the learning experience, with an emphasis on students' attitudes toward e-learning. As a result, numerous scholars have investigated the predictors for student behavioral outcomes in an e-learning context; however, the influencing factors of interest involved with these studies vary according to the conceptual model informing the research. Moreover, there is

a paucity of literature in which the investigators adequately explored the computer readiness of students in light of cultural contexts, such as in the case of Saudi students studying at universities in the United States (Alanazy, 2011). To address this gap in the literature, the current researcher aims to determine the e-learning readiness of Saudi students studying at universities in the United States.

The researcher begins this chapter by providing the research design and explaining the rationale for its selection. The researcher then presents the methodology, including the target population, sampling procedures, and the instrumentation the researcher will implement to collect data. In the next section, the researcher addresses possible threats to external and internal validity, as well as the ethical procedures involved with conducting the study. In the final section, the researcher summarizes the information in this chapter.

### **Research Design and Rationale**

The research design for the current study is quantitative, which will inform the data-collection methods the researcher uses to explore the relationship between Saudi students' individual characteristics and their computer anxiety levels, as well as their attitudes toward e-learning. More specifically, the researcher will treat computer anxiety and attitudes toward e-learning as dependent, interrelated variables, while the independent variables will include gender, and level of education. Since the purpose of this study is to determine the relationships between the variables within a finite time frame that will involve no follow-up, a quantitative design is an appropriate choice (Hulley, Cummings, Browner, Grady, & Newman, 2013). Moreover, a quantitative approach enables the researcher to determine whether the observed relationships between variables are statistically significant enough to draw valid conclusions (Hulley et al., 2013; Williams, 2007).

## **Theoretical Underpinnings of Quantitative Research**

The underlying theoretical foundation of quantitative research approaches usually have a basis in either positivist or postpositivist perspectives. Positivism emerged in the early Twentieth Century, based on Auguste Comte's late Nineteenth Century assertion that understandings of reality and truth were only possible through a systematic, scientific approach to studying phenomena (Aliyu, Bello, Kasim, & Martin, 2014). From a positivist perspective, reality is independent of the observer, and it is possible to achieve solutions to all conceptual and methodological problems through the application of systematically derived quantitative research methods (Adam, 2014). In contrast, the postpositivist perspective critiques the rigid positivist approach to data collection, espouses a more dynamic approach to research design, and allows for the addition of qualitative methods to quantitative ones when necessary (Adam, 2014). Figure 3 offers a summary of the ontological, epistemological, and methodological natures of knowledge, values, and ethics that characterize positivism and postpositivism.

Issue	Positivism	Postpositivism
Ontology	Naive realism - “real” reality but apprehendable realist: Reality exists independent of observer’s perceptions and operates according to immutable natural laws that often take cause/effect form. truth is defined as that set of statements that accurately describe reality.	Critical realism - “real” reality, but only imperfectly and probabilistically apprehendable
Epistemology	Dualist/objectivist - Knowledge is a phenomenon that exists external to the observer; the observer maintains a distance and studies the phenomenon (sometimes referred to as empiricism); findings are true	Modified dualist/objectivist; Critical tradition/community; findings probably true
Methodology	Experimental/manipulative; verification of hypotheses; chiefly quantitative methods	Modified experimental/manipulative; critical multiplism; falsification of hypotheses; may include qualitative methods
Nature of Knowledge	Verified hypotheses established as facts or laws	Non-falsified hypotheses that are probable facts or laws
Values	Excluded – influence denied	Excluded – influence denied
Ethics	Extrinsic – tilts toward deception	Extrinsic – tilts toward deception

*Figure 3. Positivism versus postpositivism. Adapted from “Paradigm Controversies, Contradictions, and Emerging Confluences,” in N. Denzin and Y. Lincoln (Eds.), The Sage Handbook of Qualitative Research (3rd ed.), Thousand Oaks, CA: Sage, 2005, pp. 195-196.*

### Methodology

For this quantitative study, the researcher utilized a questionnaire, which was made available online in order to collect the needed data. The study relies on a descriptive research approach as most appropriate for gathering and presenting the data from which the reported results are derived (Shavelson, 1996). Further, the researcher provides answers to the research questions in regard to the participants’ perceptions and opinions of learning online and their attitudes toward this delivery format in concert with a careful consideration of the study conditions (Crowl, 1993). Descriptive research is “useful for investigating a variety of

educational problems, and concerned with the assessment of attitudes, opinions, and preferences” (Gay & Airasian, 2000, p. 275).

### **Research Questions**

The research questions informing the current study are as follows:

1. What are the differences between male and female Saudi students’ attitudes toward e-learning at Pennsylvania universities?
2. What are the differences between the attitudes of undergraduate and graduate Saudi students toward e-learning at Pennsylvania universities?
3. How much computer anxiety do male and female Saudi students report in e-learning environments at Pennsylvania universities?

### **Null Hypotheses**

H1: There is no statistically significant difference between male and female Saudi students’ attitudes toward e-learning at Pennsylvania universities.

H2: There is no statistically significant difference between graduate and undergraduate Saudi students’ attitudes toward e-learning at Pennsylvania universities.

H3: There is no statistically significant difference between male and female Saudi students’ level of computer anxiety toward e-learning at Pennsylvania universities.

### **Population and Sample**

The target population for this study consists of undergraduate and graduate Saudi Arabian students who are studying at Pennsylvanian universities. According to the SACM Information Technology General Director, there are 3,632 Saudi students currently studying in Pennsylvania (N. Elrefia, personal communication, July 14, 2017). The SACM uses social media portals to provide updates and other information to Saudi Arabian students located in the United States.



The percentage of Saudi Arabia's population who use social media rose quickly between 2008 and 2014 from 18% to 88%, with approximately 21% of the country's population using Facebook (Almusam, 2016). As of July 2017, the Facebook account for SACM has 100,459 "likes"; these numbers imply that SACM reaches the vast majority of the Saudi students studying in the United States. The target sample size will be 348 Saudi students (Krejcie & Morgan, 1970). Inclusion criteria are each potential participant must have access to an electronic device with a connection to the Internet, and an active Facebook's account that he or she checks regularly.

The sampling frame will include Saudi students who are doing e-learning courses at Pennsylvania universities that the SACM has approved (Ministry of Education, 2017). The researcher will use a convenience sampling strategy to select participants; in a convenience sample, the participants consist of individuals who are available for and willing to participate in the study (Howell, 2011). The researcher will select potential participants using a convenience sampling method, which is appropriate for the current study because the participants need to be accessible to the researcher for inclusion in the study (Howell, 2011). The researcher will select the universities to include in this study from a list of institutions of higher education that SACM has approved.

### **Instrumentation**

The researcher adopted the current survey instrument from a previous instrument by Bolliger and Halupa (2012). The study was conducted at small, accredited university in United States. The instrument contains 18 items measuring anxiety and 24 items measuring attitudes. Bolliger and Halupa assured this instrument's reliability and validity, and pilot tested the

instrument prior to the data collection phase and determined that the survey had an internal reliability coefficient of ( $\alpha = .92$ ).

After the pilot testing, the researchers utilized the feedback from respondents to improve the clarity by slightly modifying several items. The Cronbach's alpha coefficient was calculated by Bolliger and Halupa after the data collection phase to evaluate the instruments' internal reliability. The students' satisfaction questionnaire's reliability was high ( $\alpha = .91$ ). The internal reliability coefficient for the anxiety scale was high ( $\alpha = .93$ ). The current researcher requested permission for use from the original authors of the survey; the researcher obtained this permission. (See Appendix B). The researcher will collect the study data using five-point Likert-type scale items that range from 5 (*strongly agree*) to 1 (*strongly disagree*).

### **Pilot Study**

The researcher conducted a pilot study using specific, relevant items from the adopted study. The instrument included three elements in statements of anxiety: Computers, the Internet, and online courses. Also, it included six elements in statements of attitudes: Instructor, technology, outcome, course, interaction, and satisfaction. The instrument included 10 five-point Likert scale items ranging from 5 (*strongly agree*) to 1 (*strongly disagree*) for anxiety and 12 five-point Likert scale items ranging from 5 (*strongly agree*) to 1 (*strongly disagree*) for attitudes.

