2009

Factors that influence online learners' intent to continue in an online graduate program

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FACTORS THAT INFLUENCE ONLINE LEARNERS’ INTENT TO CONTINUE IN AN ONLINE GRADUATE PROGRAM

A Dissertation

Submitted to Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The School of Human Resource Education and Workforce Development

by

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May 2009
ACKNOWLEDGEMENTS

Although studying abroad, just like a journey, was not easy to me, it gave me another chance to a gateway to acquire knowledge and experience a different and invaluable life. In this journey, I was not alone, because I always had good mentors and friends to inspire me, and help deal with problems. First of all, I would like to thank my wife, Mei-Wen Tsai, and parents, Tao-San Huang and Min-Yung Chou, for encouraging me to achieve my learning goal. Without your support and encouragement, I could not make my dreams come true.

Moreover, I would like to express my sincere appreciation to my major professor, Dr. Krisanna Machtmes, for motivating my interest in distance education studies. Your inspiration and encouragement really played a key role in helping me finish my dissertation. I would like to especially thank Dr. David Deggs, for always being very patient to help me refine my dissertation, and solve the data gathering problems in my dissertation. I also would like to thank the other committee members: Dr. Gerri Johnson, Dr. Jing Wang, Dr. Curt Friedel, and Dr. Melissa R. Beck, for your timely suggestions and support of my dissertation.

Last but not least, I would like to express my gratitude to Dr. Michael Burnett and Dr. John-Paul Hatala, for your further insight and assistance in my study, as well as Dr. Andrew Simoncelli, coordinator of e-learning at Nicholls State University, for helping me gather the data from Nicholls State University. In my heart, I appreciate all members that are willing to help me finish my study very much, and would like to say “You are all my mentors and best friends”.
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ABSTRACT

The primary purpose of this study was to determine the factors that influence online learners’ intent to continue. This study gathered the data from the University of Arkansas, Fayetteville, and Nicholls State University. The total number of participants was n=122. The findings in this study revealed a positive relationship between online learners’ perceived usefulness and intent to continue (r=.37, p< 0.01), a positive relationship between online learners’ perceived ease of use and intent to continue (r=.44, p< 0.01), a positive relationship between online learners’ perceived flexibility and intent to continue (r=.72, p< 0.01), a positive relationship between online learners’ perceived learner-instructor interaction and intent to continue (r=.52, p< 0.01), and a positive relationship between online learners’ satisfaction and intent to continue (r=.84, p< 0.01). Moreover, the findings showed a negative relationship between online learners’ perceived learner-learner interaction and intent to continue (r= -.27, p< 0.01). Although the learner-learner interaction questionnaire used negative description, it still indicated a positive relationship between perceived learner-learner interaction and online learners’ intent to continue.

The Multiple Regression Analysis (MRA) revealed that the perceived flexibility and satisfaction had positive influence on the online learners’ intent to continue, and the value of $R^2$ further revealed that the two predictor variables explained 76.4 % of the variance in the online learners’ intent to continue.
CHAPTER ONE
INTRODUCTION

Advances in information and communication technology have gradually played an important role in Human Resource Development (HRD) in providing learners at individual, group, and organizational levels with more cost-effective, convenient and flexible training alternatives (Anderson, 1999; David, 2006; Felix, 2006; Hammond, 2001; Whitney, 2006) and learning solutions (Alexander, 1999; Salisbury, Pearson, Miller & Maret, 2002; Tarr, 1998). In order to improve the quality of online learning programs and ensure the success of online learning, most studies focused on learning outcomes and learning process (Limayem & Hirt, 2003). However, limited research has been completed about online learners’ intent to continue, which refers to their intention to continue using online learning programs in the future (Cheung & Limayem, 2005; Wu, Tsai, Chen & Wu, 2006). That is, few studies have investigated “why some users stop adopting e-learning after their initial experience” (Wu et al., 2006, p.287). It is not easy for online learning service providers, institutions of higher education, and organizations to establish successful online learning programs. Some of the challenges have included costs for developing online learning programs, maintaining, and improving online learning systems (Lee & Busch, 2005; Zirkle, 2001). The growth of the online learning market has been alluring new competitors and therefore online learning service providers, institutions and organizations will continuously encounter more pressure from new competitors (Huynh, Umesh & Valacich, 2003). In order to survive in the ever-increasing competitive market, it will be important for the online learning service providers, institutions and organizations to understand the potential factors that influence the online learners’ intent to continue in order to ensure the success, feasibility and viability of online learning programs in the future.
Rationale

Online learners’ intent to continue will be the critical outcome variable in this study. The success of online learning programs is highly associated with many crucial factors. Because online learning is usually associated with the technology application, the learners’ acceptance of technology will play a very important role in the success of online learning programs. The relevant studies from information technology (IT) reveal that two key factors, the users’ perceived usefulness and ease of use toward an IT system, have a positive influence on the successful use of an IT system (Davis, 1989; Bhattacherjee, 2001a; Bhattacherjee, 2001b). The perceived usefulness toward an IT system refers to “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, 1989, p.320). The perceived ease of use toward an IT system is defined as “the degree to which a person believes that using a particular system would be free of effort” (Davis, 1989, p.320). According to other studies about online learning, the perceived usefulness and the perceived ease of use had positive influences on online learners’ intent to continue (Lee, 2006; Saade & Bahli, 2005). However, a study from Davis and Wong (2007) revealed that perceived ease of use was negatively associated with the online learners’ intent to continue. Therefore the perceived usefulness and the perceived ease of use will be two critical predictor variables in this study.

Second, learners’ perceived flexibility could be one of the key determinants of their intent to continue. Because learners have the potential need for scheduling online learning between job, family, and work-related travel, the flexibility of online learning programs is one of the attractive factors to them (Arbaugh, 2000; Kung, 2002; Sullivan, 2001; Zirkle, 2001). Hamzaee (2005) stated that “time and place flexibility” was the most influential factor for learners to select online learning programs. Learners’ perceived flexibility means that “the time and place independence available
through computer-mediated communication (CMC) media allows students to have a high degree of flexibility in when and where they participate in Internet-based courses” (Arbaugh, 2000, p.35). Although previous studies focused on whether the perceived flexibility factor had positive influence on learners’ satisfaction with the online learning programs (Arbaugh, 2000; Arbaugh, 2002a; Arbaugh, 2002b; Arbaugh & Duray, 2001; Marks, Sibley & Arbaugh, 2005), relevant evidence showed that the learners’ perceived flexibility of online learning programs could be associated with the learners’ online learning intent to continue (Hamzaee, 2005; Kung, 2002). Thus, it is necessary that the learners’ perceived flexibility be incorporated in the study as one of the predictor variables.

Third, in the online learning environment, the instructor and learners are separated by differences in place and time (Carriere & Harvey, 2001; Claus & Dooley, 2005), the interaction between students and instructor will be one of the factors essential to the success of online learning programs (Arbaugh, 2000; Bolliger & Martindale, 2004; Roblyer & Wiencke, 2003; Sims, Dobbs & Tim, 2002). Although other studies investigated the relationship between the learners’ interaction and satisfaction (Arbaugh, 2000; Bolliger & Martindale, 2004; Swan, 2001; Eom, Wen & Ashill, 2006), no studies were found which indicated that the learners’ perceived interaction toward an online learning program had a positive influence on the learners’ online learning intent to continue. Hence, adding the perceived interaction factor as one of the predictor variables will be important for this study. Finally, learners’ satisfaction with online learning is not only one of the important indicators to determine the success of online learning (Chiu, Chiu & Chang, 2007; Levy, 2007), but is also highly associated with the online learners’ intent to continue (Chiu et al., 2007; Hayashi, Chen, Ryan & Wu, 2004; Roca, Chiu & Martinez, 2006; Wu et al., 2006). Thus, learners’ satisfaction with online learning programs will be a predictor variable.
in this study. In conclusion, as the online learning has become more established and important in the educational marketplace (Huynh et al., 2003), this study will give online learning technology providers as well as institutions and organizations more beneficial data to help them further improve the quality of online learning programs. In order to make the online learning programs more feasible, useful and attractive to the learners at individual, group, and organizational levels in the future, it is necessary that practitioners and researchers in the HRD field investigate the factors that influence the online learners’ intent to continue.

**Problem Statement**

Relevant studies revealed that the success of online learning was highly associated with online learner’s perceived usefulness, ease of use, flexibility, interaction, and satisfaction factors. In order to continuously improve the quality of online learning, it is important that the online learning service providers, institutions of higher education, and organizations understand the potential factors that influence online learners’ intent to continue to ensure the feasibility and viability of online learning programs in the future. Thus, the primary purpose of this study is to determine the factors that influence online learners’ intent to continue.

**Significance of Study**

This study added to the body of knowledge and provided information to assist learning technology providers as well as institutions of higher education, and organizations by providing more beneficial data to help improve the quality of online learning programs. The significance of study was grounded in the following.

The success of online learning programs was highly associated with the learners’ perceived usefulness, ease of use toward an online learning technology (Lee, 2006; Saade & Bahli, 2005); therefore, the goal of this study was to help online learning technology providers gain insight in order to further improve the quality of online
learning technology. Second, as for the learners’ perceived flexibility factor, previous studies focused on the relationship between the learners’ perceived flexibility and online learning satisfaction. No studies were found that the learners’ perceived flexibility was associated with online learners’ intent to continue. The goal of this study was not only to identify the relationship between the learners’ perceived flexibility and online learning intent to continue, but to add to the body of knowledge in the distance learning field in order to assist online learning service providers, institutions of higher education, and organizations in offering learners more suitable and flexible online learning courses in the future.

Third, as for the learners’ perceived interaction factor, it was found that most studies focused on whether the learners’ perceived interaction was positively associated with the learners’ satisfaction. However, no studies were found that the learners’ perceived interaction was associated with the online learners’ intent to continue. The outcome of this study not only helped online learning instructors and instructional designers improve the quality of online learning interaction, but also added to body of knowledge in the distance learning field in order to assist practitioners and researchers in identifying the relationship between learners’ perceived interaction and intent to continue online learning. Last but not least, both the learners’ satisfaction and intent to continue were critical to the final success of online learning programs. A goal of this study was to provide online learning service providers, institutions and organizations with further insights to improve online learning programs. This would assist such organizations in surviving in the ever-increasing market competition, and ensuring feasibility and viability of online learning programs in the future.

In conclusion, in terms of learners in the online learning marketplace, because of the convenience, flexibility, cost efficiency of online learning (Yilmaz, 2005), online
learning had become increasingly attractive to learners at the individual, group and organizational levels. Online learning was not only as a learning alternative to satisfy lifelong learning needs, but also as a training solution to acquire the knowledge, skills, and ability in their professional field (Anderson, 1999; Whitney, 2006). Moreover, in terms of suppliers in the online learning marketplace, through joint-venture, collaboration, partnership and strategic alliance, new entrants would continuously go into the online learning market in order to get profits. Due to the growth and competition in the online learning industry (Huynh, et al., 2003; Liu, Magjuka, Bonk & Lee, 2007), the results of this study would not only add to the body of knowledge in the distance learning field, but also help the online learning technology providers, institutions and organizations offer learners better online programs to maintain the long-term competitive advantages in the distance learning marketplace.

**Objectives**

The objectives for this study were:

1. To describe students who were enrolled in one or more online learning courses at University of Arkansas, Fayetteville, and Nicholls State University in the fall semester of 2008 on the following demographic characteristics:
   - a.) Gender,
   - b.) Age,
   - c.) Learners’ previous online learning experience
   - d.) Learners’ online learning engagement in one online program per week
   - e.) Learners’ previous learning methods
   - f.) Learners’ major, and
   - g.) Whether learners are currently taking the comp exam.

2. To determine if a relationship existed between online learners’ intent to continue and the following perceptual measures among the students who were enrolled in one
or more online learning courses.

a.) Perceived usefulness as measured by the construct of perceived usefulness.
b.) Perceived ease of use as measured by the construct of perceived ease of use.
c.) Perceived flexibility as measured by the construct of perceived flexibility.
d.) Perceived learner-instructor interaction as measured by the construct of perceived learner-instructor interaction.
e.) Perceived learner-learner interaction as measured by the construct of perceived learner-learner interaction.
f.) Learners’ satisfaction with the online learning experience as measured by the construct of learners’ satisfaction.

3. To determine if differences existed in the online learners’ intent to continue as measured by the construct of online learners’ intent to continue within the following demographic characteristics:
   a.) Gender,
b.) Age,
c.) Learners’ previous online learning experience, and
d.) Learners’ online learning engagement in one online program per week.

4. To determine if differences existed in the perceived usefulness within the following demographic characteristics:
   a.) Gender,
b.) Age,
c.) Learners’ previous online learning experience, and
   f.) Learners’ online learning engagement in one online program per week.

5. To determine if differences existed in the perceived ease of use within the following demographic characteristics:
   a.) Gender,
b.) Age, c.) Learners’ previous online learning experience, and d.) Learners’ online learning engagement in one online program per week.

6. To determine if differences existed in the perceived flexibility within the following demographic characteristics:
   a.) Gender, b.) Age, c.) Learners’ previous online learning experience, and d.) Learners’ online learning engagement in one online program per week.

7. To determine if differences existed in the perceived interaction within the following demographic characteristics:
   a.) Gender, b.) Age, c.) Learners’ previous online learning experience, and d.) Learners’ online learning engagement in one online program per week.

8. To determine if differences existed in the learners’ satisfaction with online learning experience within the following demographic characteristics:
   a.) Gender, b.) Age, c.) Learners’ previous online learning experience, and d.) Learners’ online learning engagement in one online program per week.

9. To determine if a model existed which would explain a significant portion of the variance in the online learners’ intent to continue from the following measures:
   a.) Perceived usefulness, b.) Perceived ease of use, c.) Perceived flexibility,
d.) Perceived learner-instructor interaction,

e.) Perceived learner-learner interaction, and

f.) Learners’ satisfaction with online learning experience.

**Definition of Terms**

The following definitions and operational terms will assist the reader in understanding the terminology used in this study:

- **Distance learning** refers to the planned learning that the instruction is delivered via the multimedia such as Internet and TV, where the instructor and the learners are separate in the different places and time (Carriere & Harvey, 2001; Claus & Dooley, 2005; Moore & Kearsley, 2004).

- **Online learning** includes teaching and learning that is delivered via the internet (Moore & Kearsley, 2004).

- **Perceived usefulness** is defined as the degree to which a learner believes that using an online learning technology would enhance his or her learning performance (Davis, 1989, p.320).

- **Perceived ease of use** is defined as the degree to which a learner believes that using an online learning technology would be “free of effort” (Davis, 1989, p.320).

- **Perceived flexibility** means that the online learning programs enable the learners to “have a high degree of flexibility in when and where they participate in Internet-based courses” (Arbaugh, 2000, p.35).

- **Perceived interaction** refers to the interaction between the online instructor and learners (Moore & Kearsley, 2004).

- **Learners’ satisfaction** is defined as “the learners’ evaluation and affective response” to the overall experience of online learning (Chiu et al., 2007, p.274).
• **Online learners’ intent to continue** refers to the learners’ intention to continue using online learning programs in the future (Cheung & Limayem, 2005; Chiu et al., 2007; Hayashi et al., 2004; Roca et al., 2006; Wu et al., 2006).
CHAPTER TWO

REVIEW OF LITERATURE

The Historical Development of Distance Education

Distance education was not a new phenomenon in today’s world. About 120 years ago people used the United States Postal Service to satisfy their learning needs. According to the study from Moore and Kearsley, there are five generations involved in the historical development of distance education. The first generation was the correspondence study. The convenience offered by the U.S. Postal Service allowed people to meet their educational needs through correspondence study which was used as the main learning media in the beginning of the 1880s.

