

VITA

Abdullah Al-Jabri

EDUCATION

- 2012 Indiana State University, Terre Haute, Indiana
Ph.D., Curriculum & Instruction
- 2007 Indiana State University, Terre Haute, Indiana
M.A., Linguistics/TESL
- 1998 King Abdulaziz University, Madina, Saudi Arabia
B.A., Teaching English

PROFESSIONAL EXPERIENCE

- 2002 Yanbu Industrial College, Yanbu Industrial City, Saudi Arabia
Lecturer
- 1998 Ministry of Education, Riyadh, Saudi Arabia
English Teacher

SAUDI COLLEGE STUDENTS' PREFERENCES FOR SYNCHRONOUS AND
ASYNCHRONOUS WEB-BASED COURSES: AN EXPLORATORY STUDY

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Abdullah Al-Jabri

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COMMITTEE MEMBERS

Committee Co-Chair: Susan J. Kiger, Ph.D.

Chairperson and Associate Professor of Curriculum, Instruction, and Media

Technology, Indiana State University

Terre Haute, Indiana

Committee Co-Chair: Leslie Barratt, Ph.D.

Chairperson and Professor of Languages, Literatures, and Linguistics (LLL), Indiana

State University

Terre Haute, Indiana

Committee Member: Noble Corey, Ph.D.

Professor of Curriculum, Instruction, and Media Technology, Indiana State University

Terre Haute, Indiana

ABSTRACT

Technology has become an essential component of the teaching-learning process, and online learning, in particular, has captivated the interest of many educational institutions throughout the world. Web-based learning has provided both students and teachers with new and unique ways of communicating with each other. As a result, many studies have been conducted to investigate factors affecting the establishment of productive communications in web-based settings. Likewise, the focus of this study is how the number of courses completed and the participants' perception of their English language competence impacted their preferences for synchronous and asynchronous web-based learning in English instruction and in Arabic instruction.

The sample consisted of 82 Saudi undergraduate students enrolled at Indiana State University during the spring of 2011. The study used a hard copy modified version of a survey that was designed by Burton (2009) containing 27 items, which were divided into three parts. A four-point Likert scale was utilized to gain an overall score of students' preferences for synchronous and asynchronous web-based courses. Descriptive statistics (frequencies, means, and standard deviations, skewness, and kurtosis), one-way ANOVA tests, and repeated measures test (paired samples *t*-test) were utilized to answer the questions presented in this study.

The results revealed that there was no significant difference in student preferences for synchronous web-based courses delivered in English or Arabic on the basis of grade level or the

learners' perceptions of their level of English language proficiency. There were also no significant differences between preferences for synchronous learning in English (L2) and preferences for synchronous learning in Arabic (L1). The results also showed that the participants had greater preferences for synchronous online courses over asynchronous online courses. These findings mirror those found in earlier studies. The descriptive statistics revealed that learners had a strong preference for having direct conversations with the teacher, having more flexibility, studying on their own, and learning new materials through discussions with others or through having someone explain it to them.

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CHAPTER 1

Introduction

Technology has become an essential component of the teaching-learning process. In particular, online learning has captivated the interest of many educational institutions throughout the world, and as a result, the number of courses offered online has grown rapidly over the past few years to accommodate the increasing number of students who are interested in online learning. According to Allen and Seaman (2010), the number of students enrolled in online courses in the United States alone has been on the rise and “over 4.6 million students were taking at least one online course during the fall 2008 term; a 17% increase over the number reported the previous year” (p. 5). Swenson and Redmond (2009) added that technology has become a permanent component of the teaching-learning process as well as everyday life regardless of whether or not instructors incorporate it in their daily teaching. Furthermore, the use of technology has provided new opportunities, as well as challenges, for both teachers and students. According to Foster and Smith (2010), using technology is beneficial to students as it provides them with more opportunities for interaction with instructors, access to diverse learning resources, and development of certain skills, such as time management, which are essential in web-based settings. It also helps in boosting students’ motivation to interact with the instructor as well as with their peers (Chen, 2005).

Web-based learning has captivated the minds of educators throughout the world as it holds many advantages, such as providing students with more opportunities for interaction with instructors, access to diverse learning resources, and development of certain skills, such as time management (Foster & Smith, 2010). Distance learning also allows “learners to form learning communities by using web technology and tools, such as instant messaging and discussion boards, with the result that learners can cooperate and help one another in learning” (Lu & Chiou, 2010, p.308).

Web-based learning has been adopted by many educational institutions in the United States and Europe because of the advantages associated with it, such as low cost and portability, ease of access from anywhere and at anytime, and an increasing demand in the field of education as well as in the job market. Growth in the sector of web-based learning has been on the rise and more and more educational institutions have embraced web-based learning technologies. Educational institutions in the United States and Europe have invested in web-based learning as it provides solutions and new methods of communication between students and teachers both on and off campus. The introduction of the World Wide Web in the early 1990s opened a new market to provide high quality learning to all learners who have access to the Internet. Moore and Kearsley (2005) stated that at the end of the last decade more than 83.3% of 4-year public colleges provided web-based courses and 74% of community colleges offered online courses. Allen and Seaman (2010) also pointed out that the number of students enrolled in online courses in the United States alone has been on the rise as previously reported.