The researcher ran a Cronbach's alpha to ensure the reliability of the survey for both attitudes and anxiety. The pilot study included 10 Saudi students who are studying at Indiana University of Pennsylvania, 50% male and 50% female. The researcher asked a faculty member in the Management Department and a peer reviewer working in the Communication Media Department at this university to validate the survey after modification. The reliability score was

( $a = .88$  for attitudes and ( $a = .84$ ) for anxiety. The reviewers made the recommendation that the instrument should be designed so that blended learning would be understood as referring to a combination of online and face-to-face classes. Therefore, in the first part of the questionnaire, item 3 was written as follows: “Have you been enrolled in online or blended courses”. Further, at the reviewers’ suggestion, the demographic question asking whether the participants were studying at one of several universities in the state of Pennsylvania was removed from the section 1 and transferred to the demographic information section and asked in a more straightforward way: “What is your university.” Another change that should be noted is that several items were deleted from the questionnaire, as these items were recoded by the researchers who wrote them initially. The deleted items relate to the extent to which the students reported feeling relaxed working on a computer and the extent to which they were excited about and felt confident using the Internet.

### **Data Collection Procedures**

The process of data collection will include four phases, as follows: First, the researcher will contact the SACM (See Appendix C). The researcher will present the purpose of the study to Saudi students via SACM’s Facebook page. The researcher will distribute the surveys to the Saudi students in Pennsylvanian universities by posting the link on SACM’s Facebook page (See Appendix D). The researcher will post reminders on SACM’s Facebook page. The researcher will administer the survey through the online survey software Qualtrics, whereby potential participants will receive a post of the survey on SACM’s Facebook page. The researcher divided the questionnaire into three sections, namely:

1. Attitudes: This section will rate students’ responses toward e-learning to 12 attitudinal survey questions related to attitudes.

2. Anxiety: This section will measure students' anxiety through rating their responses toward e-learning to 10 attitudinal survey questions.
3. Demographic information: This section will ask for demographic information such as age, gender, academic information, and e-learning experiences.

Table 1

*Research Questions and Sources of Collecting Data*

Research Questions	Data Sources		
	Part 1	Part 2	Part 3
1.What are the differences between male and female Saudi students' attitudes toward e-learning at Pennsylvania universities?	X		X
2. What are the differences between the attitudes of undergraduate and graduate Saudi students toward e-learning at Pennsylvania universities?	X		X
3. How much computer anxiety do male and female Saudi students report in e-learning environments at Pennsylvania universities?		X	X

### **Reliability and Validity**

Reliability and validity are of the highest importance when designing a survey instrument; for the survey to be valid, it must be reliable (Buddenbaum & Novak, 2001). This survey item contains 10 items measuring anxiety and 12 items measuring attitudes. Cronbach's alpha testing shows  $\alpha = .88$  for attitudes and  $\alpha = .84$  for anxiety for the current study, which means that the survey is reliable and valid. The primary threat to the external validity of this study is the response rate. While online survey methods generally encounter less problems than paper survey methods, the ease with which a potential participant can delete e-mails without even reviewing their content could potentially negatively impact the response rate (Buddenbaum & Novak, 2001). Another potential problem with use of online surveys is that potential participants might be apprehensive about the confidentiality and anonymity of their survey

responses (Buddenbaum & Novak, 2001). The researcher will address this potential threat to the response rate by assuring potential participants that their information will remain confidential and that there will be no way to associate their responses with their names (Buddenbaum & Novak, 2001). These assurances will be part of the post inviting participation in the survey.

### **Data Analysis**

The researcher utilized a survey consisting of Likert-type statements that gauge the participants' attitudes and anxiety toward e-learning. The survey contains 22 ordinals, and nominal questions including demographic questions related to gender, educational level, and the universities the students are attending. The researcher will import the collected data from Qualtrics into the Statistical Package for the Social Sciences (SPSS) for data analysis. The researcher will perform statistical analysis including a *t* test to show the differences between genders and between graduate and undergraduates regarding attitudes toward e-learning. The researcher will also calculate descriptive statistics including frequency, mean, median, and standard deviation. Table 2 gives the analytical procedures.

Table 2

#### *Questions and Analytical Procedures for Analysis Process*

Research Question	Analytical Procedure
1. What are the differences between male and female Saudi students' attitudes toward e-learning at Pennsylvania universities?	Quantitative: Descriptive statistics, two sample <i>t</i> - test.
2. What are the differences between the attitudes of undergraduate and graduate Saudi students toward e-learning at Pennsylvania universities?	Quantitative: Descriptive statistics, two- sample <i>t</i> - test.
3. How much computer anxiety do male and female Saudi students report in e-learning environments at Pennsylvania universities?	Quantitative: Descriptive statistics, two sample <i>t</i> - test.

## **Ethical Considerations**

In accordance with standard protocols for research involving human subjects, the researcher will obtain Institutional Review Board (IRB) approval prior to collecting any data (See Appendix E). The researcher will inform the potential participants that their participation is fully voluntary, and that they are free to withdraw from the study any time. The researcher will also inform the participants that their responses will be confidential and anonymous; there will be no identifying information in their surveys. Furthermore, the researcher will ask the participants if they have any questions or concerns regarding the study and will answer all relevant questions. Lastly, the researcher will inform the participants that a summary of the results of the study will be available to them upon request.

## **Summary**

In this chapter, the researcher has presented information relating to the methodological approach for the current study. In the first section of this chapter, the researcher identified the research design as quantitative, and provided the rationale for its selection. In the next section, the researcher provided the methodology to identify potential participants, the sampling strategy for finding potential participants, and the instrumentation to collect the required information. In the final section, the researcher evaluated the potential threats to the validity of the study and the ethical procedures. In the next chapter, the researcher will present the findings from the analysis of the surveys.

## CHAPTER IV

### DATA ANALYSIS

This study focuses on the attitudes of Saudi students at universities in Pennsylvania toward e-learning. The study relies on a convenience sample of 335 respondents from which a final sample of 178 was used. The survey was designed by Qualtrics and distributed by the Saudi Arabian Cultural Mission (SACM) via Facebook. Based on data collected in July and August 2017, the Facebook page had 100,459 “likes”. In total, 335 people responded to the survey and 178 completed it. The questionnaire was designed to automatically exclude respondents who were not Saudi students engaged in online learning courses at Pennsylvania universities.

This chapter is divided into three sections. The first section presents the participants’ demographic information. The second and third sections introduce the descriptive statistics and present a discussion of the research questions related to the students’ attitudes to various aspects of engaging in education online and the extent to which the students reported anxiety relating to pursuing education in this context.

#### **Demographic Information**

A total of 335 Saudi students responded to the survey. However, to ensure that the sample would be appropriate for the purpose of the study, two questions were asked at the beginning of the survey with the goal of excluding some of the respondents from the sample. Descriptive frequency statistics were used to show the percentage of Saudi students who met the criteria for the study.

The first exclusion question was “Are you a Saudi student studying in Pennsylvania? In response, 268 (82%) students answered that there were pursuing studies in Pennsylvania, whereas 59 (18%) students responded that they were not studying in this state.

The second exclusion question was “Have you been enrolled in any online or blended course?” In total, 268 (82%) of the respondents reported that they were studying at a Pennsylvania university, whereas 59 (18%) reported that they did not meet this criterion. All the respondents were belonged to the latter group were immediately excluded such that they were not permitted to continue with the survey. The frequency descriptive statistics showed that 212 (80.6%) of the Saudi students were enrolled in e-learning, which means that more than half of them were taking courses in this context, whereas 51 (19.4%) were not doing so.

A total of 178 Saudi students completed the survey. In terms of gender, 127 of the students who completed the survey were male, (71.3%) of the sample, and 51 were female, (28.7%) of the sample. This difference in relation to the gender of Saudi students responding to the survey has been documented in previous research (Alanazi, 2012; Zabadi & Al-Alawi, 2016) (Table 3).

Table 3

*Survey Participants by Gender*

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	127	71.3	71.3	71.3
Female	51	28.7	28.7	100.0
Total	178	100.0	100.0	



In terms of their educational level, 106 (59.6%) of the participants were graduate students whereas 72 (40.4%) were undergraduate students. All 178 (100%) of the students were engaged in formal education at institutes of higher education in Pennsylvania. Moreover, 100% of the students had taken online courses before the focal period of the present study (Table 4).

Table 4

*Survey Participants by Educational Level*

Educational Level	Frequency	Percent	Valid Percent	Cumulative Percent
Graduate student	106	59.6	59.6	59.6
Undergraduate student	72	40.4	40.4	100.0
Total	178	100.0	100.0	

The average age of the students who participated in this study was in the 18-25 age group with 41 participants (23%), whereas the 26-30 age group had 69 participants (38.8 %), the 31-35 age group had 50 participants (28.1%), the 36-40 age range had 16 participants (9%), and the above-40 age range had 2 participants (1.1%) (Table 3). The mean age group was (M: 2.26, SD: .95). Also, the results indicate that the majority of Saudi students studying in Pennsylvania enrolled in e-learning classes are younger than 30, which is in accord with results reported in a similar study (Alanazi, 2014) (Table 5).