The second generation was the broadcast industry. Due to the technological advancement broadcast radio and television were used as the main learning media in the 1920s. The third generation was the Open University, which did not focus on technology advancement, but on “a revolutionary new educational institution” from the United Kingdom (Moore & Kearsley, 2004, p.34). The purpose of Open University was to allow people to have an organized educational channel and system with more opportunities to acquire knowledge through the assistance of technology. The fourth generation was teleconferencing. The primary focus of teleconferencing was synchronous learning where through technological advances such as telephone, satellite, cable and computer networks, learners could get instant or real time responses and interaction from distance instructors. Finally, the fifth generation was online learning, which was delivered via the internet (Moore & Kearsley, 2004). The internet-based classes not only provided learners with another convenient learning alternative, but also give learners “the virtual learning environment,” which offered interaction and direct feedbacks between learners and instructors (Priluck, 2004). Because many students had been attracted by the cost-effectiveness, convenience and
flexibility of online learning, online learning at higher education institutions had grown. For example, the 2007 data from Sloan Consortium revealed that “almost 3.5 million students were taking at least one online course during the fall 2006 term” (Allen & Seaman, 2007, p.1), and “nearly twenty percent of all U.S. higher education students were taking at least one online course in the fall of 2006” (Allen & Seaman, 2007, p.1). Therefore, it is necessary that this study investigate the potential factors that influence the learners’ online learning intent to continue based on the trend in the distance learning.

The Characteristics of Online Learning

Moore & Kearsley (2004) stated that "Distance education is planned learning that normally occurs in a different place from teaching, requiring special techniques of special course design and instructional techniques, communication through various technologies, and special organizational and administrative arrangements" (p.2). From the above statement, it was easy to understand that distance education was different from traditional education. As for the learners, the first noteworthy characteristic of online learning was highly associated with the use of information and communication technology (Summers, Waigandt & Whittaker, 2005; Zirkle, 2001). Because online learning was delivered via multimedia, the learners’ acceptance toward the online learning technology and system played a very important role in the success of online learning. The predictor variables associated with this characteristic are learners’ perceived usefulness and ease of use toward an online learning system. Accordingly, based on this characteristic, it was very critical to incorporate these two predictor variables into the study.

The second noteworthy characteristic of online learning was related to the interaction between the learner and instructor (Arbaugh, 2000; Roblyer & Wiencke, 2003). In distance education, the instructor and learners were separated by place and
time (Carriere & Harvey, 2001; Claus & Dooley, 2005). The teaching and learning environment in distance education were, in fact, different from that of traditional education. For example, the traditional learning environment, it was easy for an instructor to receive direct feedback from students’ body language, facial expression or eye contact (Granitz & Greene, 2003). However, the direct feedback from online learners were not available in an asynchronous online learning environment, so instructional design related to the interaction between the students and instructors was one of the important ingredients of designing successful distance education (Granitz & Greene, 2003; Roblyer & Wiencke, 2003). Thus, it was important to include the learners’ perceived interaction in the study.

The third noteworthy characteristic of the online learning was related to the flexibility of online learning programs. In today’s world, people were busy with personal activities. If the learners’ personal activities contradicted with their learning plan, it was very likely that the online learning solution would emerge from other learning alternatives, and be regarded as their priority choice (Arbaugh, 2000; Zirkle, 2001). That was mainly because the time and place flexibility of online learning programs were very attractive and advantageous to the learners (Arbaugh, 2002a; Hamzaee, 2005; Hollis & Madill, 2006; Kung, 2002; McGorry, 2003; Sullivan, 2001; Zirkle, 2001). Consequently, the learners’ perceived flexibility was examined in this study.

The fourth noteworthy characteristic in online learning was related to the incessant technology investments. As for online learning suppliers, regardless of the other overhead expenditures such as the staff costs, the institutions and organizations in the online learning field often required incessant technology investments such as maintenance and upgrades to hardware or software. The costs could be potential barriers and challenges to institutions and organizations. (Lee, & Busch, 2005; Zirkle,
Actually, because of the rapid growth in the online learning market, the current online learning service providers, institutions, and organizations may continuously encounter pressure from new competitors (Huynh et al., 2003; Liu et al., 2007). If they still ignore the importance of online learners’ intent to continue, the situation could become worse, not better.

In addition, learners’ satisfaction not only was one of the important indicators to determine the success of online learning (Chiu et al., 2007), but also had positive impact on the online learners’ intent to continue (Roca et al., 2006). In order to survive the ever-increasing market competition (Huynh et al., 2003) and ensure the feasibility and viability of online learning programs, learners’ satisfaction and intent to continue would be important to online learning service providers, institutions and organizations. Thus, based on the above characteristic and discussion, it was critical that online learners’ satisfaction and intent to continue should be incorporated into the theoretical framework of the study.

Based on the characteristics of online learning, this study proposed a theoretical framework, which contained five predictor variables and one outcome variable. In the next section, the theoretical background of predictor variables, outcome variable, and the selection of demographic variables would be further discussed.

**Theoretical Background**

**Technology Acceptance Model**

The Technology Acceptance Model (TAM), first proposed by Davis (1989), has been widely used in studies, related to the application of technology, to explain the users’ technology acceptance (Devaraj, Ming & Kohli, 2002; Roca et al., 2006). In terms of the theoretical development of TAM, it is originally evolved from the Theory of Reasoned Acton (TRA) (Roca et al., 2006; Wu et al., 2006) (see Figure 1). The TRA postulates that the attitude toward behavior, which refers to “the degree to which
a person has a favorable or unfavorable evaluation of the behavior in question” (Ajzen & Madden, 1986, p.454), and the subject norm, which means “the perceived social pressure to perform or not to perform the behavior” (Ajzen & Madden, 1986, p.454) are two determinants of intention, and the intention will consequently lead to the actual behavior (Ajzen & Madden, 1986, p.454).

Based on the theoretical development of TRA, Davis (1989) proposed the TAM (Figure 2), which theorizes that the users’ perceived usefulness and perceived ease of use toward an information technology (IT) system are two primary determinants of users’ attitude toward the use of an information technology system. Users’ perceived usefulness toward an IT system refers to “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis 1989, p.320). Users’ perceived ease of use toward an IT system means “the degree to which a person believes that using a particular system would be free of effort” (Davis 1989, p.320). Moreover, the users’ attitude will subsequently affect the users’ behavioral intention, and finally affect the actual system use (Davis, Bagozzi, & Warshaw, 1989).
Because online learning is highly associated with the technology application, learners’ technology acceptance will play an important role in the success of online learning programs. The relevant studies from Information Technology (IT) area revealed that two key factors, the users’ perceived usefulness and ease of use toward an IT system, had positive influence on the success of an IT system (Bhattacherjee, 2001a; Bhattacherjee, 2001b; Davis, 1989). In terms of online learning, learners’ perceived usefulness toward the online learning technology is defined as the degree to which a learner believes that using online learning technology would enhance his or her learning performance. The learners’ perceived ease of use toward the online learning technology is defined as the degree to which a learner believes that using online learning technology would be free of effort (Davis, 1989).

According to other online learning studies, the perceived usefulness and the perceived ease of use had positive influence on online learners’ intent to continue (Lee, 2006; Saade & Bahli, 2005). However, the study from Davis and Wong (2007) revealed that the perceived ease of use was negatively associated with the online
learners’ intent to continue. Hence perceived usefulness and perceived ease of use will be two key predictor variables in the theoretical framework of this study.

The Perceived Flexibility

The learners’ perceived flexibility perspective, proposed by Arbaugh (2000), was initially developed from the Computer Mediated Communication (CMC) studies. The study by Arbaugh (2000) suggested that learners’ perceived flexibility toward an online learning program was one of the key determinants to the learners’ satisfaction. The learners’ perceived flexibility means that “the time and place independence available through CMC media allows students to have a high degree of flexibility in when and where they participate in Internet-based courses” (Arbaugh, 2000, p.35).

The main reason why flexibility is important to learners is because flexibility of online learning can help learners deal with conflicts between their personal activities and learning plans (Arbaugh, 2000; Downes, 1998; Sullivan, 2001). If learners’ personal activities such as jobs, family, or travel often collide with their learning plans, under the circumstance, it is very likely that the online learning solution will emerge from the other learning alternatives, and be regarded as their priority choice (Arbaugh, 2000; Zirkle, 2001). As learners have various learning solutions, flexibility, the key characteristic in the online learning, is one of the important reasons for them to decide whether they will use the online learning programs (Hamzaee, 2005; Kung, 2002). Two studies from Arbaugh (2000) and (2002a) revealed that two factors were highly associated with the learners’ satisfaction. The first factor is course flexibility, which refers to “the ability to arrange the work of the individual course around other activities” (Arbaugh, 2002a, p.212). The second factor is program flexibility, which refers to “the ability to arrange the course to facilitate completing the entire degree program (Arbaugh, 2002a, p.212). Although limited research has paid attention to the studies of the learners’ perceived flexibility, the studies related to the learners’
perceived flexibility are still necessary. That is mainly because perceived flexibility, one of the attractive and important online learning characteristics to the learners, is highly associated with the learners’ decision to take an online course (Arbaugh, 2002a; Hamzaee, 2005; Hollis & Madill, 2006; McGorry, 2003). Thus, based on the above discussion, it was necessary that learners’ perceived flexibility should be incorporated into this study, and be considered one of the key predictor variables in the theoretical framework.

The Perceived Interaction

The interaction, an essential feature in the online learning environment, not only has been proved to be one of the key determinants of the learners’ satisfaction, but also plays a very important role in the success of online learning programs (Arbaugh, 2000; Bolliger & Martindale, 2004; Roblyer & Wiencke, 2003; Sims et al., 2002). In the online learning environment, the instructor and learners are separated by place and time (Carriere & Harvey, 2001; Claus & Dooley, 2005), which makes the online learning environment quite different from the traditional learning environment. For instance, in the traditional learning environment, an instructor can easily get the learners’ feedback such as body language, facial expression or eye contact (Granitz & Greene, 2003). However, in the asynchronous online learning environment, it is not possible to get such responses from online learners.

As for the learners, because of the specialty of online learning environment, it is likely that online learners could feel isolated in the online learning environment. Rovai (2002) suggested that learners’ feeling of isolation was one of the possible reasons that resulted in lower persistence in online learning programs. That may be because feeling isolated in an online learning environment could lead to a lower sense of a learning community, subsequently lower learners’ satisfaction, and finally lower persistence in online learning programs (Liu et al., 2007; Rovai, 2002). In order to
deal with the above situations, interaction will be one of the critical factors in reducing the learners’ feeling of isolation, increasing the learners’ satisfaction, and achieving success of online learning programs (Ouzts, 2006).

There are three types of interaction in the online learning environment (Moore & Kearsley, 2004). The first type of online learning interaction is learner-content interaction, which refers to the learners’ reflection on learning content and knowledge acquisition from the learning materials. Generally, learner-content interaction is often dependent on the other interaction types (Kirby, 1999). That is, learner-content interaction could simultaneously occur in the learner-learner interaction, and the learner-instructor interaction. In essence, learner-content interaction enables learners to have an intangible change or transformation in their knowledge, skill, and attitude.

The second type of online learning interaction is learner-instructor interaction, which refers to “the exchange of ideas, resources and information between learners and teachers participating in a course of study” (Sims at al., 2002, p.143). In this type of interaction, an online instructor will be responsible for facilitating learners to construct or acquire the new knowledge (Arbaugh & Benbunan-Fich, 2007). Fredericksen, Pickett, Shea, Pelz and Swan (2000) stated that learners with lower level of learner-instructor interaction tended to have a lower level of satisfaction with online courses. Learner-instructor interaction will play an important role in the success of distance learning especially for distance learners without onsite teacher support (Tuovinen, 2000). The third type of online learning interaction is the learner-learner interaction, which refers to “the exchange of ideas, resources and information between learners enrolled in a course of study” (Sims at al., 2002, p.143). Interaction between learners plays a very important role in stimulating and motivating learning intention, and facilitating the success of online learning. In terms of the previous studies, related to the online learning interactions, most studies focused on
whether learners’ perceived interaction had positive influence on the learners’ satisfaction, (Arbaugh, 2000; Bolliger & Martindale, 2004; Eom et al., 2006; Marks et al., 2005; Swan, 2001). However, no studies were found in which the learners’ perceived interaction was associated with the online learners’ intent to continue. Therefore it is important that learners’ perceived interaction should be added to the theoretical framework of the study.

**Learners’ Satisfaction**

The learners’ satisfaction was widely used in the distance learning studies to evaluate the success of online learning programs (McGorry, 2003). That may be because the learners’ satisfaction is a “relatively unambiguous” indicator, which could show the “outcomes of reciprocity that occur between students and an instructor” (Guolla, 1999, p.91) and help an instructor ensure whether the teaching materials or programs are suitable for learners. Moreover, relevant online learning studies revealed that the learners’ satisfaction had positive influence on the online learners’ intent to continue(Chiu et al., 2007; Hayashi at al., 2004; Roca et al., 2006; Wu et al., 2006) and played an important role in the success of online learning programs (Chiu et al., 2007; Levy, 2007). Therefore, based on the above discussion, it was necessary that learners’ satisfaction be considered the most critical predictor variable, and therefore was incorporated into the theoretical framework of the study.

**Online Learners’ Intent to Continue**

The online learners’ intent to continue, which refers to the learners’ intention to continuously use the online learning programs in the future (Cheung & Limayem, 2005; Wu et al., 2006), is derived from the behavioral intention of Theory of Reasoned Action (TRA). According to TRA, the behavioral intention, which refers to “the strength of ones’ intention to perform a specified behavior” (Davis et al., 1989, p.984), is the key determinant of ones’ actual behavior. That is, “the stronger a
person’s intention, the more the person is expected to try, and hence the greater the likelihood that the behavior will actually be performed” (Ajzen & Madden, 1986, p.454). The learners’ intent to continue is one of the key indicators to determine the success of online learning programs (Chiu, Hsu, Sun, Lin, & Sun, 2005). Moreover, because of the ever-increasing market competition from the new suppliers (Huynh et al., 2003; Liu et al., 2007), and the challenges related to maintaining the quality of online learning systems (Lee, & Busch, 2005; Zirkle, 2001), the online learners’ intent to continue will play an important role in helping the online learning service providers, institutions and organizations address the learners’ need to improve online learning programs, and further enhance the feasibility and viability of an online learning program in the future. Thus, it was critical that the online learners’ intent to continue be considered the important outcome variable, and be contained in the theoretical framework of this study.

Selection of Demographic Variables

In addition to the discussion about the relationship between predictor and outcome variables, the learners’ personal characteristics, one of the crucial components in this study, included gender, age, learners’ previous online learning experience, and online learners’ engagement in one online program per week.

The first personal characteristic in the study is related to the learners’ gender. In the studies related to the technology application, gender has been always one of the focal points. For example, some studies reported that males tended to have more positive attitudes toward computer use (Durndell, Hagg, & Laithwaite, 2000; Whitely, 1997). However, Lee, Hong, Ling (2001) found that there were no differences in the users’ perceived usefulness and ease of use toward computer use among different gender groups. In online learning studies related to gender differences, Ong and Lai (2006) showed that males had higher levels of perceived usefulness, ease of use, and
intent to continue than women. Sullivan (2001) found that “female college students (especially adult learners) appear to have more compelling needs for flexibility than their male counterparts” (p.807). Moreover, the study from Bernard, Brauer, Abrami and Surkes (2004) indicated that the male students tended to have more interaction with the other online students than female students. However, Larson (2002) reported that there was no significant difference in the learners’ interaction between different gender groups, and studies from Marks et al. (2005) and Levy (2007) revealed that there was no significant difference in the learner satisfaction between the two gender groups. Thus, based one the above information, the gender characteristic was considered one of the key points in this study.

The second personal characteristic in the study is related to the learners’ age. Because the online learning is highly associated with technology application, the stereotypical belief that the older the learner, the less the learner is inclined to accept online learning may be one of the reasons to draw peoples’ attention to the studies related to age differences (Hoskins & Hooff, 2005). As for online learning, a study from Fredericksen et al. (2000) showed that the younger learners tended to be less satisfied with online learning courses than older learners. However, Marks et al. (2005) and Levy (2007) found that there was no significant difference in the learners’ satisfaction between different age groups. Thus, based one the above information, the age characteristic was another variable in this study.