In comparison, in many Arab countries, web-based learning is in its initial stages. This is due to various societal, economic, political, and religious concerns about technology (Al-Khalifa, 2009; Moore & Kearsley, 2005). Recently, however, increased adoption of technology

by large communities in Arab countries has persuaded many educational institutions to invest in technology in education. According to Al-Khalifa (2010), educators in Saudi Arabia decided to invest in web-based learning so that they could benefit from its advantages and at the same time close the gaps between their country and more advanced countries participating in distance education. They felt web-based learning could help the educational institutions in Saudi Arabia accommodate the increasing number of graduate students, provide new and effective ways of communication between students and teachers, and attend to the growing needs of the job market (Al-Khalifa, 2010).

Today there is more growth in the Saudi telecommunications and information technology industries which represent more than 51% of the total Middle East markets with more than 27 million clients (Saudi Arabian General Investment Authority [SAGIA], 2010). In 2000, there were only 200,000 users of the Internet and this number grew to 9.8 million in 2010 (Internet World Stats: Usage and Population Statistics, 2010). The growth in both the Saudi telecommunications and information technology industries and number of Internet users in Saudi Arabia has tempted many educators to invest in technology so that they could provide high quality web-based education to accommodate the increasing numbers of students at Saudi universities (Al-Khalifa, 2010).

According to Al-Khalifa (2010), the need for greater integration of e-learning into postsecondary education increased over the years to accommodate the increasing number of postsecondary students, the increasing demands of the job market, the shortage of instructors (especially in the education of females), and the shortage of physical learning environments. This led to the establishment of the E-Learning Training and Resources Center in 2002 and the National Centre for E-Learning and Distance Education (NCEDL) in 2006. This center

supports and facilitates the growth in the field of e-learning in Saudi universities. The center is supported by the Open University of Malaysia and Multimedia Technology Enhancement Operations (Al-Khalifa, 2010). Furthermore, the Ministry of Higher Education in Saudi Arabia has urged educational institutions in Saudi Arabia to embrace web-based learning and provided administrative and financial support to these institutions. This hard work paid off as evidenced at King AbdulAziz University (KAU) with the establishment of the Deanship of Distance Learning in 2005, which made it possible for the university to offer online courses by using certain systems, such as the E-Learning Management Electronic System (EMES) and virtual classrooms. The digital library of the university consists of 16,000 e-books which provide a variety of resources for its learners (Al-Khalifa, 2010). Under the guidance and support of the Ministry of Higher Education similar projects have been initiated in other Saudi Universities and educational institutions.

According to Vygotsky (1978), the constructivist theory suggests that learners construct their own knowledge through interaction with instructors, their peers, and the learning environment. Richardson (1997) added that the ideas expressed by the constructivist theory forms the theoretical basis for many of the web-based learning environments today. The web-based learning environment is more student-centered and interactions between all of those taking part in the teaching-learning process are viewed as the key to success of web-based learning (Moore & Kearsley, 2005). Furthermore, learners play a key part in the success or failure of web-based learning and this makes gaining more insights into factors which affect their interactions very crucial to advocates of web-based learning worldwide.

According to Wang (2005), theorists such as Dewey (1938), Rotter (1990), and Vygotsky (1978) have suggested that there is a strong connection between learners' perceptions, self-

efficacy, attitudes, and their achievement and performance. Wang (2005) mentions that in many of his works. Dewey (1938) emphasized the importance of attending to learners' individual needs and societal needs. Rotter (1990) pointed out that self-efficacy and locus of control are important factors which impact the learners' attitudes toward accomplishing their goals. Moreover, Kearsley (2010) noted that Vygotsky's Zone of Proximal Development (ZPD) refers to closing the gap between what learners are able to do by themselves and with the help of others, such as teachers, parents, and peers. Kearsley asserts in accordance with Vygotsky that closing this gap should be the aim or goal of any teaching-learning process. Thus, learning more about factors affecting learners' perceptions and attitudes is an important step which will aid educators in designing a learning environment which makes learning more interesting, as well as more attention to learners' various needs.

Current studies have also pointed out that employing technology in the teaching learning process does enhance learners' motivation and attitudes toward learning, but not their achievement and performance (Palvia & Palvia, 2007; Sistelos, 2008). This is incongruous with the claims of previous learning theories and studies which linked students' performance and achievement to learners' perceptions, self-efficacy, attitudes, and motivation. These contradictions among views about the advantages of using technology in distance-learning settings make generalizing the effect of technology on learning a difficult task. The scarcity of studies in this area is another thing to be considered as web-based learning was recently adopted in Saudi Arabia with the embellishment of E-Learning Training and Resources Center in 2002. In addition, web-based learning is in its initial stages in Saudi Arabia and as a result few studies have investigated the impact of employing the new technology in postsecondary education in Saudi Arabia.

Statement of the Problem

Many educators today are well aware of the benefits and advantages of online learning. Educators are also more open to the idea of incorporating technology into regular classrooms, as web-based learning has provided both students and teachers with many new ways of communicating with each other. This is related to the fact that technology today has become more affordable and accessible than at the time when it was first introduced. Today, there is one computer in nearly every home, and this technology has become part of our professional as well as everyday life (Appana, 2008). Swenson and Redmond (2009) added that technology has become an important component of the teaching-learning process. The Ministry of Higher Education in Saudi Arabia and in other Arabian countries has felt the need for incorporating as much e-learning as possible so that they can accommodate the increasing number of graduate students, provide an interesting and high quality education for learners, and attend to the growing needs of the job market (Al-Khalifa, 2010). Many educators in Saudi Arabia feel that web-based learning will improve the quality of learning and the Saudi students' performance and achievement.