Table 5

*Survey Participants by Age*

Age Group	Frequency	Percent	Valid Percent	Cumulative Percent
18-25	41	23.0	23.0	23.0
26-30	69	38.8	38.8	61.8
31-35	50	28.1	28.1	89.9
36-40	16	9.0	9.0	98.9
Above 40	2	1.1	1.1	100.0
Total	178	100.0	100.0	

*Note. Mean: 2.26, SD: 0.95*

### **Research Questions**

The central research questions pursued in the present study are as follows:

1. What are the differences between male and female Saudi students' attitudes toward e-learning at Pennsylvania universities?
2. What are the differences between the attitudes of undergraduate and graduate Saudi students toward e-learning at Pennsylvania universities?
3. How much computer anxiety do male and female Saudi students report in e-learning environments at Pennsylvania universities?

### **Null Hypotheses**

H1: There is no statistically significant difference between male and female Saudi students' attitudes toward e-learning at Pennsylvania universities.

H2. There is no statistically significant difference between graduate and undergraduate Saudi students' attitudes toward e-learning at Pennsylvania universities.

H3.: There is no statistically significant difference between male and female Saudi students' level of computer anxiety toward e-learning at Pennsylvania universities.

### **Research Question One**

What are the differences between male and female Saudi students' attitudes toward e-learning at Pennsylvania universities? In the present study, answers are sought to three central research questions. The first focuses on whether gender plays a role in the attitudes toward e-learning of Saudi students at Pennsylvania universities. The second question focuses on whether Saudi students differ in their attitudes toward e-learning based on their educational level. The third question focuses on whether there is a difference between male and female students at Pennsylvania universities in terms of reported anxiety related to attending e-learning classes.

The first research question was analyzed using gender as the independent variable and different attitudes as the dependent variables. The null hypothesis of this question can be stated as follows: "There is no statistically significant difference between male and female Saudi students at Pennsylvania universities in terms of attitudes toward e-learning." The researcher examined attitudes toward 12 aspects related to e-learning individually, which he subsequently grouped into six categories: attitude toward the instructor, attitude toward the technology, attitude toward the course setup, attitude toward interactions, attitude toward outcomes, and overall satisfaction. The researcher also assessed all 12 attitudes together grouped into one category. When the items were grouped, the mean score was computed for the grouped variable. The researcher ran 19 t-tests for two independent samples ( $12 + 6 + 1$ ). In all the tests, no difference for variance was shown between the male and the female students. That is, the results of Levene's test for equality of variances was not statistically significant for any of the tests performed. None of the 19 t-tests yielded a statistically significant relationship. In terms of how

they view e-learning, male and female Saudi students at Pennsylvania universities did not differ from each other on any of the attitudes measured. The null hypothesis was, therefore, supported.  $t(176) = -1.310, p = .192$  (Table 6).

Table 6

*Levene's Test and Two Sample t-Test for Attitudes Toward E-Learning in Relation to the Participants' Gender*

<i>Attitudes</i>	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig	T	df	Sig.(2-tailed)	Mean Difference	Std. Error Difference
	.166	.684	-1.310	176	.192	-.12652	.09660

### **Descriptive Statistics of Attitudes Items Related to Gender**

The Saudi students had a high mean score on all six of the attitudes, particularly for (a) items related to the instructor ( $M = 4.15, SD = .77$ ), (d) technology ( $M = 4.13, SD = .81$ ), and (e) course setup ( $M = 4.11, SD = .80$ ). The students also had a high mean score for item (b) ( $M = 4.05, SD = .80$ ), indicating that they were completely satisfied with the role the instructor plays in e-learning classes. Further, the students had high scores on (f) course setup ( $M = 3.98, SD = .74$ ), (h) interaction ( $M = 3.94, SD = .85$ ), and (i) outcomes ( $M = 3.96, SD = .85$ ), which suggests that they are both comfortable and satisfied with this model. Moreover, items (c) technology ( $M = 3.78, SD = .86$ ), (g) interaction ( $M = 3.86, SD = .91$ ), and (k) overall satisfaction had high scores ( $M = 3.83, SD = .91$ ), which indicates that the students were satisfied with and had a positive attitude toward all the aspects explored in the survey. Lastly, (j) outcomes had a score of ( $M = 3.71, SD = 1.08$ ), and the lowest score for item (L) overall satisfaction ( $M = 3.65, SD = 1.10$ ),

which is also considered a very high score, which suggests that the students had a positive attitude toward e-learning. This high mean score also shows that there is no significant difference on the basis of gender in relation to attitudes toward e-learning on the part of Saudi students studying in Pennsylvania.

The highest mean scores for the female students are for items (a) instructor ( $M = 4.25$ ,  $SD = .68$ ) and (e) course setup ( $M = 4.2$   $SD = .70$ ). This result indicates that the female students' responses on these items are more positive than those of the male students. However, the highest mean scores for male students are for (a) instructor ( $M = 4.11$ ,  $SD = .78$ ) and (d) technology ( $M = 4.13$ ,  $SD = .82$ ), which show that male students had a very positive attitude toward these items (Table 7).

Table 7

*Descriptive Statistics for Attitudes Toward E-Learning in Relation to the Participants' Gender*

Attitude	<u>Male</u>		<u>Female</u>		<u>Total</u>	
	M	SD	M	SD	M	SD
a. Feedback and evaluation of papers, tests, and other assignments were given in a timely manner.	4.11	.78	4.25	.68	4.15	.77
b. I am satisfied with the accessibility and availability of the instructor.	4.01	.80	4.13	.80	4.05	.80
c. I am satisfied with the use of "threaded" online discussions and forums.	3.85	.84	3.95	.91	3.87	.86

d. I am satisfied with how I can navigate within D2L, Moodle, or Blackboard (the course management systems).	4.13	.82	4.13	.77	4.13	.81
e. I am satisfied with the flexibility this model affords me.	4.07	.83	4.21	.70	4.11	.80
f. I am satisfied with the level of self-directedness I am given.	3.99	.72	3.96	.79	3.98	.74
g. I am satisfied with the process of collaborative activities in the e-learning model.	3.79	.92	4.03	.89	3.86	.91
h. I am satisfied with how comfortable with participating I became.	3.92	.81	4.00	.93	3.94	.85
i. I am satisfied with the level of effort this model required.	3.97	.84	3.94	.90	3.96	.85
j. I am satisfied with how I am able to apply what I have learned in this model.	3.62	1.10	3.90	1.00	3.70	1.08
k. Compared to traditional course settings, I am satisfied with the e-learning experience.	3.75	.93	4.01	.83	3.83	.91
L. My level of satisfaction with the e-learning model would encourage me to enroll in another course in this setting.	3.58	1.12	3.82	1.03	3.65	1.10

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A high mean score was also found on the attitude subscales, which comprise instructor, technology, interaction, course setup, outcomes, and satisfaction (Table 8).

Table 8

*Mean and Standard Deviation Scores for Attitudes' Subscales*

Subscale	M	SD
Instructor (a–b)	4.10	.70
Technology (c–d)	4.00	.70
Course setup (e–f)	4.04	.63
Interaction (g–h)	3.90	.75
Outcomes (i–j)	3.83	.78
Satisfaction (k–L)	3.74	.88

*Note:*  $N = 178$ .

### **Research Question Two**

What are the differences between the attitudes of undergraduate and graduate Saudi students toward e-learning at Pennsylvania universities? The second research question was analyzed using education level as the independent variable and many different attitudes as the dependent variables. The null hypothesis of this question can be stated as follows: “There is no statistically significant difference between the respective attitudes of graduate and undergraduate Saudi students at Pennsylvania universities toward e-learning.” The researcher ran 19 two-sample independent t-tests on the attitudinal variables. Again, for all the tests, Levene’s test showed no statistically significant differences in the variances of the two groups: undergraduates versus graduates. Moreover, there were no statistically significant differences in attitudes, no matter how they were measured, for the undergraduate versus the graduate Saudi students. The

null hypothesis was, therefore, supported. The results of the independent-samples t-test showed no significant difference in relation to their attitudes toward e-learning between undergraduate and graduate Saudi students at Pennsylvania universities:  $t(176) = -.252, p = .801$  (Table 9).