The third personal characteristic in the study is related to the learners’ previous online learning experience. The respondents’ personal information, related to number of online courses learners took previously, is to probe into whether differences exist in the online learners’ perceived usefulness, ease of use, interaction, flexibility, satisfaction, and intent to continue between different number of online learning courses learners took previously. Lee et al. (2001) found that learners’ prior
experience with online courses had positive influence on the learners’ “general beliefs” toward online courses. Marks et al. (2005) also suggested that learners’ prior experience with online courses could potentially have an effect on learner satisfaction. Although the study from Marks et al. (2005) revealed that learners’ prior experience with online courses was not positively associated with the learners’ satisfaction, based on the above information, it was necessary that the learners’ prior experience with online courses be taken into consideration.

The fourth personal characteristic in the study is related to the online learners’ engagement in an online program per week. This personal characteristic information is to determine whether differences exist in the online learners’ perceived usefulness, ease of use, interaction, flexibility, satisfaction, and intent to continue between different levels of the learners’ personal engagement in online courses. Bernard et al. (2004) indicated that “students who used computers in educational endeavors more frequently were more positive in terms of both beliefs and skills than students who used computers less frequently” (p. 42). Moreover, Marks et al. (2005) suggested that the more the learners were engaged in online courses, the more the learners would be satisfied with online courses. Therefore, based on the above information, it was critical that the personal characteristic, related to the learners’ online learning engagement in an online program per week, should be one of the central points in this study. In conclusion, based on the predictor, outcome, and demographic variables, this study further proposed a theoretical framework to investigate the factors that influence the online learners’ intent to continue.
CHAPTER THREE
RESEARCH METHODOLOGY

Population and Samples

The target population of this study was the students who were enrolled in one or more online learning courses. The accessible population was the students who were enrolled in one or more online learning courses in the fall semester of 2008. Campuses included a research university with high research activity and a master’s college and university as classified by the Carnegie Foundation for the Advancement of Teaching. Both institutions are in the southeastern United States. In order to gather the data from the accessible population, the researcher worked with the institutions where this study was conducted in order to obtain permission to sample the students who were enrolled in one or more online learning courses in the fall 2008 semester. After obtaining a list of students including e-mail addresses, the researcher sampled all students enrolled in one or more online courses during the fall 2008 semester via an online survey.

Ethical Considerations and Study Approval

In order to get the permission to gather the data, the researcher submitted an application for exemption from institutional oversight to LSU Institutional Review Board and the Institutional Review Board of the data-gathering university. This study obtained the approval on November 11, 2008. The IRB reference number for this research study is E 4289. The researcher also obtained approval from the Institutional Review Board of the data-gathering university on December 12, 2008. A copy of the approval memorandum is included in Appendices A and B.

Instrumentation

This study was associated with distance education and information system, and therefore the instrument constructs were mainly from these two areas.
As for the measurement of the learners’ perceived usefulness, and ease of use toward an online learning system, the items were mainly adopted from studies by Davis (1989), Arbaugh (2000) and Roca et al. (2006). As for the measurement of the perceived flexibility factor, the items were adopted mainly from studies by Arbaugh (2000) and Marks et al. (2005). As for the measurement of the perceived interaction factor, the items were mainly adopted from the studies by Sherry, Fulford, and Zhang (1998) and Marks et al. (2005). As for the measurement of learners’ satisfaction, the items were adopted from the studies by Arbaugh (2000), Marks et al. (2005), and Roca et al. (2006). In addition, as for the measurement of the online learners’ intent to continue, the items were mainly adopted from the study by Roca et al. (2006), and the self-design demographic items were included to gather respondents’ personal information (see Table 1).

A six-point Likert-type scale was adopted to measure the learners’ level of agreement for perceived usefulness, ease of use, interaction, flexibility, and online learning intent to continue. For the demographic variables gender (demographic item 1), learners’ previous learning methods (demographic item 5), learners’ major (demographic item 6), and whether learners are taking the comp exam (demographic item 7), the nominal scale was the most appropriate scale to measure the demographic data. The observations of age (demographic item 2), learners’ previous online learning
experience (demographic item 3), and learners’ online learning engagement in one online program per week (demographic item 4) were ranked ordered, so the ordinal scale was the most appropriate scale to measure the data (see Table 2).

Table 2
Scale of Predictor, Outcome, and Demographic Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Usefulness</td>
<td>Interval Scale</td>
</tr>
<tr>
<td>Perceived Ease of Use</td>
<td>Interval Scale</td>
</tr>
<tr>
<td>Perceived Flexibility</td>
<td>Interval Scale</td>
</tr>
<tr>
<td>Perceived Interaction</td>
<td>Interval Scale</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>Interval Scale</td>
</tr>
<tr>
<td>Online Learners’ Intent to Continue</td>
<td>Interval Scale</td>
</tr>
<tr>
<td>Demographic variables</td>
<td>Nominal scale (Item 1, 5, 6, 7) Ordinal Scale (Item 2, 3, 4)</td>
</tr>
</tbody>
</table>

Pilot Testing of Study Instrument

In order to establish the face and content validity of the instrument, students who were enrolled in the one or more online learning courses in the fall 2008 semester at a university that was classified as a master's college and university, as classified by the Carnegie Foundation for the Advancement of Teaching, in the southeastern United States were surveyed in order to pilot test the instrument.

Moreover, as for the reliability of the instrument, besides the demographic items in the instrument, the items, related to the online learners’ perceived usefulness, ease of use, flexibility, interaction, satisfaction, and learning intent to continue were all adopted from the relevant research. According to Buys, Ockers and Schaa (2007), the sub-scales with Cronbach’s α of 0.7 could be considered acceptable and reliable in the study. The perceived usefulness and ease of use constructs, with Cronbach’s α of 0.86 and 0.96, respectively (Roca et al., 2006), were mainly adopted from the studies of Davis (1989), Arbaugh (2000) and Roca et al. (2006). The perceived flexibility construct, with Cronbach’s α of 0.86 for course flexibility and Cronbach’s α of 0.75 for program flexibility (Arbaugh, 2002a), was adopted from the studies of Arbaugh.
The perceived interaction construct, with Cronbach’s $\alpha$ of 0.77 for learner-instructor interaction and Cronbach’s $\alpha$ of 0.85 for learner-learner interaction (Sherry et al., 1998), was adopted from the studies of Sherry et al. (1998) and Marks et al. (2005). The perceived satisfaction construct, with Cronbach’s $\alpha$ of 0.97 (Roca et al., 2006), was adopted from the studies of Arbaugh (2000), Marks et al. (2005), and Roca et al. (2006). The learners’ online learning intent to continue, with Cronbach’s $\alpha$ of 0.95, was adopted from the study of Roca et al. (2006). However, in order to further examine the reliability of the instrument, students who were enrolled in the one or more online learning courses in the fall 2008 semester at a university that was classified as a master's college and university, as classified by the Carnegie Foundation for the Advancement of Teaching, in the southeastern United States, were used to further pilot test the reliability of the instrument. The data collection plan for testing the reliability of the instrument was similar to the formal data collection plan in this study.

It was the assumption of the study that there were five factors that influenced the online learners’ intent to continue. Within 30 items, the exploratory factor analysis (EFA) was used to further examine whether there was any underlying factor in this study. That was not only because the questionnaire was redesigned for the specific purpose of the study, but also because the sources of instrument were from different researchers’ questionnaires in the distance education and information system area. Since the principal component analysis was a multivariate way to re-express and reorient the data, this study adopted the principal component analysis technique to extract the factors and the promax rotation technique was used to obtain simple structure because the potential factors could be correlated with each other in this study (Costello & Osborne, 2005; Lattin, Carroll & Green, 2003; Thompson, 2004). Moreover, as for how to decide the number of factors to extract, the study ignored the
factor that its eigenvalue was less than one. Finally, as for the criteria for the significance of factor loadings, it had been decided *a priori* that variable with a factor loading of less than 0.3 was considered insignificant in this study.

**Data Collection**

In terms of the data collection, the data was collected by online survey because the online survey technique was more convenient and economical. An online survey was also used because the population of this study could tend to prefer an online survey. The Data of University of Arkansas was collected via the Zoomerang online survey system on January 26, 2009, and data of Nicholls State University was collected via the Zoomerang online survey system on February 2, 2009. Based on the studies from Dillman and Salant (1994), the following techniques were adopted to gather the data in order to obtain the maximum percentage of questionnaire returns.

1. If the questionnaire was not completed within 7-10 days after sending the first survey questionnaire to the participants, the researcher sent the non-respondents a friendly reminder via email (see Appendix D). The first reminder was sent to the non-respondents of University of Arkansas on February 6, 2009, and first reminder was sent to the non-respondents of Nicholls State University on February 12, 2009.

2. The researcher sent the non-respondents a second letter stressing the importance of the online learners’ participation in the study, and the survey link to complete the survey about four weeks after sending the first survey questionnaire to the participants (see Appendix E). The second reminder was sent to the non-respondents of University of Arkansas on February 16, 2009, and second reminder was sent to the non-respondents of Nicholls State University on February 23, 2009.

3. Finally, the researcher sent the remaining non-respondents a final email stressing
the importance of the online learners’ participation in the study, and the survey link to complete the survey about six weeks after sending the first survey questionnaire to the participants (see Appendix F). The final reminder was sent to the non-respondents of University of Arkansas on February 28, 2009, and final reminder was sent to the non-respondents of Nicholls State University on March 2, 2009. The final response rate at University of Arkansas, Fayetteville, was 39.4 % (58 out of 147), and final response rate at Nicholls State University was 7.2 % (64 out of 883). The total response rate from both universities was 11.8 % (122 out of 1030) in this study. The responses by response wave are presented in the table 3 and table 4.

Table 3
Response Rates by Wave at University of Arkansas, Fayetteville

<table>
<thead>
<tr>
<th>Wave</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>First mailing</td>
<td>26</td>
<td>45</td>
</tr>
<tr>
<td>Second mailing</td>
<td>14</td>
<td>24</td>
</tr>
<tr>
<td>Third mailing</td>
<td>18</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4
Response Rates by Wave at Nicholls State University

<table>
<thead>
<tr>
<th>Wave</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>First mailing</td>
<td>32</td>
<td>50</td>
</tr>
<tr>
<td>Second mailing</td>
<td>17</td>
<td>27</td>
</tr>
<tr>
<td>Third mailing</td>
<td>15</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>100</td>
</tr>
</tbody>
</table>

**Procedures to Address Non-Response Error**

In order to estimate the non-response error, the researcher further compared the early respondents with late respondents. A decision was made *a priori* that if statistically significant differences were found in more than 2 scale items, it would be concluded that the early respondents were significantly different from the late
respondents. If there were no differences between early respondents and late
respondents, then the study findings were generalized to the sample and population.
The statistically significant differences did not exist in the 33 items of the instrument.
Thus, the researcher concluded that there was no statistically significant difference
between the early respondents and late respondents.

**Data Analysis**

In order to accomplish the study, the study used Statistical Package in Social
Science (SPSS) software to conduct the data analysis, and the data analysis methods
were based on the specific objectives of this study.

**Objective One**

Objective one was to describe students who were enrolled in one or more online
learning courses at University of Arkansas, Fayetteville, and Nicholls State University
in the fall semester of 2008 on the following demographic characteristics:

a.) Gender,
b.) Age,
c.) Learners’ previous online learning experience
d.) Learners’ online learning engagement in one online program per week
e.) Learners’ previous learning methods
f.) Learners’ major, and
g.) Whether learners are currently taking the comp exam.

For the demographic variables gender (demographic item 1), learners’ previous
learning methods (demographic item 5), learners’ major (demographic item 6), and
whether learners are taking the comp exam (demographic item 7), the nominal scale
was the most appropriate scale to measure the demographic data. The observations of
age (demographic item 2), learners’ previous online learning experience (demographic
item 3), and learners’ online learning engagement in one online program per week
(demographic item 4) were ranked ordered, so the ordinal scale was the most appropriate scale to measure the data (see Table 2). Therefore, the frequencies and percentages in each category were used to accomplish objective one.

**Objective Two**

Objective two was to determine if a relationship existed between online learners’ intent to continue and the following perceptual measures among the students who were enrolled in one or more online learning courses.

a.) Perceived usefulness as measured by the construct of perceived usefulness.
b.) Perceived ease of use as measured by the construct of perceived ease of use.
c.) Perceived flexibility as measured by the construct of perceived flexibility.
d.) Perceived learner-instructor interaction as measured by the construct of perceived learner-instructor interaction.
e.) Perceived learner-learner interaction as measured by the construct of perceived learner-learner interaction.
f.) Learners’ satisfaction with the online learning experience as measured by the construct of learners’ satisfaction.

Because the items related to learners’ perceived usefulness, ease of use, flexibility, learner-instructor interaction, learner-learner interaction, satisfaction and the learners’ intent to continue were measured at the interval scale, the Pearson Product Moment correlation coefficient was used to accomplish objective two.

**Objective Three**

Objective three was to determine if differences existed in the online learners’ intent to continue as measured by the construct of online learners’ intent to continue within the following demographic characteristics:

a.) Gender,
b.) Age,
c.) Learners’ previous online learning experience, and

d.) Learners’ online learning engagement in one online program per week.

The information from Table 2 showed that the online learners’ intent to continue was the data of interval scale, gender was the data of nominal scale, and the other demographic variables were the data of ordinal scale. Therefore, the one-way Analysis of Variance (one way ANOVA) was used to accomplish the objective three, and the Levene’s test was used to further examine the homogeneity of variance.

**Objective Four**

Objective four was to determine if differences existed in the perceived usefulness within the following demographic characteristics:

a.) Gender,

b.) Age,

c.) Learners’ previous online learning experience, and

d.) Learners’ online learning engagement in one online program per week.

The information from Table 2 showed that the perceived usefulness was the data of interval scale, gender was the data of nominal scale, and the other demographic variables were the data of ordinal scale. Therefore, the one-way Analysis of Variance (one way ANOVA) was adopted to accomplish the objective four, and the Levene’s test was used to further examine the homogeneity of variance.

**Objective Five**

Objective five was to determine if differences existed in the perceived ease of use within the following demographic characteristics:

a.) Gender,

b.) Age,

c.) Learners’ previous online learning experience, and

d.) Learners’ online learning engagement in one online program per week.
The information from Table 2 showed that the perceived ease of use was the data of interval scale, gender was the data of nominal scale, and the other demographic variables were the data of ordinal scale. Therefore, the one-way Analysis of Variance (one way ANOVA) was adopted to accomplish the objective five, and the Levene’s test was used to further examine the homogeneity of variance.

**Objective Six**

Objective six was to determine if differences existed in the perceived flexibility within the following demographic characteristics:

a.) Gender,

b.) Age,

c.) Learners’ previous online learning experience, and

d.) Learners’ online learning engagement in one online program per week.

The information from Table 2 showed that the perceived flexibility was the data of interval scale, gender was the data of nominal scale, and the other demographic variables were the data of ordinal scale. Therefore, the one-way Analysis of Variance (one way ANOVA) was adopted to accomplish the objective six, and the Levene’s test was used to further examine the homogeneity of variance.

**Objective Seven**

Objective seven was to determine if differences existed in the perceived interaction within the following demographic characteristics:

a.) Gender,

b.) Age,

c.) Learners’ previous online learning experience, and

d.) Learners’ online learning engagement in one online program per week.

The information from Table 2 showed that the perceived interaction was the data of interval scale, gender was the data of nominal scale, and the other demographic
variables were the data of ordinal scale. Therefore, the one-way Analysis of Variance (one way ANOVA) was adopted to accomplish the objective seven, and the Levene’s test was used to further examine the homogeneity of variance.

**Objective Eight**

Objective eight was to determine if differences existed in the learners’ satisfaction with online learning experience within the following demographic characteristics:

a.) Gender,

b.) Age,

c.) Learners’ previous online learning experience, and

d.) Learners’ online learning engagement in one online program per week.

The information from Table 2 showed that the learners’ satisfaction was the data of interval scale, gender was the data of nominal scale, and the other demographic variables were the data of ordinal scale. Therefore, the one-way Analysis of Variance (one way ANOVA) was adopted to accomplish the objective eight, and the Levene’s test was used to further examine the homogeneity of variance.