On the other hand, various current studies assert that technology has a positive impact on student attitudes and motivation, but not on performance and achievement (Palvia & Palvia, 2007; Sistelos, 2008). Furthermore, there have been many debates among educators about which format of web-based learning is more effective — synchronous or asynchronous. According to Hrastinski (2008), educational organizations should distinguish between synchronous and asynchronous courses in e-learning environments because each type has a different purpose in the online educational process. Hrastinski also added that educators need to take into consideration the advantages and limitations of both forms of communication in e-

learning environments. According to Tait and Mills (2003), when developing online courses “we must remain continually reflective, asking whether this medium or collection of media can be used for our purposes; if so, how it can best be used, and whether this is the best way to serve our students” (p. 165).

Web-based learning is a student-centered learning environment which helps learners construct their own knowledge through interaction with the various components of this learning environment. In contrast, the traditional educational system in Saudi Arabia is teacher-centered and students usually are passive learners and dependent on teachers. This makes the process of adaptation of web-based courses a slow process. Moreover, cultural and societal factors also have impacted Saudi students’ attitudes about web-based learning. Al-Jarf (2005) concluded in his study that offering online courses to college-level students in Saudi Arabia was unsuccessful because of cultural and technical reasons. He pointed out that students had a negative attitude toward online courses because they were unfamiliar with online instruction, and they did not take online courses seriously as they felt that online learning is similar to chatting online with friends.

Furthermore, employing a medium of instruction that differs from the learners’ language can also impact the learners’ preferences for various types of web-based learning courses. Al-Sultan (2009) pointed out that “some Saudi universities have decided to make English the medium of instruction for specializations that are in huge demand in the labor market” (p. 13). Al-Khalifa (2010) added that online learning has made it possible for some universities in Saudi Arabia, such as King Fahd University of Petroleum and Minerals (KFUPM), to offer sharing of educational content online through the open courseware which contains Arabic and English language materials from nearly 80 KFUPM courses. Al-Sultan

(2009) mentioned that when most graduates of universities and colleges where the medium of instruction is English are sent abroad for their higher studies, these students are not enrolled in advanced levels of English learning, but rather in lower levels of English learning. He added that this clearly shows that there are many problems associated with employing English as the medium of instruction.

Educators and curriculum designers in Saudi Arabia need to gain immediate feedback from students as to how effective web-based learning is and what factors affect students' attitudes and preferences in such learning environments. This knowledge will aid them in developing better learning environments for web-based learners.

Purpose and Significance of the Study

This exploratory study investigated factors impacting Saudi college students' preferences for synchronous and asynchronous web-based courses. More specifically, the focus of this study highlights the current impact of synchronous and asynchronous web-based learning on undergraduate Saudi students at a mid-sized Midwestern state university in the United States. The findings of this study will help educators both in the United States and Saudi Arabia gain insight into factors impacting Saudi students' preferences for web-based learning as well as provide curriculum designers with an immediate and direct feedback from students. By doing so, this could provide college-level Saudi students with a learning environment which better tends to their learning needs. Moreover, this study will add to the literature in this area and perhaps open a door for other scholars who are interested in learning more about factors impacting Saudi postsecondary students' preferences for synchronous and asynchronous web-based learning environments.

Research Questions

This study explored Saudi students' preferences for synchronous and asynchronous online courses. To understand preferences the following sub-questions have been created by the researcher:

- Are there significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on the number of credit hours successfully completed?
- Are there significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on learners' perception of their English language proficiency level?
- Is there a significant interaction between the number of hours successfully completed and learners' perceptions of their English language proficiency on preference for synchronous learning?
- Are there significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on the number of credit hours successfully completed?
- Are there significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on learners' perception of their English language proficiency level?
- Is there a significant interaction between the number of hours successfully completed and learners' perceptions of their English language proficiency on preference for synchronous learning for online courses delivered in Arabic?

- Are there significant differences between preferences for synchronous learning in English (L2) and preferences for synchronous learning in Arabic (L1)?

Definitions of Terms

Asynchronous online communication is defined as an online learning environment where “all content is available online, discussions are managed through e-mails or discussion boards, in which students and teachers do not communicate in a real-time environment” (Burton, 2009, p. 4).

Distance education is defined as “planned learning that normally occurs in a different place from teaching, requiring special course design and instruction techniques, communication through various technologies, and special organizational and administrative arrangement” (Moore & Kearsley, 2005, p. 2). For the purpose of this study this definition was limited to the synchronous and asynchronous learning environment.

Synchronous online communication is defined as an online learning environment where “all content is available online, taught in an interactive real time environment with scheduled meeting times” (Burton, 2009, p. 4).

Web-based learning is defined as one which “uses the Internet and communication technologies, ranging from the Internet as a research tool to taking online classes” (Tallent-Runnels et al., 2006, p. 94).

The Ministry of Higher Education in Saudi Arabia

The Saudi Ministry of Higher Education was founded in 1975. It focuses mainly on improving the quality and quantity of postsecondary educational institutions in Saudi Arabia. According to the Ministry of Higher Education Portal (2010), its responsibilities include supporting and facilitating the establishment of higher educational institutions, providing them

with administrative and financial support, and giving them permission to offer programs that attend to the country's needs.

Limitations of the Study

- The limited sample size may have influenced the quantitative aspects of this study.
- The reasons participants take web-based courses may have affected the results.
- The sample is limited to undergraduate Saudi students enrolled at Indiana State University and this may have affected generalizing the findings of this study.