Table 9

*Levene's Test and Two Sample t-Test for Attitudes Toward E-Learning in Relation to the Participants' Educational-Level*

<i>Attitudes</i>	Levene's Test for Equality of Variances		t-Test for Equality of Means				
	F	Sig	T	df	Sig.(2-tailed)	Mean Difference	Std. Error Difference
	.478	.490	-.252	176	.801	-.02251	.08940

### **Descriptive Statistics of Attitudes Items Related to Educational Level**

The mean and standard deviation statistics showed a high mean score for the graduate and the undergraduate students in terms of their attitudes toward e-learning. For educational level, most of the items had a high mean score: First, the highest mean scores were found for items (a) instructor ( $M = 4.13, SD = .77$ ), (b) technology ( $M = 4.04, SD = .82$ ), (d) technology ( $M = 4.13, SD = .80$ ), and (e) course setup ( $M = 4.10, SD = .79$ ). These high scores show very positive attitudes related to e-learning in general and for these aspects specifically. The second highest mean scores were found for items (f) course setup ( $M = 3.98, SD = .73$ ), (h) interaction ( $M = 3.94, SD = .84$ ), and (i) outcomes ( $M = 3.98, SD = .85$ ). These scores show a very positive attitude toward this model and its components. Next, the (g) interaction ( $M = 3.85, SD = .91$ ) and (k) satisfaction item had a mean score of ( $M = 3.83, SD = .90$ ), indicating positive attitudes



toward e-learning and those components as well. Lastly, (j) outcomes scored ( $M = 3.71$ ,  $SD = 1.11$ ) and (L) overall satisfaction scored ( $M = 3.66$ ,  $SD = 1.08$ ).

Further, the highest mean scores for the graduate students were for items (a) instructor ( $M = 4.19$ ,  $SD = .69$ ), (d) technology ( $M = 4.11$ ,  $SD = .83$ ), and (e) ( $M = 4.13$ ,  $SD = .82$ ), and the lowest was for the (L) overall satisfaction item: ( $M = 3.50$ ,  $SD = 1.17$ ). However, the highest mean score for the undergraduates was for item (d) technology ( $M = 4.16$ ,  $SD = .78$ ) and the lowest mean scores were for (j) outcomes ( $M = 3.76$ ,  $SD = .99$ ) and (L) overall satisfaction ( $M = 3.76$ ,  $SD = .99$ ).

Finally, given the high mean score in general for all the components of the e-learning model, the students are comfortable and relaxed working in this context. The graduate and undergraduate students were similar with some very slight differences, showing a positive attitude toward e-learning overall. The results show positive attitudes toward e-learning for Saudi students related to their educational level (Table 10).

Table 10

*Descriptive Statistics for Attitudes Toward E-Learning in Relation to the Participants'*

*Educational-Level*

Attitudes	<u>Graduate</u>		<u>Undergraduate</u>		<u>Total</u>	
	M	SD	M	SD	M	SD
a. Feedback and evaluation of papers, tests, and other assignments were given in a timely manner.	4.19	.69	4.08	.85	4.13	.77
b. I am satisfied with the accessibility and availability of the instructor.	4.08	.85	4.00	.80	4.04	.82

c. I am satisfied with the use of “threaded” online discussions and forums.	3.89	.89	3.83	.82	3.86	.85
d. I am satisfied with how I can navigate within D2L, Moodle, or Blackboard (the course management systems).	4.11	.83	4.16	.78	4.13	.80
e. I am satisfied with the flexibility this model affords me.	4.13	.82	4.08	.76	4.10	.79
f. I am satisfied with the level of self-directedness I am given.	3.97	.78	4.00	.69	3.98	.73
g. I am satisfied with the process of collaborative activities in the e-learning model.	3.87	.92	3.84	.91	3.85	.91
h. I am satisfied with how comfortable with participating I became.	3.94	.88	3.95	.81	3.94	.84
i. I am satisfied with the level of effort this model required.	3.88	.85	4.08	.85	3.98	.85
j. I am satisfied with how I am able to apply what I have learned in this model.	3.66	1.13	3.76	.99	3.71	1.11
k. Compared to traditional course settings, I am satisfied with the e-learning experience.	3.82	.93	3.84	.88	3.83	.90
l. My level of satisfaction with the e-learning model would encourage me to enroll in another course in this setting.	3.57	1.17	3.76	.99	3.66	1.08

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### Research Question Three

How much computer anxiety do male and female Saudi students report in e-learning environments at Pennsylvania universities? The third research question was designed to analyze gender as the independent variable and several different anxiety measures as the dependent variables. Ten anxiety measures were examined individually, then sorted into three groups (computer anxiety, Internet anxiety, and online course anxiety), and finally analyzed with all 10 items as one group. When the items were grouped, the mean score was computed for the grouped variable. The researcher, therefore, ran 14 (10 + 3 + 1) two-independent-sample t-tests to analyze whether and the extent to which male and female students differ in respect to the three kinds of anxiety measured. The result based on the independent samples t-test is insignificant, which means there is no significant difference between for attitudes toward e-learning between male and female Saudi students at Pennsylvania universities:  $t(176) = 1.451$ ,  $p = .149$  (Table 11).

Table 11

*Levene's Test and Two Sample t-Test for Anxiety's Items Toward E-Learning in Relation to the Participants' Gender*

	Levene's Test for Equality of Variances		t-Test for Equality of Means				
	F	Sig	T	df	Sig.(2-tailed)	Mean Difference	Std. Error Difference
<i>Anxiety</i>	1.712	.192	1.451	176	.149	.18592	.12812

However, Levene's test for equality of variances yielded statistically significant results for items (b), (c), (g), and (h), (Table 12).

Table 12

*Significant Levene's Test Scores for Anxiety's Items*

Items	Levene's Test for Equality of Variances	
	F	Sig
b. I am anxious when I work on a computer.	4.983	.027
c. I avoid working on computers.	4.536	.035
g. I am confident about working in the online environment.	9.435	.002
h. I get nervous when I am required to participate in online discussions.	5.585	.019

Moreover, only one dependent variable was statistically significant: This was item (b), which was part of the computer anxiety group: "I am anxious when I work on a computer." For this item, the two-tailed significance level for the t-test was  $t(106.451) = 2.369$   $p = 0.02$  (Table 13).

Table 13

*Significant Difference for Two Sample t-Test Between Males and Females*

	Levene's Test for Equality of Variances		t-Test for Equality of Means				
	F	Sig	T	df	Sig.(2-tailed)	Mean Difference	Std. Error Difference
b. I am anxious when I work on a computer.	4.983	.027	2.223	176	.028	.45361	.20408
			2.369	106.451	.020	.45361	.19146

The male students had a mean score of ( $M = 2.6693$ ,  $SD = 1.279$ ) and the female students had a mean score of ( $M = 2.2157$ ,  $SD = 1.101$ ) on a 5-point Likert scale where 5 represents “strongly agree” and 1 represents “strongly disagree.” Thus, the male students are more likely than the female students to agree that they are anxious when working on the computer. The female students reported feeling less anxiety when working on a computer than the male students did (Table 14).

Table 14

*Mean Difference Between Males and Females for Item b*

Item	Gender	N	M	SD
b. I am anxious when I work on a computer.	Male	127	2.66	1.27
	Female	51	2.21	1.10

No other form of anxiety distinguished the male from the female students. The group variable representing computer anxiety, which consisted of items (a), (b), (c), and (d), on the anxiety survey, which is close to being statistically significant with a t-test level of significance of ( $p = 0.057$ ). Items (a), (c), and (d), however, did not statistically differentiate the male from the female students, such that the researcher concluded that item (b) is largely responsible for this result associated with the computer anxiety variable. The researcher concluded that computer anxiety is, therefore, best measured using one variable, item (b), and that male and female students differ in relation to the extent of the computer anxiety they report, with the male students reporting greater anxiety than the female students did. Further, the researcher used descriptive frequency statistics to show the level of anxiety toward e-learning on the part of

Saudi students, and the statistics vary on the anxiety items, defined as computer anxiety, Internet anxiety, and online courses anxiety.

### **Descriptive Statistics of Anxiety Items**

The highest mean score was for items (i) ( $M = 3.06$ ,  $SD = 1.13$ ) and (j) ( $M = 3.02$ ,  $SD = 1.15$ ), which showed a moderate level of anxiety on the part of both male and female students. However, the female students reported less anxiety than the male students did on these items. The lowest mean score was for items (c) computer anxiety ( $M = 2.19$ ,  $SD = 1.19$ ) and (f) Internet anxiety ( $M = 2.12$ ,  $SD = 1.15$ ), indicating that the male and female students each had a low level of anxiety. However, the female students were less anxious than were the male students on these two variables. The highest mean score for the male students was found for item (g) online courses ( $M = 3.88$ ,  $SD = 1.13$ ), which indicates a high level of anxiety. Similarly, the highest mean scores for the female students was found for item (g) online courses ( $M = 4.03$ ,  $SD = .88$ ), which indicates a high level of anxiety. In addition, the lowest mean score for the male students was for item (f) Internet anxiety ( $M = 2.14$ ,  $SD = 1.17$ ), which indicates a low level of anxiety. Likewise, the lowest mean score for the female students was for item (e) Internet ( $M = 2.19$ ,  $SD = 1.9$ ), which indicates a low level of anxiety. The mean and standard deviations show the similarity and difference between the two genders in terms of the mean scores (Table 15).