**Objective Nine**

Objective nine was to determine if a model existed which would explain a significant portion of the variance in the online learners’ intent to continue from the following measures:

a.) Perceived usefulness,

b.) Perceived ease of use,

c.) Perceived flexibility,

d.) Perceived learner-instructor interaction,

e.) Perceived learner-learner interaction, and

f.) Learners’ satisfaction with online learning experience.
In the study, the six predictor variables were the learners’ perceived usefulness, ease of use, flexibility, learner-instructor interaction, learner-learner interaction, and satisfaction. The outcome variable was the online learners’ intent to continue. In order to determine the relative importance of each predictor variable, provide insight into the relationships among the predictor variables in their explanation of the online learners’ intent to continue, and assess the nature of the relationship between predictor variables and the online learners’ intent to continue, the Multiple Regression Analysis (MRA) was adopted to accomplish objective nine. Based on the previous online learning studies, the learners’ satisfaction was positively associated with the learners’ perceived interaction, perceived flexibility, and perceived usefulness (Arbaugh, 2000). Therefore, the assessment of the multicollinearity problem was very important to the study. The examination of the correlation matrix, and the variance inflation factor (VIF) was adopted to further examine whether the multicollinearity problem existed in the model. Moreover, in terms of the variable entry techniques, forced entry technique was adopted to analyze the data. Based on the previous studies, the learners’ satisfaction was the most important indictor to determine the online learners’ intent to continue (Wu et al., 2006). Therefore, the learners’ satisfaction was the first variable to enter the regression model, and the other explanatory variables were entered in a stepwise procedure.
CHAPTER FOUR

RESULTS

The primary purpose of this study was to determine the factors that influence the online learners’ intent to continue. This study has nine specific objectives and the findings are provided in this chapter.

Objective One

Objective one was to describe students who were enrolled in one or more online learning courses at University of Arkansas, Fayetteville, and Nicholls State University in the fall semester of 2008 on the following demographic characteristics:

a.) Gender,
b.) Age,
c.) Learners’ previous online learning experience
d.) Learners’ online learning engagement in one online program per week
e.) Learners’ previous learning methods
f.) Learners’ major, and
g.) Whether learners are currently taking the comp exam.

This study gathered data from two different universities. One was the University of Arkansas, Fayetteville. Another was Nicholls State University. The enrollment at the University of Arkansas, Fayetteville for the fall 2008 semester was 19,194 students. Undergraduates composed the largest group of students (n=15,426, 80.4%). A total of n=3,370 (17.6%) were graduate students and n=398 (2%) were law students (University of Arkansas Institutional Research). The Enrollment at Nicholls State University for the fall 2008 semester was 6,926 students. A total of n=6,305 (91%) were undergraduates and n=621 (9%) were graduate students (Nicholls State University Enrollment Statistics). No significant difference was found between the two institutions and therefore the data was combined for data analysis purposes with
the exception of the demographic data in objective one which is presented by institution.

**Gender**

The total number of respondents at University of Arkansas, Fayetteville, was 58 (see Table 5). The findings, from University of Arkansas, Fayetteville, revealed that the majority of the respondents were female (n=45, 78 %). The remaining respondents were male (n=13, 22 %). The total number of respondents at Nicholls State University was 64 (see Table 6). The findings, from Nicholls State University, revealed that the majority of the respondents were female (n=51, 80 %). The remaining respondents were male (n=13, 20 %).

<table>
<thead>
<tr>
<th>Gender</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>13</td>
<td>22</td>
</tr>
<tr>
<td>Female</td>
<td>45</td>
<td>78</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>13</td>
<td>20</td>
</tr>
<tr>
<td>Female</td>
<td>51</td>
<td>80</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>100</td>
</tr>
</tbody>
</table>

**Age**

The findings (see Table 7), from University of Arkansas, Fayetteville, revealed that the age group “25 to 29 years” was the largest groups (n=13, 22 %). The age group “50 or more years” was the second largest groups (n=12, 21 %). The age group “less than 25 years” was the smallest group (n=1, 2 %). The findings (see Table 8), from Nicholls State University, revealed that both the age group “21 to 25 years” and
the age group “31 or more years” were the largest group (n=23, 36 %). The age group “18 to 20 years” was the second largest group (n=10, 16 %). The age group “26 to 30 years” was the smallest group (n=8, 12 %).

Table 7
Age Distribution of Online Learners at University of Arkansas, Fayetteville

<table>
<thead>
<tr>
<th>Age</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 25 years</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>25 to 29 years</td>
<td>13</td>
<td>22</td>
</tr>
<tr>
<td>30 to 34 years</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>35 to 39 years</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>40 to 44 years</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>45 to 49 years</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>50 or more years</td>
<td>12</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 8
Age Distribution of Online Learners at Nicholls State University

<table>
<thead>
<tr>
<th>Age</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 to 20 years</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>21 to 25 years</td>
<td>23</td>
<td>36</td>
</tr>
<tr>
<td>26 to 30 years</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>31 or more years</td>
<td>23</td>
<td>36</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>100</td>
</tr>
</tbody>
</table>

Learners’ Previous Online Learning Experience

The findings (see Table 9), from University of Arkansas, Fayetteville, revealed that the group “more than 4 online courses” was the largest group (n=36, 62 %). Both the group “2 online courses” and group “4 online courses” were the second largest group (n=6, 10 %). Both the group “1 online courses” and group “3 online courses” was the smallest group (n=5, 9 %).

Moreover, the findings (see Table 10), from Nicholls State University, revealed that the group “more than 4 online courses” was the largest group (n=21, 33 %). The group “2 online courses” was the second largest group (n=12, 19 %). The group “4 online courses” was the smallest group (n=9, 14 %).
Table 9
The Distribution of Online Learners’ Previous Online Learning Experience at
University of Arkansas, Fayetteville

<table>
<thead>
<tr>
<th>Learners’ Previous Online Learning Experience</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 online course</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>2 online courses</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>3 online courses</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>4 online courses</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>More than 4 online courses</td>
<td>36</td>
<td>62</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 10
The Distribution of Online Learners’ Previous Online Learning Experience at
Nicholls State University

<table>
<thead>
<tr>
<th>Learners’ Previous Online Learning Experience</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 online course</td>
<td>11</td>
<td>17</td>
</tr>
<tr>
<td>2 online courses</td>
<td>12</td>
<td>19</td>
</tr>
<tr>
<td>3 online courses</td>
<td>11</td>
<td>17</td>
</tr>
<tr>
<td>4 online courses</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>More than 4 online courses</td>
<td>21</td>
<td>33</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>100</td>
</tr>
</tbody>
</table>

Learners’ Online Learning Engagement in One Online Program Per Week

The findings (see Table 11), from University of Arkansas, Fayetteville, revealed
that the group “4 to 6 hours” was the largest group (n=19, 33 %). The group “2 to 4
hours” was the second largest group (n=15, 26 %). The group “less than 2 hours” was
the smallest group (n=3, 5 %).

Table 11
The Distribution of Learners’ Online Learning Engagement in One Online Program
Per Week at University of Arkansas, Fayetteville

<table>
<thead>
<tr>
<th>Learners’ Online Learning Engagement—a</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 2 hours</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>2 to 4 hours</td>
<td>15</td>
<td>26</td>
</tr>
<tr>
<td>4 to 6 hours</td>
<td>19</td>
<td>33</td>
</tr>
<tr>
<td>6 to 8 hours</td>
<td>12</td>
<td>21</td>
</tr>
<tr>
<td>More than 8 hours</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>100</td>
</tr>
</tbody>
</table>

a Learners’ Online Learning Engagement in One Online Program Per Week
The findings (see Table 12), from Nicholls State University, revealed that the group “2 to 4 hours” was the largest group (n=24, 38 %). The group “4 to 6 hours” was the second largest group (n=22, 34 %). The group “less than 2 hours” was the smallest group (n=4, 6 %).

Table 12
The Distribution of Learners’ Online Learning Engagement in One Online Program Per Week at Nicholls State University

<table>
<thead>
<tr>
<th>Learners’ Online Learning Engagement</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 2 hours</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>2 to 4 hours</td>
<td>24</td>
<td>38</td>
</tr>
<tr>
<td>4 to 6 hours</td>
<td>22</td>
<td>34</td>
</tr>
<tr>
<td>6 to 8 hours</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>More than 8 hours</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 13
The Distribution of Learners’ Previous Learning Methods at University of Arkansas, Fayetteville

<table>
<thead>
<tr>
<th>Learners’ Previous Learning Methods</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online courses</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Traditional face to face courses</td>
<td>42</td>
<td>72</td>
</tr>
<tr>
<td>Mixture of online and traditional face to face courses</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>100</td>
</tr>
</tbody>
</table>

Learners’ Major

The findings (see Table 14), from University of Arkansas, Fayetteville, revealed
that the group “adult education” was the largest group (n=25, 43%). The group “human resource development” was the second largest group (n=23, 40%). The group “the other” was the smallest group (n=10, 17%).

Table 14
The Distribution of Learners’ Previous Major at University of Arkansas, Fayetteville

<table>
<thead>
<tr>
<th>Learners’ Previous Major</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Resource Development</td>
<td>23</td>
<td>40</td>
</tr>
<tr>
<td>Adult Education</td>
<td>25</td>
<td>43</td>
</tr>
<tr>
<td>The other</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>100</td>
</tr>
</tbody>
</table>

**The Comp Exam**

The findings (see Table 15), from University of Arkansas, Fayetteville, revealed that the majority of the online learning respondents were not currently taking the comp exam (n=48, 83%). The remaining online learning respondents were currently taking the comp exam (n=10, 17%).

Table 15
The Distribution of Whether Learners are Currently Taking the Comp Exam at University of Arkansas, Fayetteville

<table>
<thead>
<tr>
<th>Comp Exam</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>No</td>
<td>48</td>
<td>83</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>100</td>
</tr>
</tbody>
</table>

**Objective Two**

Objective two was to determine if a relationship existed between online learners’ intent to continue and the following perceptual measures among the students who were enrolled in one or more online learning courses.

a.) Perceived usefulness as measured by the construct of perceived usefulness.

b.) Perceived ease of use as measured by the construct of perceived ease of use.

c.) Perceived flexibility as measured by the construct of perceived flexibility.
d.) Perceived learner-instructor interaction as measured by the construct of perceived learner-instructor interaction.

e.) Perceived learner-learner interaction as measured by the construct of perceived learner-learner interaction.

f.) Learners’ satisfaction with the online learning experience as measured by the construct of learners’ satisfaction.

Before the researcher conducted the Pearson Product Moment correlation analysis to accomplish the objective two, the exploratory factor analysis (EFA) was used to further examine whether there was any underlying constructs in this study. A Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was conducted and the Bartlett’s Test of Sphericity was performed to test the factorability of data. A KMO value of 0.904 revealed that the sampling was adequate. The value of Bartlett’s Test of Sphericity (3862.11; df = 435; p< .001) was calculated and determined that the data was acceptable for an exploratory factor analysis. After the researcher determined that the data was acceptable for a factor analysis, the principal component analysis technique to extract the factors and the promax rotation technique was used to obtain simple structure. The factor that its eigenvalue was less than one was ignored, and variable with a factor loading of less than 0.3 was considered insignificant in this analysis. According to the Table 17, the initial exploratory factor analysis revealed a six-factor structure, and six factors explained 80.79% of the total variance.

Table 16
Denotation of Online Learning Questionnaire

<table>
<thead>
<tr>
<th>Item</th>
<th>Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>PU 1: Using online learning technology (Blackboard) could improve my learning performance.</td>
<td></td>
</tr>
<tr>
<td>PU2: Using online learning technology (Blackboard) could enhance my learning effectiveness.</td>
<td></td>
</tr>
<tr>
<td>PU3: Using online learning technology (Blackboard) could make learning easier.</td>
<td></td>
</tr>
</tbody>
</table>

(Table continued)
PU4: I found the online learning technology (Blackboard) to be useful to me in my learning.
PEOU1: Learning to operate the online learning technology (Blackboard) is/was easy for me.
PEOU2: It is/was easy for me to become skillful at using the online learning technology (Blackboard).
PEOU3: I find it easy to get online learning technology (Blackboard) to do what I want it to do.
PEOU4: I find online learning technology (Blackboard) easy to use.
PF1: Taking online courses allows me to arrange work for class more effectively.
PF2: The advantages of taking online courses outweigh any disadvantages.
PF3: Taking online courses allows me to spend more time on non-work-related activities.
PF4: There are no serious disadvantages to taking online courses.
PF5: Taking online courses allows me to arrange my work schedule more effectively.
PF6: Taking online courses saves me a lot of time commuting to class.
PF7: Taking online courses allows me to take a class I would otherwise have to miss.
PF8: Taking online courses should allow me to finish my degree more quickly.
PI1: Online instructors frequently offer opinions to students.
PI2: Students often state their opinions to online instructors.
PI3: Students often ask online instructors questions.
PI4: Online instructors frequently ask the students questions.
PI5: Overall, online instructors interact often with students.
PI6: Students seldom ask each other questions.
PI7: There is little interaction between students.
PI8: Students seldom state their opinions to each other.
PI9: Students seldom answer each other’s questions.
PI10: Overall, students seldom interact with each other.
S1: I am satisfied with my decision to take an online course.
S2: I am satisfied with the online learning program.
S3: I am pleased with the experience of using an online learning program.
S4: My decision to take the online course was a wise one.
ITC1: I will continue using online learning programs in the future.
ITC2: I intend to continue using online learning courses in the future.
ITC3: I would recommend to other students to take online learning programs.

Table 17
Factor Loading for Items Representing Online Learners’ Perceived Usefulness, Ease of Use, Flexibility, Learner-Instructor Interaction, Learner-Learner Interaction, and Satisfaction

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
<th>Factor 5</th>
<th>Factor 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>PF3</td>
<td>.87</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PF5</td>
<td>.70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PF7</td>
<td>.70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PF2</td>
<td>.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PF1</td>
<td>.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PF8</td>
<td>.49</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Table continued)
PF6    .46    .30
PI7    .93
PI10   .90
PI9    .90
PI8    .86
PI6    .81
S2     .87
S1     .84
S3     .83
S4     .83
PF4    .30    .36
PI4    .82
PI1    .81
PI5    .79
PI3    .76
PI2    .71
PU1    .89
PU2    .88
PU3    .85
PU4    .82
PEOU4  .87
PEOU2  .87
PEOU1  .86
PEOU3  .84

Eigenvalues:  12.67   3.85    3.13    1.91    1.64    1.009
% of variance: 42.25   12.85   10.44    6.38    5.49    3.363

Note. Cross-loadings less than .30 are not listed in this table.

Figure 3: Scree Plot
Table 18
Pearson Product Moment Correlation Coefficient Illustrating the Relationship among Perceived Usefulness, Ease of Use, Flexibility, Learner-Instructor Interaction, Learner-Learner Interaction, Satisfaction, and Intent to Continue

<table>
<thead>
<tr>
<th>Pearson Correlation</th>
<th>PU</th>
<th>PEOU</th>
<th>PF</th>
<th>PLII</th>
<th>PLLI</th>
<th>S</th>
<th>ITC</th>
</tr>
</thead>
<tbody>
<tr>
<td>PU</td>
<td>1</td>
<td>.52**</td>
<td>.59**</td>
<td>.32**</td>
<td>-.18*</td>
<td>.32**</td>
<td>.37**</td>
</tr>
<tr>
<td>PEOU</td>
<td>.52**</td>
<td>1</td>
<td>.60**</td>
<td>.28**</td>
<td>-.20*</td>
<td>.40**</td>
<td>.44**</td>
</tr>
<tr>
<td>PF</td>
<td>.59**</td>
<td>.60**</td>
<td>1</td>
<td>.45**</td>
<td>-.31**</td>
<td>.65**</td>
<td>.72**</td>
</tr>
<tr>
<td>PLII</td>
<td>.32**</td>
<td>.28**</td>
<td>.45**</td>
<td>1</td>
<td>-.37**</td>
<td>.58**</td>
<td>.52**</td>
</tr>
<tr>
<td>PLLI</td>
<td>-.18*</td>
<td>-.20*</td>
<td>-.31**</td>
<td>-.37**</td>
<td>1</td>
<td>-.19*</td>
<td>-.27**</td>
</tr>
<tr>
<td>S</td>
<td>.32**</td>
<td>.40**</td>
<td>.65**</td>
<td>.58**</td>
<td>-.19*</td>
<td>1</td>
<td>.84**</td>
</tr>
<tr>
<td>ITC</td>
<td>.37**</td>
<td>.44**</td>
<td>.72**</td>
<td>.52**</td>
<td>-.27**</td>
<td>.84**</td>
<td>1</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Moreover, the findings of two-way ANOVA revealed that no age main effect (F6, 112 = .120; p >.05), no school main effect (F1, 112 = .149; p >.05), and no age* school interaction effect existed in the online learners’ intent to continue (F2, 112 = .137; p >.05).