Delimitations of the Study

The study was restricted to the preferences for synchronous and asynchronous web-based learning of Saudi undergraduate students who were enrolled at Indiana State University.

Assumptions

- This study assumed that all the participants in the study were typical Saudi college-level students who had enrolled in web-based courses at Indiana State University.
- The study assumed that the data collected was truly representative of the thoughts and study habits of the participants.
- Since no new items were added to the survey, the validity and reliability of the survey was assumed to remain constant.
- The study assumed that students had not had the opportunity to take online courses in Arabic and that their projections were based on their understanding of online learning and their comfort with their native language (Arabic).

Organization of the Study

The study is organized into five chapters. Chapter 1 includes the statement of the problem, purpose of the study, objectives of the study, research questions, significance of the

study, and assumptions. Chapter 2 focuses on the current and relevant research literature on distance and web-based learning environment. Chapter 2 is divided into the following areas: a brief history about distance learning, distance learning in Saudi Arabia, the theory of web-based learning, the importance of web-based learning, online courses types (asynchronous and synchronous), and factors affecting students preferences for synchronous and asynchronous web-based courses. Chapter 3 presents the methodology used including the research design, hypothesis, area of study, population and sample, participants' criteria, the survey instrument, data collection, and statistical analysis are described in this chapter. Chapter 4 provides the results of this study. Chapter 5 presents the final analysis of the data, discussions, and the findings of the study.

CHAPTER 2

Literature Review

This chapter explores the growth of distance education and web-based learning in Saudi Arabia and around the world, how it has shaped present education, and how it might impact the future of education. This chapter also highlights how learners' characteristics, technology, instructors, and cultural settings impact learners' attitudes and preferences about synchronous and asynchronous web-based learning courses.

This chapter presents a brief history of distance learning, discusses the importance of distance learning, the status of distance learning in Arab countries, the distance education status in Saudi Arabia under the umbrella of the Ministry of Higher Education, the theoretical background of distance learning, the history and types of online courses, the factors impacting learners' preferences for synchronous and asynchronous web-based courses, and the importance of gaining feedback about students' attitudes in web-based courses.

Brief History of Distance Learning

Distance learning started in Europe and the United States. It goes back as far as the middle of the 19th century. According to Imel (1996), "Distance learning has existed for well over 100 years. Correspondence courses in Europe were the earliest forms of distance learning" (p. 3). Moore and Kearsley (2005) added that this type of learning was called *home study*, and it was the first form of distance education where instruction was provided by

teachers at a distance. Moore and Kearsley also added that this form of distance learning relied on the affordability and reliability of the postal services at that time. Correspondence study was adopted by many institutions throughout Europe and the United States. The Chautauqua Correspondence College was the first educational institution to employ this technology in the United States higher-education system in 1883 (Scott, 2005). Furthermore, the spread of this technology was influenced by political, economical, and institutional factors. For example, the Chautauqua Correspondence College provided learning opportunities for female students who lived in rural areas during that time so that they could complete their studies from home and become productive members of the society (Nasseh, 1997).

The 1960s and 1970s witnessed a shift in technology through the use of instructional radio and television which provided new methods of communication other than the use of correspondence education (Imel, 1996). The use of instructional radio was adapted by many universities which offered some academic courses via instructional radio, such as the University of Salt Lake City in 1921 and the State University of Iowa in 1925. The use of instructional radio was short-lived because of the lack of interest among educators and university faculty members as well as the focus on commercial interests rather than academic ones (Moore, 2003).

The use of educational television gained more educational ground than educational radio. In 1934, the State University of Iowa broadcasted the first educational television programs (Moore, 2003). By the 1950s, 17 programs incorporated the use of educational television. By 1960s, more than 53 stations joined the National Television Network (NET). In addition, in 1961, the Federal Communications Commission (FCC) issued an experimental permission to the Plainedge School System on Long Island which provided school districts with the opportunity to use the Instructional Television Fixed Service (ITFS) which was

inexpensive, of low power, and based on an over-the-air delivery system. The only drawbacks of this system were its low television picture quality and limited broadcast which was only about 25 miles (Moore & Kearsley, 2005). The early 1960s witnessed daring attempts by many supporters of educational television instruction, such as the launch of *flying classrooms* by the Midwest Program on Airborne Television Instruction (MPATI), which provided instructional programs to schools in Indiana and five other states (Moore, 2003).

The use of cable television soon followed in 1952. In 1972, the FCC required cable television companies to provide educational channels. Moreover, courses delivered through this technology were labeled as *telecourses*. More than 200 college-level telecourses were available by the mid-1980s (Moore & Kearsley, 2005).

The late 1960s and early 1970s witnessed critical changes in the field of distance learning. Many institutions in the United Kingdom and the United States experimented with new ways to refine the use of computers and technology. For example, the University of Wisconsin made use of the Articulated Instructional Media Project (AIM) from 1964 to 1968 which was funded by the Carnegie Corporation. AIM employed various forms of communication for delivery, such as instructional TV and radio, phone conferences, and local library resources. Their intent was to provide distance learning students with high-quality learning at a low cost. According to Moore and Kearsley (2005), “AIM represented a historical milestone and turning point in the history of distance education” (p. 33). The AIM inspired the British government to make use of such ideas to improve the quality of the educational system. The British dreams came true with the launch of what is known as the Open University, which tried to avoid some of the drawbacks which were associated with the AIM, such as lack of control over faculty members, the curriculum, funds, and academic rewards (Moore, 2003).