Table 15

*Descriptive Statistics for Anxiety's Items Toward E-Learning in Relation to the Participants' Gender*

Attitudes	<u>Male</u>		<u>Female</u>		<u>Total</u>	
	M	SD	M	SD	M	SD
a. I am insecure about my computer skills.	2.98	1.38	2.72	1.32	2.91	1.36
b. I am anxious when I work on a computer.	2.66	1.27	2.21	1.10	2.53	1.24
c. I avoid working on computers.	2.29	1.23	1.96	1.05	2.19	1.19
d. I am apprehensive about working on computers.	2.77	1.25	2.52	1.17	2.70	1.23
e. I get anxious when I am required to use Internet resources.	2.43	1.21	2.19	1.09	2.36	1.18
f. I get confused when working with the Internet.	2.14	1.17	2.07	1.11	2.12	1.15
g. I am confident about working in the online environment.	3.88	1.13	4.03	.82	3.93	1.05
h. I get nervous when I am required to participate in online discussions.	2.71	1.33	2.62	1.11	2.69	1.27
i. I am apprehensive about enrolling in online courses.	3.13	1.16	2.88	1.05	3.06	1.13
j. I am scared that someone will misinterpret my text-based messages in the online environment.	3.04	1.18	2.98	1.08	3.02	1.15

Moreover, the anxiety subscales indicated borderline high online courses, followed by moderate computer anxiety and very low anxiety for Internet (Table 16).

Table 16

*Mean and Standard Deviation Scores for Anxiety's Subscales*

Subscale	M	SD
Computer anxiety (a–d)	2.58	1.0
Internet (e–f)	2.24	1.0
Online courses (g–j)	3.17	.72

*Note:*  $N = 178$ .

### Summary

In this chapter, the attitudes of Saudi students toward e-learning related to gender, educational level, and anxiety were discussed. This chapter presented results indicating that there is no significant difference between Saudi students based on gender or educational level. Moreover, no significant difference related to anxiety was found between the students on the basis of gender or educational level. However, a significant difference between the two genders was found in regard to computer anxiety.



## CHAPTER V

### DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

This chapter presents the findings of this study, states its limitations, and offers recommendations for future research. Given the paucity of research examining the attitudes toward e-learning of Saudi students attending Pennsylvania universities, the study purpose was to determine the nature of these students' attitudes toward e-learning, the extent to which such students feel ready to deal with this educational approach, and the level of anxiety they report in regard to working on computers and on the Internet. This quantitative study relies on data collected via a questionnaire instrument through the Qualtrics platform and made available to potential participants using the Saudi Arabian Cultural Mission (SACM) Facebook page. A total of 178 students participated in the study: in terms of gender, 127 were male and 51 were female; in terms of educational level, 106 were graduate and 72 were undergraduate students; and in terms of e-learning experience, all were enrolled in e-learning courses at SACM-approved Pennsylvania universities (Ministry of Education, 2017). The researcher examined the effects of gender, educational level, and anxiety level on the e-learning approach. To determine whether students' attitudes toward e-learning varied, the researcher formulated three central questions:

1. What are the differences between male and female Saudi students' attitudes toward e-learning at Pennsylvania universities?
2. What are the differences between the attitudes of undergraduate and graduate Saudi students toward e-learning at Pennsylvania universities?
3. How much computer anxiety do male and female Saudi students report in e-learning environments at Pennsylvania universities?

## Findings

The findings of this study aligned with the research questions. The Saudi students comprising the study sample showed positive attitudes toward e-learning. However, they also reported some anxiety related to taking online courses and using technology, i.e., computers and the Internet. Specifically, they showed a slightly high level of anxiety toward taking online courses, a moderate level of anxiety toward working on computers, and a low level of anxiety toward using the Internet.

### Research Question One

Some studies show statistically significant differences between male and female students' attitudes toward e-learning such that gender plays a major role in attitude toward e-learning (Ashong & Commander, 2012; Liaw & Huang, 2011; Zabadi & Al-Alawi, 2016). However, according to other studies, gender does not affect students' attitudes toward the e-learning approach—i.e., there are no statistically significant differences between males and females in this regard (Alrehaili, 2013; Ezza & Bakry, 2014).

For the first question of this study, which focused on whether there is a difference between male and female Saudi students' attitudes toward e-learning, the researcher ran an independent two-sample  $t$  test to determine the significance of differences between the attitudes of these two groups toward e-learning. The result indicated that there was no significant difference between the respective attitudes of male and female students toward e-learning,  $t(176) = -1.310, p = .192$ . Therefore, the researcher did not reject the null hypothesis for this question. This finding is like one reported by Ezza and Bakry (2014), whereby both male and female Saudi students showed positive attitudes toward e-learning. Likewise, Alrehaili's (2013) findings are

similar to those reported herein, in that there were no significant differences between male and female Saudi students' attitudes toward e-learning.

### **Research Question Two**

The results of the present study show no significant difference between undergraduates' and graduates' attitudes toward e-learning. The researcher used an independent two-sample  $t$  test to determine whether differences between Saudi undergraduate students' and graduate students' attitudes toward e-learning reached a level of significance. The result showed no significant difference between male and female students' attitudes toward e-learning,  $t(176) = -.252, p = .801$ . Therefore, the researcher did not reject the null hypothesis for this question. Furthermore, several studies show that a positive attitude toward e-learning on the part of Saudi students has an association with educational level. A study conducted by Fageeh (2011) with Saudi undergraduate students at King Khalid University, Abha, Saudi Arabia, showed that undergraduate students have positive attitudes toward e-learning as a tool. Further, Al-Jarf (2013) found links between using e-learning with undergraduate students and improvements in their reading and writing skills. Moreover, the findings of the present research align with those reported by Alwraikat (2012), who found that graduate students expressed positive attitudes toward the use of e-learning. In Alwraikat's study, there were no significant differences relating to attitude across gender and academic programs. However, Alwraikat found significant differences between attitudes across academic degrees, such that doctoral students expressed a stronger preference for e-learning than master's students. Likewise, this finding aligned with the study of Rhema, Miliszewska, and Sztendur (2013), in which graduate and undergraduate students felt confident using computers, enjoyed using computers in their studies, believed in the benefits of e-learning, and expressed interest in taking courses that rely on e-learning.

### **Research Question Three**

Computer anxiety is a critical component affecting student performance in this model. Previous studies—including one conducted in Saudi Arabia by Alenezi et al. (2010)—showed that computer anxiety and computer self-efficacy significantly influenced students' intentions to engage in e-learning. In regard to Question 3, which focused on whether male and female Saudi students differed in their attitudes toward computer anxiety, the researcher did not find a significant difference. The result based on the independent samples *t* test was insignificant, which means there is no significant difference between male and female Saudi students' attitudes toward computer anxiety at Pennsylvania universities,  $t(176) = 1.451, p = .149$ . Therefore, the researcher did not reject the null hypothesis for this question. This finding agrees with a finding reported by Samarkandi (2011), who showed that Saudi students of both genders expressed anxiety about e-learning. However, he found that Saudi females were more anxious than Saudi males. According to Al-Fahad (2010), female Saudi students were satisfied with using e-learning and showed positive attitudes toward and motivation to use this approach. Likewise, Alaugab (2007) stated that female students showed satisfaction with and competence using an e-learning approach, which may indicate that they did not experience anxiety in using this instructional delivery mode. However, according to Alenezi et al. (2010), male Saudi students at Aljouf University, Aljouf, Saudi Arabia did report experiencing anxiety associated with this instructional approach.

### **Discussion of Survey Items**

The study results showed that Saudi male students did not differ significantly from female students in their attitudes toward e-learning. Nor did the results show any such difference in terms of educational level. However, the descriptive statistics do reveal some important

information that could provide a basis for action on the part of Saudi Arabia's higher education authorities.