In order to determine the relationship among online learners’ perceived usefulness, ease of use, flexibility, learner-instructor interaction, learner-learner interaction, and satisfaction, the Pearson Product Moment correlation was used to accomplish the objective two (see Table 18). The findings revealed a positive relationship between online learners’ perceived usefulness and intent to continue (r=.37, p< 0.01), a positive relationship between online learners’ perceived ease of use and intent to continue (r=.44, p< 0.01), a positive relationship between online learners’ perceived flexibility and intent to continue (r=.72, p< 0.01), a positive
relationship between online learners’ perceived learner-instructor interaction and intent to continue \( (r = .52, p < 0.01) \), and a positive relationship between online learners’ satisfaction and intent to continue \( (r = .84, p < 0.01) \). Moreover, the findings showed a negative relationship between online learners’ perceived learner-learner interaction and intent to continue \( (r = -.27, p < 0.01) \). Although the learner-learner interaction questionnaire used negative description, it still revealed a positive relationship between perceived learner-learner interaction and online learners’ intent to continue.

**Objective Three**

Objective three was to determine if differences existed in the online learners’ intent to continue as measured by the construct of online learners’ intent to continue within the following demographic characteristics:

a.) Gender,

b.) Age,

c.) Learners’ previous online learning experience, and

d.) Learners’ online learning engagement in one online program per week.

**Gender**

The information from Table 2 showed that the online learners’ intent to continue was the data of interval scale, gender was the data of nominal scale, and the other demographic variables were the data of ordinal scale.

The one-way analysis of variance (ANOVA) was used to accomplish the objective three. The findings (see Table 19) indicated that there were no differences in the online learners’ intent to continue within different gender groups \( (F_{1, 120} = .118; p > .05) \). Levene’s Test of Homogeneity of Variance revealed the presence of equal variances between different gender groups.
Table 19
One Way Analysis of Variance Illustrating Differences in the Online Learners’ Intent to Continue within Different Gender Groups

<table>
<thead>
<tr>
<th></th>
<th>df(^a)</th>
<th>SS</th>
<th>MS</th>
<th>F(^b)</th>
<th>p(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1</td>
<td>2.091</td>
<td>2.091</td>
<td>.118</td>
<td>.665</td>
</tr>
<tr>
<td>Within Groups</td>
<td>120</td>
<td>1334.868</td>
<td>11.124</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>1336.959</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Degree of freedom
\(^b\) One-Way Analysis of Variance
\(^c\) .05 Alpha Level for the Two-Tailed Test of Significance

Age

The findings (see Table 20) indicated that there were no differences in the online learners’ intent to continue within different age groups (F\(6, 115 = .905; p > .05\)). Levene’s Test of Homogeneity of Variance revealed the presence of equal variances between different age groups.

Table 20
One Way Analysis of Variance Illustrating Differences in the Online Learners’ Intent to Continue within Different Age Groups

<table>
<thead>
<tr>
<th></th>
<th>df(^a)</th>
<th>SS</th>
<th>MS</th>
<th>F(^b)</th>
<th>p(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>6</td>
<td>60.304</td>
<td>10.051</td>
<td>.905</td>
<td>.494</td>
</tr>
<tr>
<td>Within Groups</td>
<td>115</td>
<td>1276.655</td>
<td>11.101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>1336.959</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Degree of freedom
\(^b\) One-Way Analysis of Variance
\(^c\) .05 Alpha Level for the Two-Tailed Test of Significance

Learners’ Previous Online Learning Experience

The findings (see Table 21) indicated that there were no differences in the online learners’ intent to continue within different groups of learners’ previous online learning experience (F\(4, 117 = 2.263; p > .05\)). Levene’s Test of Homogeneity of Variance revealed the presence of equal variances between different groups of learners’ previous online learning experience.
Table 21  
One Way Analysis of Variance Illustrating Differences in the Online Learners’ Intent to Continue within Different Groups of Learners’ Previous Online Learning Experience

<table>
<thead>
<tr>
<th>df&lt;sup&gt;a&lt;/sup&gt;</th>
<th>SS</th>
<th>MS</th>
<th>F&lt;sup&gt;b&lt;/sup&gt;</th>
<th>p&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>96.017</td>
<td>24.004</td>
<td>2.263</td>
</tr>
<tr>
<td>Within Groups</td>
<td>117</td>
<td>1240.942</td>
<td>10.606</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>1336.959</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Degree of freedom  
<sup>b</sup> One-Way Analysis of Variance  
<sup>c</sup>.05 Alpha Level for the Two-Tailed Test of Significance

Learners’ Online Learning Engagement in One Online Program Per Week

The findings (see Table 22) indicated that there were no differences in the online learners’ intent to continue within different groups of learners’ previous online learning engagement (F<sub>4, 117</sub> = 2.272; p > .05).

Because the Levene’s Test of Homogeneity of Variance did not reveal the presence of equal variances between different groups of learners’ online learning engagement, the Welch’s test was performed to examine equality of means among different groups. The statistic of Welch’s test (1.172; p > .05) indicated the presence of equal means among different groups of learners’ online learning engagement.

Table 22  
One Way Analysis of Variance Illustrating Differences in the Online Learners’ Intent to Continue within Different Groups of Learners’ Online Learning Engagement

<table>
<thead>
<tr>
<th>df&lt;sup&gt;a&lt;/sup&gt;</th>
<th>SS</th>
<th>MS</th>
<th>F&lt;sup&gt;b&lt;/sup&gt;</th>
<th>p&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>96.375</td>
<td>24.094</td>
<td>2.272</td>
</tr>
<tr>
<td>Within Groups</td>
<td>117</td>
<td>1240.584</td>
<td>10.603</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>1336.959</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Degree of freedom  
<sup>b</sup> One-Way Analysis of Variance  
<sup>c</sup>.05 Alpha Level for the Two-Tailed Test of Significance
Objective Four

Objective four was to determine if differences existed in the perceived usefulness within the following demographic characteristics:

a.) Gender,

b.) Age,

c.) Learners’ previous online learning experience, and
d.) Learners’ online learning engagement in one online program per week.

Gender

The information from the Table 2 showed that the perceived usefulness was the data of interval scale, gender was the data of nominal scale, and the other demographic variables were the data of ordinal scale. Thus, the one-way analysis of variance (ANOVA) was used to accomplish the objective four. The findings (see Table 23) indicated that there were no differences in the online learners’ perceived usefulness within different gender groups (F1, 120 = .286; p >.05). Moreover, the Levene’s Test of Homogeneity of Variance revealed the presence of equal variances between different gender groups.

Table 23
One Way Analysis of Variance Illustrating Differences in the Perceived Usefulness within Different Gender Groups

<table>
<thead>
<tr>
<th></th>
<th>df²</th>
<th>SS</th>
<th>MS</th>
<th>Fᵇ</th>
<th>pᶜ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1</td>
<td>6.866</td>
<td>6.866</td>
<td>.286</td>
<td>.594</td>
</tr>
<tr>
<td>Within Groups</td>
<td>120</td>
<td>2877.502</td>
<td>23.979</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>2884.369</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ᵃ Degree of freedom  
ᵇ One-Way Analysis of Variance  
ᶜ .05 Alpha Level for the Two-Tailed Test of Significance

Age

The findings (see Table 24) indicated that there were no differences in the online learners’ perceived usefulness within different age groups (F6, 115 = .802; p >.05).
Because the Levene’s Test of Homogeneity of Variance didn’t reveal the presence of equal variances between different age groups, the Welch’s test was performed to examine equality of means among different age groups. According to the findings from the Welch’s test, the statistic of Welch’s test (.544; p > .05) indicated the presence of equal means among different age groups.

Table 24
One Way Analysis of Variance Illustrating Differences in the Perceived Usefulness within Different Age Groups

<table>
<thead>
<tr>
<th></th>
<th>df&lt;sup&gt;a&lt;/sup&gt;</th>
<th>SS</th>
<th>MS</th>
<th>F&lt;sup&gt;b&lt;/sup&gt;</th>
<th>p&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>6</td>
<td>115.852</td>
<td>8.803</td>
<td>.802</td>
<td>.570</td>
</tr>
<tr>
<td>Within Groups</td>
<td>115</td>
<td>2768.517</td>
<td>16.703</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>2884.369</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Degree of freedom  
<sup>b</sup> One-Way Analysis of Variance  
<sup>c</sup>.05 Alpha Level for the Two-Tailed Test of Significance

**Learners’ Previous Online Learning Experience**

The findings (see Table 25) indicated that there were no differences in the online learners’ perceived usefulness within different groups of learners’ previous online learning experience (F<sub>4, 117</sub> = .949; p > .05). Levene’s Test of Homogeneity of Variance revealed the presence of equal variances between different groups of learners’ previous online learning experience.

Table 25
One Way Analysis of Variance Illustrating Differences in the Perceived Usefulness within Different Groups of Learners’ Previous Online Learning Experience

<table>
<thead>
<tr>
<th></th>
<th>df&lt;sup&gt;a&lt;/sup&gt;</th>
<th>SS</th>
<th>MS</th>
<th>F&lt;sup&gt;b&lt;/sup&gt;</th>
<th>p&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>90.599</td>
<td>22.65</td>
<td>.949</td>
<td>.439</td>
</tr>
<tr>
<td>Within Groups</td>
<td>117</td>
<td>2793.77</td>
<td>23.878</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>2884.369</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Degree of freedom  
<sup>b</sup> One-Way Analysis of Variance  
<sup>c</sup>.05 Alpha Level for the Two-Tailed Test of Significance
Learners’ Online Learning Engagement in One Online Program Per Week

The findings (see Table 26) indicated that there were no differences in the online learners’ perceived usefulness within different groups of learners’ online learning engagement ($F_{4,117} = .434; p > .05$). Moreover, the Levene’s Test of Homogeneity of Variance revealed the presence of equal variances between different groups of learners’ online learning engagement.

Table 26
One Way Analysis of Variance Illustrating Differences in the Perceived Usefulness within Different Groups of Learners’ Online Learning Engagement

<table>
<thead>
<tr>
<th></th>
<th>$df^a$</th>
<th>SS</th>
<th>MS</th>
<th>$F^b$</th>
<th>$p^c$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>42.218</td>
<td>10.554</td>
<td>.434</td>
<td>.783</td>
</tr>
<tr>
<td>Within Groups</td>
<td>117</td>
<td>2842.151</td>
<td>24.292</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>2884.369</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$^a$ Degree of freedom  
$^b$ One-Way Analysis of Variance  
$^c$.05 Alpha Level for the Two-Tailed Test of Significance

Objective Five

Objective five was to determine if differences existed in the perceived ease of use within the following demographic characteristics:

a.) Gender,  
b.) Age,  
c.) Learners’ previous online learning experience, and  
d.) Learners’ online learning engagement in one online program per week.

Gender

The information from Table 2 showed that the perceived ease of use was the data of interval scale, gender was the data of nominal scale, and the other demographic variables were the data of ordinal scale. Thus, the one-way analysis of variance (ANOVA) was used to accomplish the objective five. The findings (see Table 27)
indicated that there were no differences in the online learners’ perceived ease of use within different gender groups (F1, 120 = .084; p > .05). Levene’s Test of Homogeneity of Variance revealed the presence of equal variances between different gender groups.

Table 27
One Way Analysis of Variance Illustrating Differences in the Perceived Ease of Use within Different Gender Groups

<table>
<thead>
<tr>
<th></th>
<th>df&lt;sup&gt;a&lt;/sup&gt;</th>
<th>SS</th>
<th>MS</th>
<th>F&lt;sup&gt;b&lt;/sup&gt;</th>
<th>p&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1</td>
<td>1.387</td>
<td>1.387</td>
<td>.084</td>
<td>.772</td>
</tr>
<tr>
<td>Within Groups</td>
<td>120</td>
<td>1972.490</td>
<td>16.437</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>1973.877</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Degree of freedom  
<sup>b</sup> One-Way Analysis of Variance  
<sup>c</sup> .05 Alpha Level for the Two-Tailed Test of Significance

Age

The findings (see Table 28) indicated that there were no differences in the online learners’ perceived ease of use within different age groups (F6, 115= .527; p >.05). Because the Levene’s Test of Homogeneity of Variance did not reveal the presence of equal variances between different age groups, the Welch’s test was performed to further examine equality of means among different age groups. The statistic of Welch’s test (.685; p > .05) indicated the presence of equal means among different age groups.

Table 28
One Way Analysis of Variance Illustrating Differences in the Perceived Ease of Use within Different Age Groups

<table>
<thead>
<tr>
<th></th>
<th>df&lt;sup&gt;a&lt;/sup&gt;</th>
<th>SS</th>
<th>MS</th>
<th>F&lt;sup&gt;b&lt;/sup&gt;</th>
<th>p&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>6</td>
<td>52.821</td>
<td>8.803</td>
<td>.527</td>
<td>.787</td>
</tr>
<tr>
<td>Within Groups</td>
<td>115</td>
<td>1921.056</td>
<td>16.705</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>1973.877</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Degree of freedom  
<sup>b</sup> One-Way Analysis of Variance  
<sup>c</sup> .05 Alpha Level for the Two-Tailed Test of Significance
Learners’ Previous Online Learning Experience

The findings (see Table 29) indicated that there were no differences in the online learners’ perceived ease of use within different groups of learners’ previous online learning experience ($F_{4, 117} = 1.253; \ p > .05$). Levene’s Test of Homogeneity of Variance revealed the presence of equal variances between different groups of learners’ previous online learning experience.

Table 29
One Way Analysis of Variance Illustrating Differences in the Perceived Ease of Use within Different Groups of Learners’ Previous Online Learning Experience

<table>
<thead>
<tr>
<th></th>
<th>df(^a)</th>
<th>SS</th>
<th>MS</th>
<th>$F_{b}$</th>
<th>$p_{c}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>81.100</td>
<td>20.275</td>
<td>1.253</td>
<td>.292</td>
</tr>
<tr>
<td>Within Groups</td>
<td>117</td>
<td>1892.777</td>
<td>16.178</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>1973.877</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Degree of freedom  
\(^b\) One-Way Analysis of Variance  
\(^c\) .05 Alpha Level for the Two-Tailed Test of Significance

Learners’ Online Learning Engagement in One Online Program Per Week

The findings (see Table 30) indicated that there were no differences in the online learners’ perceived ease of use within different groups of learners’ online learning engagement ($F_{4, 117} = .788; \ p > .05$). Levene’s Test of Homogeneity of Variance revealed the presence of equal variances between different groups of learners’ online learning engagement.

Table 30
One Way Analysis of Variance Illustrating Differences in the Perceived Ease of Use within Different Groups of Learners’ Online Learning Engagement

<table>
<thead>
<tr>
<th></th>
<th>df(^a)</th>
<th>SS</th>
<th>MS</th>
<th>$F_{b}$</th>
<th>$p_{c}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>51.783</td>
<td>12.946</td>
<td>.788</td>
<td>.535</td>
</tr>
<tr>
<td>Within Groups</td>
<td>117</td>
<td>1922.094</td>
<td>16.428</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>1973.877</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Degree of freedom  
\(^b\) One-Way Analysis of Variance  
\(^c\) .05 Alpha Level for the Two-Tailed Test of Significance
Objective Six

Objective six was to determine if differences existed in the perceived flexibility within the following demographic characteristics:

a.) Gender,

b.) Age,

c.) Learners’ previous online learning experience, and

d.) Learners’ online learning engagement in one online program per week.