During this period, various studies were carried out to gain insight into how effective educational television was in comparison to face-to-face or traditional learning methods. These studies revealed minor differences between the impact of educational television and traditional method of teaching. Phipps, Merisotis, and the Institute for Higher Education Policy (1999) published a report which reviewed research on the effectiveness of distance learning in higher education at that time. The report revealed that there were no significant differences between students enrolled in distance learning and those enrolled in regular classes in terms of the learning outcomes, but students' satisfaction with distance learning was greater than that of regular classes. Educational institutions focused on the quality of instruction provided to the users of technology rather than on technology itself. This was a major step toward providing learners with better learning environments.

The use of direct broadcast satellites and teleconferencing during the 1980s was also a major step in distance education progress as it provided learners with tools that support collaboration and interaction (Moore, 2003). Moore added that the use of these teleconferencing technologies, such as videoconferencing, shifted the focus of distance learning from individual learning to group learning. In 1987, the U. S. Congress passed the Federal Star Schools Program Assistance Act which was directed at promoting the use of communication for the instruction of math, science, and foreign languages in K-12 schools. The program was funded by the government, and it had a huge impact on the progress of distance education in the United States. This program provided schools with the necessary equipment to embrace new technologies in the field of communication. It also provided K-12 teachers with the necessary training in how to use distance-learning technologies (Moore & Kearsley, 2005).

In 1993, once again the distance education field changed with the implementation of new technologies through the use of the World Wide Web. According to Moore and Kearsley (2005), this was a critical time for the development of web-based learning as the U.S. Bureau of Census in 1989 reported that more than 15% of Americans owned or had access to a computer at home or at the place where they worked. By 2002, 66% of American adults had learned how to access the Internet. The spread of the Internet enabled many universities in the United States to provide web-based programs and degrees. Moore and Kearsley added that at the end of the previous decade more than 83.3% of 4-year public colleges provided web-based courses and 74% of community colleges offered online courses.

The latest technological breakthroughs in the field of telecommunications, such as the use of wiki, blogs, Facebook, and other forms of communications today made the adoption of technology much easier than before. The low cost and affordability of using educational technologies have tempted many educational institutions worldwide to invest in the use of technology in education. Campuses use this technology to provide a wider audience of off-campus learners with high-quality learning at a convenient cost for both educational institutions as well as learners (Moore & Kearsley, 2005; Reiser, 2001).

Looking at the history of distance education, this field has evolved as have the interests of educators. The primary interest has shifted from focus on commercial uses to focus on the quality of learning presented via distance learning and how it has impacted learners' attitudes, motivation, performances and achievement. Several recent studies revealed that there are marginal differences between online and face-to-face environments when it comes to students' performance, but distance learning does boost students' motivation, perspectives, and attitudes toward learning (Palvia & Palvia, 2007; Sistelos, 2008).

The Importance of Distance Learning

Technology has become an indispensable part of our daily lives. The educational world has shifted toward providing better learning via the use of technology. There are many economic, political, and societal factors which convince many educators and educational institutions to use web-based instruction rather than relying on the traditional methods alone. These factors include low cost, full access to various learning resources, and the ability to provide high-quality learning to off-campus learners (Reiser, 2001). The use of the Internet has laid the foundations for e-learning “as the Internet expands and as technology becomes more accessible, the use of the Internet as a delivery mechanism will continue to increase” (Oblinger, 2001, p. 11). According to Larreamendy-Joerns and Leinhardt (2006),

The United States is at a remarkable moment in the history of higher education.

Educators have at their disposal sets of tools in the form of the Internet and a science of learning and teaching that permits the alteration of the nature of instruction at the university level. The alteration might affect who is educated, what they experience as education, who educates, and what the very practice of education itself means. (p. 567)

Lu and Chiou (2010) added that “online courses allow learners to form learning communities by using Web technology and tools, such as instant messaging and discussion boards, with the result that learners can cooperate and help one another in learning” (p. 308). The use of web-based technology has eliminated the time, place, and political barriers which in the past have limited learning only to those who are on campus. Now universities are able to offer high-quality learning to anyone who has access to the Internet. Moreover, in the new era many universities have set their goals to provide all learners with good student-centered education that corresponds to their abilities and needs. Constructivist theory supports student-centered

learning and identifies interaction as the key to constructing new knowledge by learners. The idea presented by this theory persuaded many educational institutions to employ it and made it one of the cornerstones of web-based learning (Lu & Chiou, 2010; Nasseh, 1997). The use of web-based technology has provided a new generation of learners with the necessary tools to create their own knowledge according to their abilities.

Moreover, the numbers of students who favor taking web-based courses have increased rapidly over the last years. According to Allen and Seaman (2010), the number of students taking online courses in the United States alone has been on the rise. For example, “Over 4.6 million students were taking at least one online course during the fall 2008 term; a 17% increase over the number reported the previous year” (Allen & Seaman, 2010, p. 5). This increasing demand for this type of learning has persuaded more and more educational institutions to invest more in using technology. According to Black (2010),

The changing nature of college students and their needs in an increasingly global-oriented society are the primary impetuses for educational change, because the success of higher education will depend upon its ability to respond successfully to such change. Educators are becoming more aware that Gen Y has considerably different experiences and expectations and that it even thinks and processes information differently than students of the past. (p. 100)

Black also added that the schools’ learning environments in the United States have shifted from a White, middle-class learning environment to a more multicultural and diverse one. This change raised the question as to how schools could attend to the needs of diverse learners. One solution was to use technology as a tool of reform in this digital age. According to Foster and Smith (2010), using technology is beneficial to students as it provides them with more

opportunities for interaction with instructors, access to diverse learning resources, and development of certain skills, such as time management which are essential in web-base settings. It helps in boosting students' motivation and desire to interact with the instructor as well as with their peers (Atan, Rahman, & Idrus, 2004; Chen, 2005). According to Connick (1997), "for the first time, educational consumers have choices regarding what, when, where, how, and from whom they can secure an education" (p. 9).