The survey items focused on feedback show that most Saudi students either agreed (52.8%) or strongly agreed (33.1%) that they considered the instructor's feedback in this e-learning model beneficial. They also agreed (54.5%) or strongly agreed (18.1%) that their instructors in the e-learning settings were responsive. These results are in accord with conclusions drawn by Liu and Lee (2013), who reported that in an online environment, feedback tends to be productive, and peer assessment can be more efficient than is the case in a traditional, face-to-face setting. Further, in the same study, Liu and Lee concluded that learners can realize gains in their performance based on peer feedback provided online.

For the survey items on the role and efficacy of technology, the Saudi students showed positive attitudes toward technology. That is, they either agreed (43.8%) or strongly agreed (24.7%) that the discussion forum format functioned as an effective way to participate in the course. Further, in line with findings reported by Alsobahi, (2017), the students also either agreed (51.1%) or strongly agreed (34.3%) that they found it simple to navigate the e-learning platforms. The data on the students' perceptions of the platform agreed with the data on their perceptions of the course set-up. That is, the students either agreed (52%) or strongly agreed (32%) that e-learning affords the flexibility necessary to encourage active learning. They also either agreed (55.6%) or strongly agreed (23%) that this approach to instruction encourages self-directed learning. This finding aligns with research by Mayor and Ivars (2007), who showed that e-learning as a learner-centered method supports students' efforts to take the initiative in their own learning process.

Further, the present study indicated that Saudi students generally have favorable attitudes toward interactions in the e-learning setting. They either agreed (52.2%) or strongly agreed (32%) that in the e-learning context, students tend to work together, thereby supporting each other's educational progress. Additionally, the study showed that the students agreed (46.1%) or strongly agreed (27.5%) that they felt at ease interacting in the e-learning setting. Similarly, according to Show and Griffith (2014), not only does e-learning serve students by helping them to strengthen their writing and critical-thinking skills and supporting participation, but it can also yield multiple positive learning outcomes arising from collaborative work. These range from cognitive to social-cultural to psychological benefits. Further, the current study showed that Saudi students either agreed (37.1%) or strongly agreed (26.4%) that they could apply what they had learned from taking courses delivered via this model. Finally, the survey items pertaining to the students' overall satisfaction with e-learning indicated a positive attitude toward the e-learning delivery method. That is, the Saudi students either agreed (49.4%) or strongly agreed (22.5%) that they preferred online study to the face-to-face educational environment. Further, the students either agreed (42.1%) or strongly agreed (22.5%) that they would enroll in more courses delivered online.

Despite the positive results in terms of student satisfaction and the students' interest in taking more courses online, the descriptive statistics show that they expressed some anxiety pertaining to using a computer (moderate anxiety, mean score = 2.58), using the Internet (low anxiety, mean score = 2.24), and taking an online course (high anxiety, mean score = 3.17). In terms of anxiety using a computer, male students reported a higher level of anxiety than female students did. Only one dependent variable item, (b), was statistically significant: "I am anxious when I work on a computer." For this item, the two-tailed significance level for the *t* test was

$t(106.451) = 2.369$   $p = 0.02$ . Further, the survey items pertinent to students' anxiety over using the Internet was low, indicating that the students had low levels of anxiety relating to using the Internet for academic purposes. Finally, for the items relating to online courses, the students reported experiencing a slightly higher level of anxiety, indicating that they were only a little anxious over taking online courses, particularly in regard to participating in online forums. Further, some students expressed the concern that others might not understand their posts correctly. On this last point, the students either agreed (25.3%) or strongly agreed (10.7%) that others could misinterpret their posts.

### **Implications**

The study found no statistically significant differences among Saudi students' attitudes toward e-learning. The descriptive statistics showed that Saudi students had positive attitudes toward e-learning based on gender and educational level. The Saudi educational authorities should investigate the reasons behind the students' positive or negative attitudes toward this approach. It is important to ascertain the attitudes of students toward e-learning, as they may influence the performance of students working in this model. Studies, including one by Fageeh (2011), have shown that students who have positive attitudes toward e-learning perform well in this context. Moreover, the curriculum is an important component in motivating Saudi students working in e-learning, and it should align with the technology to motivate students to be active rather than passive in their learning (Farooq & Javid, 2012). The high mean scores in the present study indicate that Saudi students have positive attitudes toward e-learning. Strongly favorable and positive attitudes toward online courses may increase enrollment in this approach (Kirby, Barbour, & Sharpe, 2012).

However, the students reported a moderate level of anxiety pertaining to using computers, a low level of anxiety over using the Internet, and slightly higher levels of anxiety about taking online courses, all of which indicate that Saudi students need more training and practice to become accustomed to and proficient with these resources. Coordinated programming on the part of the Saudi educational authorities aimed at helping students to become more competent with these resources could encourage students to have positive attitudes toward learning in these contexts, thereby supporting their efforts to succeed via this educational approach and in their academic and professional careers more generally. According to Al-Khalifa (2009), “The policies for distance education, and virtual tertiary, institutions are still under development for approval by the Ministry of Higher Education” (p. 1). Furthermore, Alsaysi (2016) investigated negative aspects of e-learning policies in Saudi universities, and she found that 28.57% of admission deans believe that distance education cannot be considered a basis for granting a university degree, but it can only be complementary to the educational process, while 17.86% agreed on the non-acceptance of distance-education graduates in the job market. Consequently, Saudi educational authorities should take a more flexible approach to regulating online education by removing some of the limitations on education in this context. Specifically, the Saudi educational authorities currently impose a limit of nine credits earned through online courses for an undergraduate degree, whereas the limit for a graduate degree is only six credits.

Cabuk Anaper, Ulucay, and Cabuk (2013) stated that e-learning provides accreditation processes with the aim of offering high-quality education by including important measures and structures in the educational process such as student educational goals, program outcomes, faculty evaluation, infrastructure, and financial support. Remarking that e-learning has gained



some prestige, such that universities such as MIT, Harvard, and Stanford accept and offer it, Mirza (2007) suggested that the Ministry of Higher Education (MHE) in Saudi Arabia should change its regulations to accept university degrees earned through online courses. The implication of the MHE's continued refusal to accept online degrees is that graduates who have earned their degrees in this context cannot obtain government jobs or pursue graduate education. According to Alahmari (2017), "Distance education is not accredited in the same manner [as] 'traditional' education in Saudi Arabia, particularly in regard to recognition of these degrees within the job markets" (p. 95). Thus, it is likely that this issue in accreditation that discourages and undervalues e-learning gives rise to under enrollment in e-learning courses.

Further, the study results show that the participants expressed a low level of anxiety on Internet group items, i.e., the extent to which they experienced anxiety when required to use Internet resources and the extent to which they experienced confusion when working on the Internet. It is likely that these results have links with the students' experience of college-level education in Saudi Arabia; that is, the students are unlikely to have much background in the online context for the simple reason that only educational institutes in the country's largest cities have Internet access (Alrehaili, 2013). On this point, according to Alebaikan and Troudi (2010), "Education in Saudi public universities is based on the traditional didactic, lecture-based classroom" (p. 508).

The results indicate that Saudi students feel slightly higher levels of anxiety about taking an online course. Specifically, the students either agreed (28.7%) that they were apprehensive about enrolling in an online course or they strongly agreed (9%) that this was the case. Some of the survey items refer to language anxiety in online courses such as "I get nervous when I am required to participate in online discussions" and "I am scared that someone will misinterpret my

text-based messages in the online environment.” This feedback is in accordance with what Al-Khasawneh (2016) and Alrabai (2014) reported, in that Saudi Arabian students reported a moderate level of anxiety over learning a foreign language.

Furthermore, the United States and Saudi Arabia differ significantly in terms of educational culture. In the United States, the education system is decentralized and coeducational and religion is generally excluded or at least not emphasized. On the other hand, in the Saudi Arabian education system, the idea is to provide equal but separate education according to gender, and religion is a major part of the curriculum (Alghamdi, 2016). In this context, it may be that e-learning is of greater importance to female students than to male students in Saudi Arabia, because religious and cultural dictates prevent female students from driving to class or receiving education from male instructors in face-to-face contexts. Also, female students have more opportunities to engage in distance programs in Saudi Arabia than male students do. The educational gender-segregation system in Saudi Arabia means that there are no mixed-gender classes there, which affords female students more space to participate in e-learning than face-to-face contexts do (Anderson & Haddad, 2005).

According to Razek and Coyner (2013), “Like other international students, Saudi students face different challenges while studying at the American institution due to transition, the difference in academic practices, and the unfamiliar social life” (p. 113). Saudi Arabian students studying in the United States face a truly unique experience because of cultural distinctions and language barriers. Based on the researcher’s findings, college personnel, international student services, student life professionals, and college counseling practitioners who are in direct contact with Saudi Arabian students should be prepared to provide more effective outreach and orientation programs combined with greater cultural sensitivity; this can lessen anxiety and

thereby meet the needs of this specific population more effectively (Lefdahl-Davis & Perrone-McGovern, 2015).