Gender

The information from Table 2 showed that the perceived flexibility was the data of interval scale, gender was the data of nominal scale, and the other demographic variables were the data of ordinal scale. Thus, the one-way analysis of variance (ANOVA) was used to accomplish the objective six.

The findings (see Table 31) indicated that there were no differences in the online learners’ perceived flexibility within different gender groups (F1, 120 = .082; p > .05). Levene’s Test of Homogeneity of Variance revealed the presence of equal variances between different gender groups.

Table 31
One Way Analysis of Variance Illustrating Differences in the Perceived Flexibility within Different Gender Groups

<table>
<thead>
<tr>
<th></th>
<th>df&lt;sup&gt;a&lt;/sup&gt;</th>
<th>SS</th>
<th>MS</th>
<th>F&lt;sup&gt;b&lt;/sup&gt;</th>
<th>p&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1</td>
<td>5.066</td>
<td>5.066</td>
<td>.082</td>
<td>.775</td>
</tr>
<tr>
<td>Within Groups</td>
<td>120</td>
<td>7426.541</td>
<td>61.888</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>7431.607</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Degree of freedom  
<sup>b</sup> One-Way Analysis of Variance  
<sup>c</sup>.05 Alpha Level for the Two-Tailed Test of Significance

Age

The findings (see Table 32) indicated that there were no differences in the online
learners’ perceived flexibility within different age groups (F6, 115 = .84; p > .05).

Levene’s Test of Homogeneity of Variance revealed the presence of equal variances
between different age groups.

Table 32
One Way Analysis of Variance Illustrating Differences in the Perceived Flexibility within Different Age Groups

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>6</td>
<td>312.106</td>
<td>52.018</td>
<td>.840</td>
<td>.541</td>
</tr>
<tr>
<td>Within Groups</td>
<td>115</td>
<td>7119.500</td>
<td>61.999</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>7431.606</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a Degree of freedom
b One-Way Analysis of Variance
c .05 Alpha Level for the Two-Tailed Test of Significance

Learners’ Previous Online Learning Experience

The findings (see Table 33) indicated that there were no differences in the online
learners’ perceived flexibility within different groups of learners’ previous online
learning experience (F4, 117 = .943; p > .05). Levene’s Test of Homogeneity of
Variance revealed the presence of equal variances between different groups of
learners’ previous online learning experience.

Table 33
One Way Analysis of Variance Illustrating Differences in the Perceived Flexibility within Different Groups of Learners’ Previous Online Learning Experience

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>232.088</td>
<td>58.022</td>
<td>.943</td>
<td>.442</td>
</tr>
<tr>
<td>Within Groups</td>
<td>117</td>
<td>7199.518</td>
<td>61.534</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>7431.606</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a Degree of freedom
b One-Way Analysis of Variance
c .05 Alpha Level for the Two-Tailed Test of Significance
Learners’ Online Learning Engagement in One Online Program Per Week

The findings (see Table 34) indicated that there were no differences in the online learners’ perceived flexibility within different groups of learners’ online learning engagement (F4, 117 = 2.052; p > .05). Because the Levene’s Test of Homogeneity of Variance did not reveal the presence of equal variances between different groups of learners’ online learning engagement, the Welch’s test was performed to examine equality of means among different groups. The statistic of Welch’s test (1.338; p > .05) indicated the presence of equal means among different groups of learners’ online learning engagement.

Table 34
One Way Analysis of Variance Illustrating Differences in the Perceived Flexibility within Different Groups of Learners’ Online Learning Engagement

<table>
<thead>
<tr>
<th></th>
<th>df²</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>487.212</td>
<td>121.803</td>
<td>2.052</td>
<td>.092</td>
</tr>
<tr>
<td>Within Groups</td>
<td>117</td>
<td>6944.394</td>
<td>59.354</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>7431.606</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

² Degree of freedom
³ One-Way Analysis of Variance
.05 Alpha Level for the Two-Tailed Test of Significance

Objective Seven

Objective seven was to determine if differences existed in the perceived interaction within the following demographic characteristics:

a.) Gender,

b.) Age,

c.) Learners’ previous online learning experience, and

d.) Learners’ online learning engagement in one online program per week.

Gender

The information from the Table 2 showed that the perceived interaction was the
data of interval scale, gender was the data of nominal scale, and the other
demographic variables were the data of ordinal scale. Thus, the one-way analysis of
variance (ANOVA) was used to accomplish the objective seven. The findings (see
Table 35) indicated that there were differences in the online learners’ perceived
interaction within different gender groups (F1, 120 = 4.787; p < .05). The mean
(36.8646) of female students was higher than the mean (34.0769) of male students.
Levene’s Test of Homogeneity of Variance revealed the presence of equal variances
between different gender groups.

Table 35
One Way Analysis of Variance Illustrating Differences in the Perceived Interaction
within Different Gender Groups

<table>
<thead>
<tr>
<th></th>
<th>df&lt;sup&gt;a&lt;/sup&gt;</th>
<th>SS</th>
<th>MS</th>
<th>F&lt;sup&gt;b&lt;/sup&gt;</th>
<th>p&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1</td>
<td>158.988</td>
<td>158.988</td>
<td>4.787</td>
<td>.031</td>
</tr>
<tr>
<td>Within Groups</td>
<td>120</td>
<td>3985.086</td>
<td>33.209</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>4144.074</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Degree of freedom  
<sup>b</sup> One-Way Analysis of Variance  
<sup>c</sup>.05 Alpha Level for the Two-Tailed Test of Significance

**Age**

Table 36
One Way Analysis of Variance Illustrating Differences in the Perceived Interaction
within Different Age Groups

<table>
<thead>
<tr>
<th></th>
<th>df&lt;sup&gt;a&lt;/sup&gt;</th>
<th>SS</th>
<th>MS</th>
<th>F&lt;sup&gt;b&lt;/sup&gt;</th>
<th>p&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>6</td>
<td>274.522</td>
<td>45.754</td>
<td>1.36</td>
<td>.237</td>
</tr>
<tr>
<td>Within Groups</td>
<td>115</td>
<td>3869.552</td>
<td>33.648</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>4144.074</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Degree of freedom  
<sup>b</sup> One-Way Analysis of Variance  
<sup>c</sup>.05 Alpha Level for the Two-Tailed Test of Significance

The findings (see Table 36) indicated that there were no differences in the online
learners’ perceived interaction within different age groups (F6, 115 = 1.36; p > .05).
Levene’s Test of Homogeneity of Variance revealed the presence of equal variances between different age groups.

Learners’ Previous Online Learning Experience

The findings (see Table 37) indicated that there were no differences in the online learners’ perceived interaction within different groups of learners’ previous online learning experience ($F_{4, 117} = 2.152; p > .05$).

Because the Levene’s Test of Homogeneity of Variance did not reveal the presence of equal variances between different groups of learners’ previous online learning experience, the Welch’s test was performed to examine equality of means among different groups. The statistic of Welch’s test ($2.606; p > .05$) indicated the presence of equal means among different groups of learners’ previous online learning experience.

Table 37
One Way Analysis of Variance Illustrating Differences in the Perceived Interaction within Different Groups of Learners’ Previous Online Learning Experience

<table>
<thead>
<tr>
<th></th>
<th>df$^a$</th>
<th>SS</th>
<th>MS</th>
<th>$F_{b}^b$</th>
<th>p$^c$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>283.944</td>
<td>70.986</td>
<td>2.152</td>
<td>.079</td>
</tr>
<tr>
<td>Within Groups</td>
<td>117</td>
<td>3860.130</td>
<td>32.993</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>4144.074</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$^a$ Degree of freedom
$^b$ One-Way Analysis of Variance
$^c$.05 Alpha Level for the Two-Tailed Test of Significance

Learners’ Online Learning Engagement in One Online Program Per Week

The findings (see Table 38) indicated that no differences existed in the perceived interaction within different groups of learners’ online learning engagement ($F_{4, 117} = .501; p > .05$). Moreover, Levene’s Test of Homogeneity of Variance revealed the presence of equal variances between different groups of learners’ online learning engagement.
Table 38
One Way Analysis of Variance Illustrating Differences in the Perceived Interaction within Different Groups of Learners’ Online learning Engagement

<table>
<thead>
<tr>
<th></th>
<th>df&lt;sup&gt;a&lt;/sup&gt;</th>
<th>SS</th>
<th>MS</th>
<th>F&lt;sup&gt;b&lt;/sup&gt;</th>
<th>p&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>69.844</td>
<td>17.461</td>
<td>.501</td>
<td>.735</td>
</tr>
<tr>
<td>Within Groups</td>
<td>117</td>
<td>4074.229</td>
<td>34.822</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>4144.074</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Degree of freedom  
<sup>b</sup> One-Way Analysis of Variance  
<sup>c</sup>.05 Alpha Level for the Two-Tailed Test of Significance

**Objective Eight**

Objective eight was to determine if differences existed in the learners’ satisfaction with online learning experience within the following demographic characteristics:  

a.) Gender,  

b.) Age,  

c.) Learners’ previous online learning experience, and  

d.) Learners’ online learning engagement in one online program per week.

**Gender**

The information from Table 2 showed that the learners’ satisfaction was the data of interval scale, gender was the data of nominal scale, and the other demographic variables were the data of ordinal scale. Thus, the one-way analysis of variance (ANOVA) was used to accomplish the objective eight.

The findings (see Table 39) indicated that there were no differences in the online learners’ satisfaction within different gender groups (F<sub>1, 120</sub> = .332; p > .05).

Moreover, the Levene’s Test of Homogeneity of Variance revealed the presence of equal variances between different gender groups.
### Table 39
One Way Analysis of Variance Illustrating Differences in the Learners’ Satisfaction with Online Learning Experience within Different Gender Groups

<table>
<thead>
<tr>
<th></th>
<th>df(^a)</th>
<th>SS</th>
<th>MS</th>
<th>F(^b)</th>
<th>p(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1</td>
<td>7.350</td>
<td>7.350</td>
<td>.332</td>
<td>.566</td>
</tr>
<tr>
<td>Within Groups</td>
<td>120</td>
<td>2659.372</td>
<td>22.161</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>2666.721</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Degree of freedom  
\(^b\) One-Way Analysis of Variance  
\(^c\) .05 Alpha Level for the Two-Tailed Test of Significance

### Age

The findings (see Table 40) indicated that there were no differences in the online learners’ satisfaction within different age groups (F\(6, 115 = .649\); p > .05). Moreover, the Levene’s Test of Homogeneity of Variance revealed the presence of equal variances between different age groups.

### Table 40
One Way Analysis of Variance Illustrating Differences in the Learners’ Satisfaction with Online Learning Experience within Different Age Groups

<table>
<thead>
<tr>
<th></th>
<th>df(^a)</th>
<th>SS</th>
<th>MS</th>
<th>F(^b)</th>
<th>p(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>6</td>
<td>87.289</td>
<td>14.548</td>
<td>.649</td>
<td>.691</td>
</tr>
<tr>
<td>Within Groups</td>
<td>115</td>
<td>2579.432</td>
<td>22.430</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>2666.721</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Degree of freedom  
\(^b\) One-Way Analysis of Variance  
\(^c\) .05 Alpha Level for the Two-Tailed Test of Significance

### Learners’ Previous Online Learning Experience

The findings (see Table 41) indicated that no differences existed in the online learners’ satisfaction within different groups of learners’ previous online learning experience (F\(4, 117 = 1.554\); p > .05). Because the Levene’s Test of Homogeneity of Variance did not reveal the presence of equal variances between different groups of learners’ previous online learning experience, the Welch’s test was performed to
examine equality of means among different groups. The statistic of Welch’s test (1.348; p > .05) indicated the presence of equal means among different groups of learners’ previous online learning experience.

Table 41
One Way Analysis of Variance Illustrating Differences in the Learners’ Satisfaction with Online Learning Experience within Different Groups of Learners’ Previous Online Learning Experience

<table>
<thead>
<tr>
<th></th>
<th>df&lt;sup&gt;a&lt;/sup&gt;</th>
<th>SS</th>
<th>MS</th>
<th>F&lt;sup&gt;b&lt;/sup&gt;</th>
<th>p&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>134.500</td>
<td>33.625</td>
<td>1.554</td>
<td>.191</td>
</tr>
<tr>
<td>Within Groups</td>
<td>117</td>
<td>2532.221</td>
<td>21.643</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>2666.721</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Degree of freedom  
<sup>b</sup> One-Way Analysis of Variance  
<sup>c</sup>.05 Alpha Level for the Two-Tailed Test of Significance

Learners’ Online Learning Engagement in One Online Program Per Week

The findings (see Table 42) indicated that no differences existed in the online learners’ satisfaction within different groups of learners’ online learning engagement (F<sub>4, 117</sub> = 2.232; p >.05).

Table 42
One Way Analysis of Variance Illustrating Differences in the Learners’ Satisfaction with Online Learning Experience within Different Groups of Learners’ Online Learning Engagement

<table>
<thead>
<tr>
<th></th>
<th>df&lt;sup&gt;a&lt;/sup&gt;</th>
<th>SS</th>
<th>MS</th>
<th>F&lt;sup&gt;b&lt;/sup&gt;</th>
<th>p&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>189.047</td>
<td>47.262</td>
<td>2.232</td>
<td>.07</td>
</tr>
<tr>
<td>Within Groups</td>
<td>117</td>
<td>2477.675</td>
<td>21.177</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>2666.722</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Degree of freedom  
<sup>b</sup> One-Way Analysis of Variance  
<sup>c</sup>.05 Alpha Level for the Two-Tailed Test of Significance

Because the Levene’s Test of Homogeneity of Variance did not reveal the presence of equal variances between different groups of learners’ online learning engagement, the Welch’s test was performed to examine equality of means among
different groups. The statistic of Welch’s test (.933; p > .05) indicated the presence of equal means among different groups of learners’ online learning engagement.

**Objective Nine**

Objective nine was to determine if a model existed which would explain a significant portion of the variance in the online learners’ intent to continue from the following measures:

a.) Perceived usefulness,

b.) Perceived ease of use,

c.) Perceived flexibility,

d.) Perceived learner-instructor interaction,

e.) Perceived learner-learner interaction, and

f.) Learners’ satisfaction with online learning experience.

In order to determine the relative importance of each predictor variable, provide insight into the relationships among the predictor variables in their explanation of the online learners’ intent to continue, and assess the nature of the relationship between predictor variables and the online learners’ intent to continue, the Multiple Regression Analysis (MRA) was used to accomplish objective nine.

The outcome variable was online learners’ intent to continue as measured by the construct of online learners’ intent to continue. The online learners’ perceived usefulness as measured by the construct of perceived usefulness, ease of use as measured by the construct of perceived ease of use, flexibility as measured by the construct of perceived flexibility, learner-instructor interaction as measured by the construct of perceived learner-instructor interaction, learner-learner interaction as measured by the construct of perceived learner-learner interaction, and satisfaction as measured by the construct of learners’ satisfaction, were considered predictor variables in this study.
The examination of the correlation matrix, and the variance inflation factor (VIF) were adopted to further examine whether the multicollinearity problem existed in the model. The findings in correlation matrix (See Table 18) and variance inflation factor (See Table 43) revealed the presence of multicollinearity between the predictor variables.