The use of technology holds many advantages for instructors as well because it provides them with more flexibility on how to present the educational material, grade their students, use teaching methods that correspond to students' learning styles, and play more effective roles as facilitators and advisors in the student-centered digital classrooms. Knowing the characteristics of today's learners and how technology impacts their learning is one of the keys to providing them with learning that attends to their needs. Swenson and Redmond (2009) also pointed out that technology has become an essential component of the teaching-learning process as well as everyday life regardless of whether or not instructors incorporate it in their daily teaching. Thus, teachers who oppose the use of technology in education rely on it in one way or another.

According to Dewey (1938), attending to students' needs and providing them with authentic experiences which relate to their daily lives is very important in education. In order for teachers to attend to their students' needs, they need to know who their students are, what learning styles they prefer, and the best ways to deliver instruction to them. The majority of the students in our classrooms belong to the "Y" generation which relies heavily on technology during their everyday practices, such as checking their e-mails, chatting with friends online, online shopping, and looking for information online (Black, 2010). In 2004, the National Endowment for the Arts released *Reading at Risk: A Survey of Literary Reading in America*

which pointed out that “today’s young people don’t suffer from illiteracy; they just suffer from e-literacy” (as cited in Bauerlein, 2010, p.89). Furthermore, through the use of technologies, such as video conferencing, students from different countries, backgrounds, languages, and capabilities could be linked in one course. This environment will support constructivist approaches to learning as well as cooperative learning and provide learners and instructors with more opportunities to interact in and out of the classrooms (Tait & Mills, 2003). Teachers, in general, should be aware of the difference between students today and those in the past decade (Black, 2010; Connick, 1997) so they can provide a learning environment which attends to their students’ needs. In addition, the use of technology makes it possible for many teachers to share information with other teachers and pursue higher studies. According to Tait and Mills (2003), in December 2000 the Open University in the United Kingdom had more than 110,000 students taking online courses and 105,000 elementary and high school teachers were taking online *Learning Schools* programs.

Technology today is not used as a tool that causes learning, but rather as one that facilitates it. Technology is a tool which links students and instructors from various countries, professions, backgrounds, and experiences. Web-based learning provides a learning environment where different cultures, people, and needs are met. It provides users with choices regarding when, where, and how they want educational material presented to them. It also opens new doors for educational institutions to provide high quality learning at low cost to students who are unable to attend on-campus courses because of geographical, political, ethnic, societal, or personal reasons (Appana, 2008).

The Status of Distance Learning in Arab Countries

In the Arab world, growth in the field of distance education is slow, and many Arab countries are lagging behind other countries because of cultural, political, and economic factors. There are only three open universities and 15 dual-mode universities which offer both on-campus and off-campus courses. In comparison, by the end of the last decade 84.1% of public universities in the United States and 83.3% of the 4-year public colleges offered web-based courses (Moore & Kearsley, 2005).

Economic, political, and technological factors led to the adaptation of different distance learning models. For example, the segregation of male and female students in Saudi Arabia and the shortage of female instructors have led to the use of closed-circuit video to provide female students with real opportunities to pursue higher education studies (Moore & Kearsley, 2005). Guessoum (2009), argued that reliance on the Arabic language rather than English, inappropriate usage of technology at home and at work, and teacher-centered methodologies which tend to produce passive learners, are some of the factors which have made Arab countries lag behind in distance learning. Al-Sultan (2009) pointed out that some universities have decided to “make English the medium of instruction for specializations that are in huge demand in the labor market” (¶ 2). He added that relying on English as the medium of instruction does not provide a complete solution to this problem because of the insufficiency of English courses offered by these institutions. He explained that the graduates from these programs are placed in lower levels in English language institutes when they are sent to complete their advanced studies. Al-Sultan stated that there is a need for conducting a comprehensive analysis of the current educational systems so that educators could better identify the factors which impact the efficiency of the current educational systems.

Distance Education in Saudi Arabia

The Ministry of Higher Education was established in 1975. It focused mainly on improving the quality and quantity of postsecondary educational institutions in Saudi Arabia.