### **Recommendations for Further Research**

The purpose of the current study was to investigate Saudi students' attitudes toward e-learning in relation to factors such as gender, educational level, and anxiety. However, the findings did not show statistically significant differences between Saudi students' attitudes toward e-learning on the basis of any one of these factors. Instead, the study results indicated that Saudi students report having positive attitudes toward pursuing higher education in the online context. Yet, it is notable that the students' responses to the survey questions did show that they experienced some anxiety in regard to learning online. Specifically, they reported a low level of anxiety relating to using the Internet, a moderate level of anxiety related to using computers, and a slightly higher level of anxiety related to taking online courses.

In terms of future research, the present study provides a basis for and suggests multiple research directions as follows:

1. It would be beneficial to extend the research from Saudi students studying in the state of Pennsylvania to a more geographically dispersed population. A study focused on Saudi students enrolled in e-learning courses at institutes of higher education across the United States may produce different outcomes.
2. Whereas the present study accounted for specific demographic information such as gender and educational level, it would be worthwhile including additional personal information such as marital status, learning experiences, educational discipline, and computer skills in future research. A consideration of these factors, especially as they

relate to each other, would produce a richer picture of Saudi students' experiences of higher education in online environments.

3. Further research is necessary to investigate the regulations of academic programs, the limitations of online courses, and the accreditation of online courses in relation to Saudi e-learning policies. In particular, it would be worthwhile to include representatives of the Saudi educational authorities that establish rules relating to online learning as focal subjects of and stakeholders in research in the e-learning context. Studies that include such representatives would be invaluable in providing information pertaining to the official position on online courses and the reasoning underlying that position. Further, research in this area might suggest institutional design and curriculum design principles, as well as marketing strategies that might be useful to position e-learning courses better for accreditation.
4. Additional research could usefully explore further questions pertaining to the origins, nature, and extent of students' anxiety in the online learning context. Questions could include whether cultural background or educational experience determine students' relative apprehension in the e-learning context or whether apprehension in this context transcends those variables.
5. Additional research could consider different kinds of courses and student success in terms of grades and retention. Do Saudi students do better in online courses in the sciences, for example, than in courses in the liberal arts? What does the course format and the instructor's approach have to do with student success? Does the presence of an engaged advisor influence learning outcomes?

This section has provided recommendations for future research relating to a number of focal areas. In particular, it has made recommendations on exploring Saudi students' attitudes toward online learning in a broader geographical scope and considering more personal and demographic factors; issues relating to accreditation and the attitudes of representatives of governmental educational authorities toward online learning; and the design, delivery, and marketing of online courses.

### **Limitations**

The study contributes to the field by considering some key factors in understanding the attitudes of Saudi students studying online in the United States toward e-learning, although it focused specifically on Pennsylvania institutions of higher education. However, this study does have some limitations that may have had an impact on the results. The researcher received only limited access to distribute the survey via the Saudi Arabian Cultural Mission (SACM) Facebook page. This restriction led to a non-random sample, such that it was not possible to generalize the findings across Pennsylvania.

This study relied entirely on a quantitative research approach, which limited the participants' ability to express their attitudes and feelings. Given this study design, the participants did not have an opportunity to explain the reasons behind their responses to the items on the Likert-type scale the researcher used.

### **Summary**

The purpose of this study was to investigate Saudi students' attitudes toward e-learning with reference to their gender, educational level, and anxiety level. The results indicated that there is no statistically significant difference between male and female students on these points, although the female students had slightly higher mean scores on most of the items than the male

students did. Moreover, on the items pertaining to anxiety, the computer anxiety item showed a statistically significant difference between the male and female students, with the latter reporting a lower level of anxiety than the former did. This chapter has presented the findings pertinent to each of the three principal questions explored herein and has included a comparison between the results and those reported in other studies. Additionally, this chapter has included an account of the study's limitations. Further, this chapter has presented the recommendation that Saudi educational authorities should be more flexible with the e-learning approach by allowing a greater number of credits gained in online courses to earn a degree. Moreover, the Saudi educational authorities have yet to approve degrees earned entirely online, although the results of the present study suggest that the authorities should consider doing so.

As discussed, this study can be useful to orient faculty, staff, and administrators in advisory roles at American universities, particularly those in global engagement offices, of the conditions facing Saudi students. The study suggested that college faculty and staff can play a key role in providing Saudi Arabian students with the guidance and resources they need in transitioning from the Saudi system of higher education to the U.S. context. At the programmatic level, universities could offer effective outreach and orientation to help students to become familiar with the e-learning environment and to become self-directed learners in that context.

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## Appendix A

### Survey and Informed Consent Form

#### Informed Consent Form

You are invited to participate in this research study. The following information is provided in order to help you to make an informed decision whether or not to participate. If you have any questions, please do not hesitate to ask. You are being asked to participate because you are a Saudi Arabian student studying in Pennsylvania State. This study aims to examine the readiness of Saudi Arabian students enrolled in universities of Pennsylvania to perform in e-learning courses. This will be investigated in light of anxiety, level of education, and gender. The results of this research may serve to inform the development of e-learning guidelines by educational policymakers in Saudi Arabia. Additionally, the implications of the proposed research may be utilized by professors in Pennsylvania universities settings to revisit the implementation of e-learning in their teaching practices and address the needs of their Saudi students. Participation or non-participation will not affect your grade in this or any other course. Your instructor will not know who did/did not participate in this study. You will be asked to complete an attitudinal questionnaire about your attitudes toward e-learning and anxiety statements. The questionnaire will take approximately 5-10 minutes.

Your participation in this study is voluntary. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the researcher or the Saudi Cultural Mission. If you finished the survey and once you submitted it, you are no longer able to delete or modify your responses. Your decision will not result in any loss of benefits to which you are otherwise entitled. If you choose to participate, you may withdraw at any time by simply not continuing the survey. Upon your withdrawal, the uncompleted survey will be discarded and not be considered for use in the data collection. If you choose to participate, all information will be anonymous and will have no bearing on your academic standing or services you receive from the Saudi Cultural Mission. The information obtained in the study may be published in scientific journals or presented at scientific meetings. If you are willing to participate in this study, please proceed by clicking the survey link. If you have questions about this research project, you may email Nalf Alsayyall at PHCT @iup.edu or Dr. Frank Corbett at FCorbett@iup.edu

Project Director: Dr. Frank Corbett  
Position: Professor  
Department Affiliation: Professional Studies in Education  
Campus Address:  
Stouffer Hall, Room 132  
1175 Maple Street  
Indiana, PA 15705 Indiana, PA 15705  
Phone: 724-357-7560  
Email address: FCorbett@iup.edu

This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724/357-7730).

Do you agree to participate in this study?

- ☐ Yes  
☐ No

Are you a Saudi Student studying in Pennsylvania ?

- ☐ Yes  
☐ No

Have you been enrolled in any online or blended course (combination of face-to-face and online format) ?

- ☐ Yes  
☐ No

#### Section I - Attitudes

To what extent do you agree or disagree with each of the following statements?

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
a. Feedback and evaluation of papers, tests, and other assignments were given in a timely manner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. I am satisfied with the accessibility and availability of the instructor.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. I am satisfied with the use of "threaded" online discussions and forums.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. I am satisfied with how I can navigate within D2L, Moodle, or Blackboard ( the course management systems).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. I am satisfied with the flexibility this model affords me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
f. I am satisfied with the level of self-directedness I am given.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. I am satisfied with the process of collaboration activities in e-learning model.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. I am satisfied with how comfortable with participating I became.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. I am satisfied with the level of effort this model required.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. I am satisfied with how I am able to apply what I have learned in this model.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Compared to traditional course setting, I am satisfied with e-learning experience.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. My level of satisfaction in e-learning model would encourage me to enroll in another course in this setting.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Section II - Anxiety

To what extent do you agree or disagree with each of the following statements?