Table 43
The Variance Inflation Factor of Predictor Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\hat{\beta}$</th>
<th>Standard Error</th>
<th>t-value</th>
<th>p</th>
<th>VIF $^g$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>2.793</td>
<td>1.182</td>
<td>2.363</td>
<td>.020</td>
<td></td>
</tr>
<tr>
<td>PU $^a$</td>
<td>-.014</td>
<td>.040</td>
<td>-.357</td>
<td>.722</td>
<td>1.721</td>
</tr>
<tr>
<td>PEOU $^b$</td>
<td>-.007</td>
<td>.048</td>
<td>-.155</td>
<td>.877</td>
<td>1.712</td>
</tr>
<tr>
<td>PF $^c$</td>
<td>.133</td>
<td>.032</td>
<td>4.142</td>
<td>.000</td>
<td>2.845</td>
</tr>
<tr>
<td>PLII $^d$</td>
<td>-.008</td>
<td>.040</td>
<td>-.204</td>
<td>.838</td>
<td>1.758</td>
</tr>
<tr>
<td>PLLI $^e$</td>
<td>-.038</td>
<td>.030</td>
<td>-1.259</td>
<td>.211</td>
<td>1.232</td>
</tr>
<tr>
<td>S $^f$</td>
<td>.455</td>
<td>.048</td>
<td>9.504</td>
<td>.000</td>
<td>2.265</td>
</tr>
</tbody>
</table>

$^a$ Perceived Usefulness
$^b$ Perceived Ease of Use
$^c$ Perceived Flexibility
$^d$ Perceived Learner-Instructor Interaction
$^e$ Perceived Learner-Learner Interaction
$^f$ Satisfaction
$^g$ Variance Inflation Factor

Table 44
Multiple Regression Analysis Illustrating Factors that Influence Online Learners’ Intent to Continue as Measured by the Construct of Online Learners’ Intent to Continue

<table>
<thead>
<tr>
<th>Analysis of Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>Regression</td>
</tr>
<tr>
<td>Residual</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Coefficient

(Table continued)
The mean VIF value >1 was indicative of serious multicollinearity problems. In order to deal with the serious multicollinearity problems, the learners’ satisfaction was the first variable to enter the regression model, because the learners’ satisfaction was the most important indicator to determine the online learners’ intent to continue (Wu et al., 2006), and the other explanatory variables were entered in a stepwise procedure.

The findings showed that the perceived flexibility and satisfaction had positive influence on the online learners’ intent to continue (see Table 44), and the value of $R^2$ further revealed that the two predictor variables explained 76.4% of the variance in the online learners’ intent to continue.
CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

Purpose of the Study

The primary purpose of this study was to determine the factors that influence the online learners’ intent to continue. The objectives for this study were:

1. To describe students who were enrolled in one or more online learning courses at University of Arkansas, Fayetteville, and Nicholls State University in the fall semester of 2008 on the following demographic characteristics:
   a.) Gender,
   b.) Age,
   c.) Learners’ previous online learning experience
   d.) Learners’ online learning engagement in one online program per week
   e.) Learners’ previous learning methods
   f.) Learners’ major, and
   g.) Whether learners are currently taking the comp exam.

2. To determine if a relationship existed between online learners’ intent to continue and the following perceptual measures among the students who were enrolled in one or more online learning courses.
   a.) Perceived usefulness as measured by the construct of perceived usefulness.
   b.) Perceived ease of use as measured by the construct of perceived ease of use.
   c.) Perceived flexibility as measured by the construct of perceived flexibility.
   d.) Perceived learner-instructor interaction as measured by the construct of perceived learner-instructor interaction.
   e.) Perceived learner-learner interaction as measured by the construct of perceived learner-learner interaction.
   f.) Learners’ satisfaction with the online learning experience as measured by the
construct of learners’ satisfaction.

3. To determine if differences existed in the online learners’ intent to continue as measured by the construct of online learners’ intent to continue within the following demographic characteristics:
   a.) Gender,
   b.) Age,
   c.) Learners’ previous online learning experience, and
   d.) Learners’ online learning engagement in one online program per week.

4. To determine if differences existed in the perceived usefulness within the following demographic characteristics:
   a.) Gender,
   b.) Age,
   c.) Learners’ previous online learning experience, and
   d.) Learners’ online learning engagement in one online program per week.

5. To determine if differences existed in the perceived ease of use within the following demographic characteristics:
   a.) Gender,
   b.) Age,
   c.) Learners’ previous online learning experience, and
   d.) Learners’ online learning engagement in one online program per week.

6. To determine if differences existed in the perceived flexibility within the following demographic characteristics:
   a.) Gender,
   b.) Age,
   c.) Learners’ previous online learning experience, and
   d.) Learners’ online learning engagement in one online program per week.
7. To determine if differences existed in the perceived interaction within the following demographic characteristics:
   a.) Gender,
   b.) Age,
   c.) Learners’ previous online learning experience, and
   d.) Learners’ online learning engagement in one online program per week.

8. To determine if differences existed in the learners’ satisfaction with online learning experience within the following demographic characteristics:
   a.) Gender,
   b.) Age,
   c.) Learners’ previous online learning experience, and
   d.) Learners’ online learning engagement in one online program per week.

9. To determine if a model existed which would explain a significant portion of the variance in the online learners’ intent to continue from the following measures:
   a.) Perceived usefulness,
   b.) Perceived ease of use,
   c.) Perceived flexibility,
   d.) Perceived learner-instructor interaction,
   e.) Perceived learner-learner interaction, and
   f.) Learners’ satisfaction with online learning experience.

**Summary of Major Findings by Objective**

**Objective One**

The major findings of objective one revealed that the majority of the respondents at University of Arkansas, Fayetteville (n=45, 78 %) and Nicholls State University (n=51, 80 %) were female. In terms of age variable, the findings, from University of Arkansas, Fayetteville, revealed that the age group “25 to 29 years” was the largest
group (n=13, 22 %). The findings, from Nicholls State University, revealed that both
the age group “21 to 25 years” and the age group “31 or more years” were the largest
group (n=23, 36 %). In terms of learners’ previous online learning experience, both
findings from University of Arkansas, Fayetteville (n=36, 62 %), and Nicholls State
University (n=21, 33 %) indicated that the group “more than 4 online courses” was
the largest group. In terms of learners’ online learning engagement in one online
program per week, the findings, from University of Arkansas, Fayetteville, revealed
that the group “4 to 6 hours” was the largest group (n=19, 33 %), and the findings,
from Nicholls State University, revealed that the group “2 to 4 hours” was the largest
group (n=24, 38 %). In terms of learners’ previous learning methods, the findings,
from University of Arkansas, Fayetteville, revealed that the group “traditional face to
face courses” was the largest group (n=42, 72 %). In terms of learners’ major, the
findings, from University of Arkansas, Fayetteville, revealed that the group “adult
education” was the largest group (n=25, 43 %). In terms of whether Learners were
currently taking the comp exam at University of Arkansas, Fayetteville, the findings
revealed that the majority of the online learning respondents were not currently taking
the comp exam (n=48, 83 %).

**Objective Two**

The major findings in the objective two revealed a positive relationship between
online learners’ perceived usefulness and intent to continue (r=.37, p< 0.01), a
positive relationship between online learners’ perceived ease of use and intent to
continue (r=.44, p< 0.01), and a positive relationship between online learners’
perceived flexibility and intent to continue (r=.72, p< 0.01). The findings also
revealed a positive relationship between online learners’ perceived learner-instructor
interaction and intent to continue (r=.52, p< 0.01) and a positive relationship between
online learners’ satisfaction and intent to continue (r=.84, p< 0.01).
However, the findings showed a negative relationship between online learners’ perceived learner-learner interaction and intent to continue ($r= -.27, p< 0.01$). Although the learner-learner interaction questionnaire used negative description, it still indicated a positive relationship between perceived learner-learner interaction and intent to continue.

**Objective Three**

The major findings of objective three revealed that there were no significant differences in the online learners’ intent to continue within different gender groups, age groups, different groups of learners’ previous online learning experience, and different groups of learners’ previous online learning engagement.

**Objective Four**

The major findings of objective four revealed that there were no significant differences in the online learners’ perceived usefulness within different gender groups, age groups, different groups of learners’ previous online learning experience, and different groups of learners’ previous online learning engagement.

**Objective Five**

The major findings of objective five revealed that there were no significant differences in the online learners’ perceived ease of use within different gender groups, age groups, different groups of learners’ previous online learning experience, and different groups of learners’ previous online learning engagement.

**Objective Six**

The major findings of objective six revealed that there were no significant differences in the online learners’ perceived flexibility within different gender groups, age groups, different groups of learners’ previous online learning experience, and different groups of learners’ previous online learning engagement.
Objective Seven

The major findings of objective seven revealed that there were no differences in the online learners’ perceived interaction within different age groups, different groups of learners’ previous online learning experience, and different groups of learners’ previous online learning engagement. However, the findings in gender group indicated that there were significant differences in the online learners’ perceived interaction within different gender groups (F1, 120 = 4.787; p < .05). The mean of female students (36.8646) was higher than the mean of male students (34.0769). Levene’s Test of Homogeneity of Variance revealed the presence of equal variances between different genders.

Objective Eight

The major findings of objective eight revealed that there were no significant differences in the online learners’ satisfaction within different gender groups, age groups, different groups of learners’ previous online learning experience, and different groups of learners’ previous online learning engagement.

Objective Nine

The major findings of objective nine revealed that perceived flexibility and satisfaction had positive influence on the online learners’ intent to continue and the value of R$^2$ further revealed that the two predictor variables explained 76.4% of the variance in the online learners’ intent to continue.

Conclusions

The first conclusion in this study was that learners’ perceived flexibility and satisfaction of online learning programs played a key role in the online learners’ intent to continue. The major findings revealed that the perceived flexibility and satisfaction had positive influence on the online learners’ intent to continue. The findings were consistent with previous findings (Chiu et al., 2007; Hayashi et al., 2004; Roca et al., 2007).
2006; Wu et al., 2006), and indicated that online learners’ satisfaction was highly associated with the success of online learning programs (Chiu, et al., 2007; Levy, 2007). The findings related to the online learners’ perceived flexibility were consistent with the previous literature, and indicated that the flexibility of online learning programs was highly associated with the learners’ decision to take an online course (Arbaugh, 2002a; Hamzaee, 2005; Hollis & Madill, 2006; McGorry, 2003). Learners have various learning solutions including flexibility which is the key characteristic of online learning. This is one of the important reasons for them to decide whether they will use the online learning programs (Hamzaee, 2005; Kung, 2002).

The second conclusion in this study was that the perceived usefulness, ease of use, flexibility, learner-instructor interaction, learner-learner interaction, and satisfaction were positively associated with the online learners’ intent to continue. The findings were consistent with previous literature (Lee, 2006; Saade & Bahli, 2005), and further clarified the relationship among the perceived usefulness, ease of use, flexibility, learner-instructor interaction, learner-learner interaction, satisfaction and online learners’ intent to continue. In order to continuously improve the quality of online learning programs, it is critical to note that the success of online learning programs was not only associated with online learners’ technology acceptance, but also related to online learners’ perceived flexibility of online learning programs, satisfaction, and interaction with instructors and learners.

The third conclusion in this study was that the demographic variable should be taken into consideration in future online learning studies. In terms of the gender variable, although the findings indicated that female students had higher perceived interaction than male students, it was contradictory to the study from Bernard et al. (2004). The findings also revealed that there were no significant differences in the online learners’ perceived usefulness, ease of use, flexibility, satisfaction, and intent to
continue within different gender group. Although the findings of this study related to learners’ perceived usefulness, ease of use, flexibility, and intent to continue were contradictory to the reports from Ong and Lai (2006), and Sullivan (2001), the results for online learners’ satisfaction were consistent with the studies from Larson (2002), Levy (2007), and Marks et al. (2005).

In terms of the age variable, the findings revealed that there were no significant differences in the online learners’ perceived usefulness, ease of use, flexibility, interaction, satisfaction, and intent to continue within different age group. Although findings of this study related to online learners’ satisfaction were contradictory to reports from Fredericksen et al. (2000), the result was consistent with the studies from Levy (2007) and Marks et al. (2005).

In terms of learners’ previous online learning experience, the findings revealed that there were no significant differences in the online learners’ perceived usefulness, ease of use, flexibility, interaction, satisfaction, and intent to continue within different groups of learners’ previous online learning experience. The result for learners’ satisfaction was consistent with the finding from Marks et al. (2005).

In terms of online learners’ engagement in an online program per week, although the study findings revealed that there were no significant differences for the online learners’ perceived usefulness, ease of use, flexibility, interaction, satisfaction, and intent to continue within different groups of learners’ online learning engagement, the results were contradictory to suggestions from Bernard et al. (2004) and Marks et al. (2005). Thus, it is recommended that the practitioners and researchers in the HRD field pay more attention to demographic variables in the online learning studies.

Recommendations

This study utilized Moore and Kearsley's (2004) definition of online learning which was defined as teaching and learning delivered via the internet. This study did
not distinguish between synchronous or asynchronous online learning experiences. The study did also not ask learners' about their experiences with multimedia in online environments such as audio or video clips. Future studies could provide more insight into the online learners' intent to continue if data about the type of online learning experience were collected and studied. Future studies should ask respondents to specify if they had completed courses which utilized synchronous, asynchronous or blended online instructional methods. Those studies should also ask about experiences with non-textual learning media. This information could provide greater explanation about learners' intent to continue.

Online surveys for data collection consistently have lower response rates than paper surveys. This study yielded a low response rate of 11.8% (122 out of 1030) which was consistent with most studies that utilized online data collection means. The low response rate for this study is especially interesting because the population included learners who had taken online courses and who would be familiar with web-based applications. Future research should be conducted about the tendency of individuals to respond to online surveys, especially among groups which have extensive experience with web-based applications.

The findings indicated that the learners’ perceived flexibility had positive influence on the online learners’ intent to continue. The main reason why flexibility is important to learners is because flexibility of online learning can help learners deal with conflicts between their personal activities and learning plans (Arbaugh, 2000; Downes, 1998; Sullivan, 2001). Thus, it is important that institutions of higher education and organizations should notice learners’ need for the online programs, in order to provide learners at organizational, group and individual level with more suitable and flexible online learning courses in the future.

Moreover, the findings in this study revealed that the learners’ satisfaction had
positive influence on the online learners’ intent to continue, and was one of the important indictors to determine the success of online learning programs. Thus, it is necessary that the online learning service providers, institutions of higher education and organizations should highly focus on the learners’ satisfaction in order to continuously improve the online learning programs, and ensure the success, feasibility and viability of online learning programs in the future.

Davis, Bagozzi and Warshaw (1989) Technology Acceptance Model (TAM) provided the theoretical framework for the variables investigated in this study. The field of distance learning has grown extensively since this model was introduced and many of technologies used in today's online learning programs did not exist at that time. This study found that learners' perceived flexibility and satisfaction were key to the learners' decision to continue, which was consistent with other studies. Therefore, it is suggested that the Technology Acceptance Model be revisited in order to address current issues related to online learning. The model could be modified so that flexibility explained the "perceived ease of use" component of this model. The other key finding, learner satisfaction, could be implemented to address the "attitude toward using" component of the model. Incorporation of these two elements into this model will provide greater explanation and insight for institutions of higher education and other entities which utilize online learning technologies.

Finally, the results of this study are of great value to institutions of higher education and other entities which utilize online learning technologies. Learner perceived flexibility and satisfaction should be considered when designing and delivering online learning by these entities. Online programs should be evaluated through both formative and summative methodologies in order to ensure that programs continue to be flexible to meet learner needs and that learner satisfaction remains above average.
REFERENCES


APPENDIX A

LOUISIANA STATE UNIVERSITY APPROVED IRB APPLICATION
Application for Exemption from Institutional Oversight

Unless qualified as meeting the specific criteria for exemption from Institutional Review Board (IRB) oversight, ALL LSU research/projects using living humans as subjects, or samples or data obtained from humans, directly or indirectly, with or without their consent, must be approved or exempted in advance by the LSU IRB. This form helps the PI determine if a project may be exempted, and is used to request an exemption.

- Applicant, Please fill out the application in its entirety and include the completed application as well as parts A-E, listed below, when submitting to the IRB. Once the application is completed, please submit two copies of the completed application to the IRB Office or to a member of the Human Subjects Screening Committee. Members of this committee can be found at http://app003.lsu.edu/osp/osp.rsf?Content=Humans+Subject+Committee?OpenDocument

A Complete Application Includes All of the Following:
- (A) Two copies of this completed form and two copies of parts B thru E.
- (B) A brief project description (adequate to evaluate risks to subjects and to explain your responses to Parts 1 & 2.)
- (C) Copies of all instruments to be used.
- (D) If this proposal is part of a grant proposal, include a copy of the proposal and all recruitment material.
- (E) The consent form that you will use in the study (see part 3 for more information.)
- (F) Certificate of Completion of Human Subjects Protection Training for all personnel involved in the project, including students who are involved in testing or handling data, unless already on file with the IRB.