According to the Ministry of Higher Education Portal (2010), its responsibilities are:

- Proposing the establishment of higher educational institutions and authorizing them to offer special programs in accordance with the country's needs.
- Creating and administering universities and colleges in the Kingdom.
- Raising the level of communication and coordination among institutions of higher learning and coordinating with other governmental ministries and agencies in terms of their interests and needs in higher education.
- Representing the government abroad in all educational and cultural affairs, through various cultural and educational offices distributed over 32 countries. (¶ 2)

According to Al-Khalifa (2010), the need for greater integration of web-based learning into postsecondary education increased during recent years so that it could accommodate the increasing numbers of postsecondary students, the increasing demands of the job market, the shortage of instructors, especially in female education, and the shortage of physical learning environments. This led to the establishment of the E-Learning Training and Resources Centre in 2002 and the National Centre for E-Learning and Distance Education (NCEDL) in 2006 whose main purpose was facilitating e-learning development in Saudi universities (Al-Khalifa, 2010). The Ministry of Higher Education in Saudi Arabia urged educational institutions to embrace web-based learning and has provided administrative and financial support to these institutions. This work paid off and evidence could be seen at King Abdulaziz University (KAU) with the establishment of the Deanship of Distance Learning in 2005, which made it

possible for the university to offer online courses through the use of certain systems, such as the EMES and virtual classrooms. The digital library of the King Abdulaziz University consists of 16,000 e-books which provide a variety of educational sources for its learners (Al-Khalifa, 2010). Under the guidance and support of the Ministry of Higher Education, similar projects have been initiated in other Saudi universities and educational institutions.

The Theoretical Background of Distance Learning

The theoretical rationale of this study is based on constructivist theory, which suggests that individuals construct their new knowledge upon the interaction of their prior knowledge and the ideas, events, and activities with which they come in contact (Cannella & Reiff, 1994, Richardson, 1997). According to this theory learning should be relevant, active, interactive, and learner centered. The constructivist theory also supports the idea of problem solving, collaborative learning, and effective interaction. The learning environment is more student-centered than teacher-centered. The teacher's role resides in facilitating interaction and motivating learners to take an active part in these interactions. Thus, constructivists argue that collaboration among all those taking an effective part in any educational setting is the key to success. According to Moore and Kearsley (2005), the collaborative constructivist perspective of teaching and learning is related to "where the individual has the responsibility to construct meaning and participate in reciprocal communication for the purpose of confirming understanding and generating worthwhile knowledge" (p. 230).

Psychological constructivism. Psychological constructivism is associated with Piagetian constructivists who suggest that the aim of education should be educating learners in ways that support learners' interests and needs. According to this approach, the teachers' task is to devise challenging learning tasks that create a dilemma for students. Students gain new

knowledge through taking part in such learning settings. Experiential learning, or discovery learning, and hands-on activities are some examples of methods that support the ideas presented by psychological constructivism (Richardson, 1997). This approach only focuses on learners' cognitive development (Richardson, 1997). It also suggests that learners go through the same developmental process regardless of the differences in gender, race, social context, etc.

Piagetian constructivism opponents' main criticism against this approach was that not everyone goes through the same developmental stages. Cultural and social settings play a part in learners' cognitive development.

Social constructivism. The social constructivism, or Vygotskian constructivism, emphasizes education as a tool for social transformation. It highlights the important role of social-cultural context in shaping individuals, as well as the society. Learners construct knowledge in interaction with the environment and learners affect and are affected by and the environment. In addition, schools provide the social-cultural environment where learning takes place. According to Richardson (1997), educators should take under consideration the impact of the historical, societal, and cultural aspects of the learning environment and deconstruct it in a way that facilitates social transformation and reconstruction. According to Vygotsky (1978), learners express a level of intellectual performance during collaboration higher than when they work alone. Thus, interaction is considered a key element which could help learners acquire more knowledge. Roblyer and Wiencke (2003) also pointed out in their study that interaction is one of the most important elements of the distance-learning theory.

Vygotsky (1978) defined a Zone of Proximal Development (ZPD) as the distance between what learners could achieve on their own and what they achieve under the guidance of adults, or through collaboration with their peers. Distance learning provides learners with

opportunities for interaction in and out of the schools and this can aid educators in closing the gaps which are found in the traditional learning system. Moore and Kearsley (2005) also pointed out that “transactional distance is the gap of understanding and communication between the teacher and learners caused by geographic distance that must be bridged through distinctive procedures in instructional design and the facilitation of interaction” (p. 223). They also stated that dialogue and structure are very important components which are associated with the success of distance learning. These ideas echo Vygotsky’s notion of the impact of language and social context on the teaching-learning process (Vygotsky, 1978).

The social constructivist learning theory supports student centered learning which has, in many ways, supplemented traditional teacher centered learning that has dominated the past. Richards (2005) pointed out that many educators focus on implementing technology and ignore the impact of the social context on students’ cognitive and social development. He added that teachers should make use of technology in improving the quality of learning taking place in their classrooms. According to Huang (2002), the social constructivist theory has influenced information and communication technologies for many reasons which include the following:

Technology and social contexts are equally important and cannot be separated from each other. Learners should determine the authenticity and quality of what they learn. In online settings learners do not only depend on instructors. They also may learn a lot on their own or from their peers. Instructors’ roles changed to advisors, consultants, and facilitators. Learners are engaged in pre-authentic learning experiences and, through this interaction, construct their own views about these experiences. (¶ 31)

Huang (2002) also added that the social constructivist theory supports the idea of student-centered learning and highlights the importance of learners’ prior knowledge in

constructing new knowledge. This is an important concept which makes learning more meaningful and related to the learners' lives (Dewey, 1938; Vygotsky, 1978). According to Moore and Kearsley (2005), educators need to assess the impact of distance learning on the teaching and learning process, curriculum and course design, communication (student-student, student-instructor, student-content) during interaction, and organization and management of the educational programs.