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
a. I am insecure about my computer skills.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. I am anxious when I work on computer.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. I avoid working on computers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. I am apprehensive about working on computers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. I get anxious when I am required to use Internet resources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. I get confused when working with the Internet.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. I am confident about working in online environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. I get nervous when I am required to participate in online discussions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. I am apprehensive about enrolling in online courses.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. I am scared that someone will misinterpret my text-based messages in the online environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Section III - Demographic Information

### 1. What is your gender?

- ☐ Male  
☐ Female

### 2. What is your educational level?

- ☐ Graduate student  
☐ Undergraduate student

### 3. What is your age?

- ☐ 18-25  
☐ 26-30  
☐ 31-35  
☐ 36-40  
☐ Above 40

**4. What is your university?**

- ☐ Bloomsburg University of Pennsylvania
- ☐ California University of Pennsylvania
- ☐ Cheyney University of Pennsylvania
- ☐ Clarion University Pennsylvania
- ☐ East Stroudsburg University of Pennsylvania
- ☐ Edinboro University of Pennsylvania
- ☐ Indiana University of Pennsylvania
- ☐ Kutztown University of Pennsylvania
- ☐ Lock Haven University of Pennsylvania
- ☐ Mansfield University of Pennsylvania
- ☐ Millersville University of Pennsylvania
- ☐ Shippensburg University of Pennsylvania
- ☐ Slippery Rock University of Pennsylvania
- ☐ Westminster College - PA
- ☐ Other

## Appendix B

### Instrument Petition

<b>Subject: Re: Instrument petition</b>	<b>From: Doris U. Bolliger</b>	09/01/16 12:25...
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Dear Naif Alsayyali,

Thank you for your e-mail and interest in our work. You have my permission to use our instrument in your dissertation research. Good luck!

Kind regards,

Dr. Bolliger

Doris U. Bolliger, Ed.D.  
Associate Professor  
Coordinator, Instructional Technology Program  
Department of Professional Studies  
College of Education  
Dept. 3374, ED 322  
1000 E. University Avenue  
Laramie, WY 82071  
Ph. 307-766-2167  
dbollige@uwyo.edu

---

From: Naif Alsayyali <n.alsayyali@iup.edu>  
Sent: Wednesday, July 6, 2016 3:30:14 PM  
To: Doris U. Bolliger  
Subject: Instrument petition

Hi Bolliger,

Hope that email finds you well, my name is Naif Alsayyali. I am a doctoral candidate at Indiana University of Pennsylvania, I have read your article titled Student perceptions of satisfaction and anxiety in an online doctoral program. I am highly interested in your scholarly research, and your survey statements. I am planning to conduct a survey related to anxiety on the topic of Saudi Arabian Students' Relationship with E-learning Culture in Public Universities of Pennsylvania. Could I use your instrument in my dissertation?

Sincerely,  
Naif

## Appendix C

### Email to SACM for Asking Site Approval

NA **NAIF ALSAYYALI** Reply |  
Yesterday, 6:49 PM  
Rfarhat@sacm.org; falshammeri@sacm.org

You replied on 4/25/2017 7:58 PM.

Hi Racha,

I am Naif Alsayyali, a doctoral candidate at the Indiana University of Pennsylvania, and I am conducting research for my dissertation titled "Saudi Arabian students' attitudes toward e-learning at select Pennsylvania universities." As my subjects are Saudi students studying in Pennsylvania, I need site approval in order to get my study approved by the IRB at my university. The site approval could be an email or a letter from you stating that you give approval for me to conduct this research. Thank you for your consideration.

Sincerely,  
Naif Alsayyali

## Appendix D

### Site Approval from SACM

#### Posts

**Saudi Arabian Cultural Mission - USA**  
2 hrs · 🌐

استبيان حول آراء الطلاب السعوديين حول التطعيم الإلكتروني ومواد الأون لاين  
البحث من إعداد المبتعث دايف السبيالي طالب الدكتوراه في جامعة  
Indiana University of Pennsylvania

[https://iup.co1.qualtrics.com/jfe/form/SV\\_bOCGKk4bxB5F9IP](https://iup.co1.qualtrics.com/jfe/form/SV_bOCGKk4bxB5F9IP)

[iup.co1.qualtrics.com](https://iup.co1.qualtrics.com)  
IUP.CO1.QUALTRICS.COM

RE: Rquest for Distrubuting a survey/ Dissertation

RF Racha Farhat <rfarhat@sacm.org>  
Today, 6:44 PM  
You

 Reply |

I hope this email finds you doing well.

My name is Racha Farhat and I am a Cultural Advisor at the Saudi Cultural Mission. This email is to confirm that the cultural mission will be able to assist Naif Alsayyali in distributing his survey Saudi Arabian students' attitudes toward e-learning in select Pennsylvania universities once he gets his IRB Approval Letter. Please let me know if you need any further information from me or have any questions. Thank you indeed.

Best Regards,

***Racha Farhat***

*Cultural Advisor/Financial Support for Clubs  
Cultural Mission of the Royal Embassy of Saudi Arabia  
8500 Hilltop Road  
Fairfax, VA 22031  
Phone: 571-327-2567  
www.sacm.org*

[www.sacmclubs.org](http://www.sacmclubs.org)





## Appendix E

### IRB Approval



Indiana University of Pennsylvania  
[www.iup.edu](http://www.iup.edu)

Institutional Review Board for the  
Protection of Human Subjects  
School of Graduate Studies and Research  
Stright Hall, Room 113  
210 South Tenth Street  
Indiana, Pennsylvania 15705-1048

P 724-357-7730  
F 724-357-2715  
[irb-research@iup.edu](mailto:irb-research@iup.edu)  
[www.iup.edu/irb](http://www.iup.edu/irb)

May 01, 2017

Dear Naif Alsayyali:

Your proposed research project, "Saudi Arabian Students' Attitudes Toward E-Learning in Select Pennsylvania Universities," (Log No. 17-142) has been reviewed by the IRB and is approved. In accordance with 45CFR46.101 and IUP Policy, your project is exempt from continuing review. This approval does not supersede or obviate compliance with any other University requirements, including, but not limited to, enrollment, degree completion deadlines, topic approval, and conduct of university-affiliated activities.

You should read all of this letter, as it contains important information about conducting your study.

Now that your project has been approved by the IRB, there are elements of the Federal Regulations to which you must attend. IUP adheres to these regulations strictly:

1. You must conduct your study exactly as it was approved by the IRB.
2. Any additions or changes in procedures must be approved by the IRB before they are implemented.
3. You must notify the IRB promptly of any events that affect the safety or well-being of subjects.
4. You must notify the IRB promptly of any modifications of your study or other responses that are necessitated by any events reported in items 2 or 3.

The IRB may review or audit your project at random *or* for cause. In accordance with IUP Policy and Federal Regulation (45CFR46.113), the Board may suspend or terminate your project if your project has not been conducted as approved or if other difficulties are detected

Although your human subjects review process is complete, the School of Graduate Studies and Research requires submission and approval of a Research Topic Approval Form (RTAF) before you can begin your research. If you have not yet submitted your RTAF, the form can be found at <http://www.iup.edu/page.aspx?id=91683>.

While not under the purview of the IRB, researchers are responsible for adhering to US copyright law when using existing scales, survey items, or other works in the conduct of research. Information regarding copyright law and compliance at IUP, including links to sample permission request letters, can be found at <http://www.iup.edu/page.aspx?id=165526>.

I wish you success as you pursue this important endeavor.

Sincerely,  
Jennifer Roberts, Ph.D.  
Chairperson, Institutional Review Board for the Protection of Human Subjects  
Professor of Criminology

JLR:jeb

Cc: Frank Corbett, Dissertation Advisor



## Appendix F

### Chair Letter to SACM to Help in Distributing the Survey



Indiana University of Pennsylvania

[www.iup.edu](http://www.iup.edu)

Department of Professional Studies  
in Education  
Davis Hall, Room 303  
570 South Eleventh Street  
Indiana, Pennsylvania 15705-1050

P 724-357-2400

F 724-357-2961

[www.iup.edu/ps](http://www.iup.edu/ps)

Date: April 23, 2017

To Whom It May Concern:

Mr. Naif Alsayyali, a doctoral candidate in our department of Professional Studies in Education at Indiana University of Pennsylvania, is currently beginning his dissertation research entitled, *Saudi Arabian students' attitudes towards e-learning in Select Pennsylvania universities*. I am serving as chairperson of his dissertation committee.

To collect data for his dissertation, Mr. Alsayyali will conduct a web based survey of Saudi students who are studying in Pennsylvania. The survey will be anonymous so that individual responses can't be identified.

Mr. Alsayyali has advised me that the Saudi Arabian Cultural Mission has an email list that can be used to contact Saudi students in Pennsylvania. We would greatly appreciate it if you would be able to assist him in his research by sending an email to the students in your list asking them to participate in his research.

Thank you for your time and consideration. Your assistance will be invaluable in helping Mr. Alsayyali to complete his research and his doctoral degree in a timely manner.

Should you require additional information, please contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Frank Corbett, Jr.", is written over a light blue horizontal line.

Frank Corbett, Jr.

[FCorbett@iup.edu](mailto:FCorbett@iup.edu)