Training link: (http://cmce.cancer.gov/cme/clinical_trials/learning/human_participant_protocols.asp)

1) Principal Investigator: Name: [Redacted] Rank: Doctoral Candidate
Dept.: School of [Redacted] Ph: [Redacted] E-mail: [Redacted]

2) Co-investigator(s): please include department, rank and e-mail for each
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

3) Project Title:

4) LSU Proposal?: [yes or no] [Redacted]
   If Yes, LSU Proposal Number: [Redacted]
   Also, if YES, either:
   ○ This application completely matches the scope of work in the grant
   ○ More IRB Applications will be filed later

5) Subject pool (e.g., Psychology Students/Graduate students at LSU; [Redacted])
   - Circle any "vulnerable populations" to be used: (children < 18, the mentally impaired, pregnant women, the aged, other).
   - Projects with incarcerated persons cannot be exempted.

6) PI Signature: [Redacted] Date: [Redacted]
   "I certify that my responses are accurate and complete. If the project scope or design is later changed, I will resubmit for review. I will obtain written approval from the Authorized Representative of all non-LSU institutions in which the study is conducted. I also understand that it is my responsibility to maintain copies of all consent forms at LSU for three years after completion of the study. If I leave LSU before that time the consent forms should be preserved in the Departmental Office.

***Effective August 1, 2007, all Exemptions will expire three years from date of approval, unless a continuation report, found on our website, is filed prior to expiration date.***

Screening Committee Action: Exempted: [Redacted] Not Exempted: [Redacted]
Category: Paragraph: [Redacted]

Reviewer: [Redacted] Signature: [Redacted] Date: [Redacted]
APPENDIX B

UNIVERSITY OF ARKANSAS, FAYETTEVILLE, APPROVED IRB APPLICATION
December 12, 2008

MEMORANDUM

TO: David Deggs

FROM: Ro Windwalker
IRB Coordinator

RE: New Protocol Approval

IRB Protocol #: 08-11-319
Protocol Title: Factors that Influence Online Learners' Intent to Continue
Review Type: ☒ EXEMPT □ EXPEDITED □ FULL IRB
Approved Project Period: Start Date: 12/10/2008  Expiration Date: 12/09/2009

Your protocol has been approved by the IRB. Protocols are approved for a maximum period of one year. If you wish to continue the project past the approved project period (see above), you must submit a request, using the form Continuing Review for IRB Approved Projects, prior to the expiration date. This form is available from the IRB Coordinator or on the Compliance website (http://www.uark.edu/admin/rsspinfo/compliance/human-subjects/index.html). As a courtesy, you will be sent a reminder two months in advance of that date. However, failure to receive a reminder does not negate your obligation to make the request in sufficient time for review and approval. Federal regulations prohibit retroactive approval of continuation. Failure to receive approval to continue the project prior to the expiration date will result in Termination of the protocol approval. The IRB Coordinator can give you guidance on submission times.

If you wish to make any modifications in the approved protocol, you must seek approval prior to implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 120 Ozark Hall, 5-2208, or irb@uark.edu.
Dear Online Learner,

The study of online learning programs has increased in higher education in recent years. Of particular interest to high education institutions is whether students will continue using online learning programs in the future. You have been selected to participate in this study because you are currently an online learner. The results of this study will be used to further improve the quality of online learning programs in the future.

The participation in this study is voluntary and the responses will remain confidential. You may opt to not participate in this survey and withdraw at any time. Completion of this survey will serve as voluntary consent to participate in this study. Choosing to not participate in this survey will not affect your grade or standing in any course. It will only take you about 15 minutes to finish the survey. If you have any questions or problems about the survey, please contact me by e-mail at rhuang3@lsu.edu or rthuang0324@yahoo.com.tw. Thank you for your participation.

Are you a graduate student who was enrolled in one or more online learning courses during the fall semester of 2008?
______Yes, please continue to finish the questionnaire.
______No, please don’t answer this questionnaire.

Section 1: this section is going to assess your perceived usefulness toward online learning technology.

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Learners’ Satisfaction Items

1. I am satisfied with my decision to take an online course.
2. I am satisfied with the online learning program.
3. I am pleased with the experience of using an online learning program.
4. My decision to take the online course was a wise one.

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Section 6: this section is going to assess whether you will continue using the online course in the future.

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Online Learners’ Intent to Continue Items

1. I will continue using online learning programs in the future.
2. I intend to continue using online learning courses in the future.
3. I would recommend to other students to take online learning programs.

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Section 7: this section is related to your personal information

1. What is your gender? _______Male _______Female

2. What was your age as of your last birthday?
   _______less than 25 years
   _______25 to 29 years
   _______30 to 34 years
   _______35 to 39 years
   _______40 to 44 years
   _______45 to 49 years
   _______50 or more years

3. How many online graduate courses have you ever taken before at the University of Arkansas, Fayetteville?
   _______1 online course
   _______2 online courses
   _______3 online courses
   _______4 online courses
   _______more than 4 online courses

4. Based on the latest online learning experience, what are the approximate number of hours that you spend in one online course and course related activities per week?
   _______less than 2 hours
   _______2 to 4 hours
   _______4 to 6 hours
   _______6 to 8 hours
   _______more than 8 hours

5. In your undergraduate program, what course delivery method was used?
   _______Online courses
   _______Traditional face to face courses
   _______Mixture of online and traditional face to face courses

6. What is the concentration of your master’s degree?
   _______Human Resource Development
   _______Adult Education
   _______The other

7. Are you currently taking your master’s comprehensive exam?
   _______Yes
   _______No
Dear Online Learner,

The study of online learning programs has increased in higher education in recent years. Of particular interest to high education institutions is whether students will continue using online learning programs in the future. You have been selected to participate in this study because you have been an online learner. The results of this study will be used to further improve the quality of online learning programs in the future.

The participation in this study is voluntary and the responses will remain confidential. You may opt not to participate in this survey and withdraw at any time. Completion of this survey will serve as voluntary consent to participate in this study. Choosing to not participate in this survey will not affect your grade or standing in any course. It will only take you about 15 minutes to finish the survey. If you have any questions or problems about the survey, please contact me by e-mail at rhuang3@lsu.edu or rthuang0324@yahoo.com.tw. Thank you for your participation.

Are you an undergraduate student who was enrolled in one or more online learning courses during the fall semester of 2008?

Yes, please continue to finish the questionnaire.

No, please don’t answer this questionnaire.

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### Perceived Interaction Items

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<td>1. Online instructors frequently offer opinions to students.</td>
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## Section 6: this section is going to assess whether you will continue using the online course in the future.

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Section 7: this section is related to your personal information

1. What is your gender? ______ Male ______ Female

2. What was your age as of your last birthday?
   ______ 18 to 20 years
   ______ 21 to 25 years
   ______ 26 to 30 years
   ______ 31 or more years

3. How many online undergraduate courses have you ever taken before at Nicholls State University?
   ______ 1 online course
   ______ 2 online courses
   ______ 3 online courses
   ______ 4 online courses
   ______ more than 4 online courses

4. Based on the latest online learning experience, what are the approximate number hours that you spend in one online course and course related activities per week?
   ______ less than 2 hours
   ______ 2 to 4 hours
   ______ 4 to 6 hours
   ______ 6 to 8 hours
   ______ more than 8 hours
APPENDIX D

FIRST REMINDER
First Reminder

Dear online learner,

An online learning survey was sent to you about 7-10 days ago. The survey is about your satisfaction with the online learning programs and your online learning intent to continue in the future. Because your participation is very meaningful to the study, please help us finish the study.

If you haven’t completed the survey, please participate in the survey. **The participation in this study is voluntary and the responses will remain confidential. It will only take you about 15 minutes to finish the survey.**

If you already finished the online survey, please disregard this note. Thank you for your time and participation very much.

Best regards,

Rui-Ting Huang
Doctoral Candidate
School of Human Resource Education and Workforce Development
Louisiana State University, Baton Rouge
Second Letter

Dear online learner,

We are very concerned about whether you are satisfied with online learning programs and you will continuously use online learning programs in the future, so your suggestions and participations will play an important role in helping the online learning institution and organization improve the quality of online learning programs and further satisfy your online learning needs in the future.

The participation in this study is voluntary and the responses will remain confidential. It will only take you less than 15 minutes to finish the survey.

If you have any comments or questions about the study, please feel free to contact me. Thank you for your time and participation very much.

Best regards,

Rui-Ting Huang
Doctoral Candidate
School of Human Resource Education and Workforce Development
Louisiana State University, Baton Rouge
APPENDIX F

FINAL LETTER
Dear online learner,

Your valuable suggestions can greatly help the online learning institution and organization improve the quality of online learning programs and further satisfy your online learning needs in the future.

We are very concerned about whether you are satisfied with online learning programs and you will continuously use online learning programs in the future, so your participations in the study will be very meaningful and important.

**The participation in this study is voluntary and the responses will remain confidential. It will only take you less than 15 minutes to finish the survey.**

If you have any comments or questions about the study, please feel free to contact me. Thank you for your time and participation very much.

Best regards,

Rui-Ting Huang
Doctoral Candidate
School of Human Resource Education and Workforce Development
Louisiana State University, Baton Rouge
APPENDIX G

PERMISSION TO USE THE QUESTIONNAIRE FROM EACH ORIGINAL DEVELOPER
1. Permission from Dr. Arbaugh
Rui-Ting, please feel free to use the instrument. However, you can find an updated version of it in the following article:


Best of luck to you, Ben
----- Original Message ----- 
From: Rui-Ting Huang <ray0324@yahoo.com.tw>
Date: Wednesday, July 18, 2007 2:45 am
Subject: Need your permission to use the instrument
To: arbaugh@uwosh.edu

Dr. Arbaugh,

I am a graduate student in Louisiana State University, and currently taking a survey design course. In order to finish this course, I need your permission to use the questionnaire from the article: Virtual Classroom Characteristics and Student Satisfaction with Internet-Based MBA Courses. In order to successfully finish the survey design course, your help and permission will be very important to me.

Sincerely,

Rui-Ting Huang

J. B. (Ben) Arbaugh, Ph.D.
2006-07 Chair, Management Education and Development Division, Academy of Management Associate Editor, Academy of Management Learning & Education
2007-08 Penson Endowed Professor
College of Business
University of Wisconsin Oshkosh
e-mail: arbaugh@uwosh.edu Phone: (920) 424-7189

2. Permission from Dr. Davis
You have my permission to use the questionnaire from the article in MISQ 1989 for your survey design course, providing that you cite the source of the questionnaire in any resulting written reports or papers.

Fred D Davis
Distinguished Professor and David D Glass Chair
Information Systems Department
Sam M. Walton College of Business
University of Arkansas

US mail
Attn: Fred Davis
BADM 204
1 University of Arkansas
Fayetteville, AR 72701-1201
From: Rui-Ting Huang [mailto:ray0324@yahoo.com.tw]
Sent: Wednesday, July 18, 2007 2:49 AM
To: Davis, Fred
Subject: Need your permission to use the instrument

Dr. Davis,

I am a graduate student in Louisiana State University, and currently taking a survey design course. In order to finish this course, I need your permission to use the questionnaire from the article: Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. In order to successfully finish the survey design course, your help and permission will be very important to me.

Sincerely,

Rui-Ting Huang

3. Permission from Dr. Marks
You have my permission to use the questionnaire.

Ron Marks

----- Original Message -----
From: Rui-Ting Huang
To: marks@uwosh.edu
Cc: twc9202332165@earthlink.net
Sent: Wednesday, July 18, 2007 6:02 PM
Subject: Need your permission to use the instrument

Dr. Marks,

I am a graduate student in Louisiana State University, and currently taking a survey design course. In order to finish this course, I need your permission to use the questionnaire from the article: Marks, R. B.; Sibley, S. D.; Arbaugh, J. B. (2005). A Structural Equation Model of Predictors for Effective Online Learning. Journal of Management Education, 29 (4), 531-563. In order to successfully finish the survey design course, your help and permission will be very important to me.

Sincerely,

Rui-Ting Huang
4. Permission from Dr. Roca

Ok Rui-Ting,

you can use the instrument

best regards.

De: Rui-Ting Huang [mailto:ray0324@yahoo.com.tw]
Enviado el: miércoles, 18 de julio de 2007 9:56
Para: jcroca@uhu.es
Asunto: Need your permission to use the instrument

Dr. Roca,

I am a graduate student in Louisiana State University, and currently taking a survey design course. In order to finish this course, I need your permission to use the questionnaire from the article: Understanding e-learning continuance intention: An extension of the Technology Acceptance Model. In order to successfully finish the survey design course, your help and permission will be very important to me.

Sincerely,

Rui-Ting Huang

5. Permission from Dr. Sherry

Dear Rui-Ting Huang,

Thank you for your interest in our study. As you noted a copy of the quantative measure of distance learning, is found in our article, Assessing Distance Learners' Satisfaction with Instruction: A Quantative and a Qualitative Measure in The American Journal of Distance Education, Vol. 12, no. 3 - the 1998 issue. Table 1 on page 9 refers to 14 items. In terms of measuring satisfaction qualitatively, I followed the Small Group Instructional Diagnosis (SGID) which is described in an overall fashion on p. 13. Determining the types of responses is explained on p. 15. In a traditional classroom for SGID, a facilitator who has knowledge of teaching meets with the instructor who agrees to turn over his/her class to the facilitator. The facilitator meets with the class (without the instructor) and asks the students who are in small groups, first, what helps them learn in the course; second, what hinders their learning; and third, what changes they would make in the course. This process occurs about midway in the course so students know that actual change may very well occur.

The facilitator's role is to get the responses from each group and list each comment, asking for clarification if a comment is unclear. After all comments are gathered, the students vote on which items "resonate" with them. This process is done for each of the three questions. After class the facilitator ranks the items for each questions based on the number of votes received and meets with the instructor to discuss the results. The instructor then discusses what, if any, changes s/he will make in the class with the
students at the next meeting. It is quite powerful because students actually have a voice in affecting change in their current class. This process was described by Clark & Bekey in 1979 in Insight to Teaching Excellence (which is the reference section of the article). In a distance ed setting the process changes, as noted in the article. Written responses from dist. ed students to each of the 3 questions were analyzed theme by a panel of 3 knowledgeable experts. The responses were sorted and ranked by the team. I suppose that if there was enough time, a Delphi method could be followed so that the students themselves could receive all the responses and then vote on them in succeeding "rounds." It would, however, take a good deal of time. I am now retired and teach only the the summer sessions at UH. My co-authors are still at UH. Catherine (Betsy) Fulford is now the Chair of the Department of Educational Technology at UH and Zhang continues as a Professor in the Department of Educational Psychology.

You have my permission and best wishes for using our work in your study. As you can see, I've also cc'd Dr. Fulford so she can respond to you, too.

Aloha,
Annette Sherry

Dr. Annette C. Sherry, Associate Professor (Ret.)
University of Hawaii at Manoa
Department of Educational Technology
College of Education
1776 University Ave.
Honolulu, HI 96822
ETEC Dept. Phone 808 956-7671
ETEC Dept. Fax: 808 956-3905
VITA

Rui-Ting Huang, the oldest son of Tao-San Huang and Min-Yung Chou, was born in Kaohsiung City, Taiwan. He earned his Bachelor of Business Administration degree in international trade in 1997 from Providence University in Taiwan, and his Master of Business Administration degree in 2003 from Southern New Hampshire University.

His previous job experience, associated with international trade, was one of the propellent forces to stimulate him to acquire knowledge and experience different life in foreign countries. He has traveled to Australia, Singapore, Japan, and the United States. He is able to speak fluently in Taiwanese, Mandarin Chinese, and some Japanese.

His research interests are focused on cross-culture training, online learning, service quality of distance education, and international HRD. His research publication can be found in the *International Journal of Instructional Technology and Distance Learning*. 