History of Online Courses

Even though the Internet has been around for more than 40 years, it was not until the early 1990s that it was used in distance education (Williams, 2002). Mosaic, the first web browser, opened the door for web-based learning which has provided educators with a greater flexibility and accessibility (Davis, 1995; Moore & Kearsley, 2005). Since that time, the use of web-based courses has gained more and more importance in educational institutions throughout the world. According to Dixon (1996), "the World Wide Web has not been around very long, but already distance educators are experimenting wildly, trying to find ways of using the web and the Internet to enhance student's distance experiences" (p. 122). Moore and Kearsley (2005) pointed out that by the end of the last decade more than half of public and private universities in the United States offered online courses. Allen and Seaman (2010) also added that the number of students taking online courses in the United States alone has been on the rise and that "over 4.6 million students were taking at least one online course during the fall 2008 term; a 17% increase over the number reported the previous year" (p. 5).

The latest advances in the field of computers and telecommunications have persuaded many educational institutions to offer online courses either partially or completely. The shift from traditional methods of online delivery to more sophisticated methods through the use of

more sophisticated mediums such as Elluminate, audio conferencing, and video conferencing have impacted the learning process worldwide. In the past many educators felt the process of adoption of technology in education was slow because of many factors such as high cost, lack of training, and lack and complexity of gaining access to instructors, peers, and educational resources. In contrast, today the use of more sophisticated methods of delivery associated with web-based learning has made knowledge available at the fingertips of anyone who has access to the Internet. Moreover, benefits associated with online learning such as low cost, ease of access, and convenience of time and place provide a new incentive for educational institutions and learners (Lu & Chiou, 2010). In addition, the latest advances in the field of web-based learning have provided students with “educational programs and curricular opportunities that may not be available to students in their own schools and classrooms” (Holstead, Spradlin, & Plucker, 2008, p. 1).

Types of Online Courses

Web-based learning employs two methods of delivery for courses. Online courses could be classified mainly into either synchronous or asynchronous courses. Asynchronous and synchronous course have been around since the last decade. The developments in the fields of telecommunications and technology have played an important part in giving rise to one form over the other. For example, the low cost of employing asynchronous communication persuaded many universities in the past to rely on it alone in their web-based learning courses, but recently many universities have employed synchronous online communication in their web-based learning because it has become cheaper and people today are more accustomed to using this technology when using MSN or Yahoo to communicate with their friends. Moreover, the

low cost and wide spread of computers which are equipped with microphones and webcams gave rise to the use of this technology as well. Skylar (2009) added that,

In the past, classroom video-conferencing equipment could only be housed in designated classrooms, and students and the instructor had to travel to designated sites. Today, software can be accessed from a server, and an individual can join a synchronous interactive environment from a desktop or laptop computer. (p. 71)

Asynchronous refers to any non-real-time online interaction between learners and instructors anytime and anywhere through the use of media, such as e-mails and Blackboard. According to Picciano (1998), the term *asynchronous distance learning* “has been made popular in the United States in recent years because of the major funding provided by the Sloan Foundation program for asynchronous learning networks (ALN)” (p. 2). Moreover, the use of asynchronous courses has been around since the late 1990s. In 1997, a nine-day seminar held in Salzburg, Austria provided educators from 22 countries, who were interested in using technology for language teaching, with opportunities to exchange knowledge and experiences in the field of distance learning (Picciano, 1998). The first asynchronous online course was offered at Hunter College in the Spring of 1997. The course, entitled Administration and Supervision of the Public Schools — The Principalship, was offered in the Division of Programs in Education. Since then, asynchronous learning has been adapted by many universities throughout the world, such as the Open University in the United Kingdom. The use of such technologies also provided educators with a tool that enabled them to provide high-quality learning to off-campus learners who have access to the Internet.

The use of online technology has enabled learners who were unable to attend face-to-face classes for demographic, physical, and other reasons to attend class from home or at work.

According to Picciano (1998), the first online courses offered by educational institutions gained the interests of students who were employed and wanted to complete their studies from home. The flexibility of asynchronous courses made it the most preferable method of interaction among learners. Hrastinski (2008) added that “many people take online courses because of their asynchronous nature, combining education with work, family, and other commitments” (p. 52). Bernard et al. (2009) argued that the benefits associated with asynchronous online learning were greater than those of synchronous ones. Chang (2006) found in his study that students favored using asynchronous communication, such as e-mails to using synchronous communication. Hrastinski (2008) stated that students who favored taking asynchronous web-based courses enrolled in these courses because in asynchronous learning settings, students are able to access the educational material at anytime and anywhere. He also added that the types of responses provided by learners were more thoughtful because learners’ immediate replies are not required as in synchronous learning settings.

Synchronous online courses refer to real-time online interaction between learners and instructors anywhere through the use of media, such as audio or video conferencing tools. “Synchronous applications of instructional technology can be traced to the use of closed-circuit television on university campuses in the 1940s. By the 1980s, video-conferencing and interactive television connected remote classrooms, allowing students to ask questions and discuss concepts” (Johnson, 2006, p. 46). The advances in the field of telecommunication, and the wide-spread adaptation of the Internet and web-based learning worldwide made it possible for instructors and learners to take online classes in real-time or at the same time.

Synchronous online courses have gained the interest of many educators as technological advances have helped them overcome some of the disadvantages which are associated with

asynchronous communications, such as “moderating large-scale conversations, lack of reflection time for students, and intimidation of poor typists” (Johnson, 2006, p. 47). Hrastinski (2008) added that both students and instructors view synchronous web-based learning as a tool that provides more ways and opportunities for social interaction. Hrastinski also pointed out that synchronous communications made learners more aware of their roles as members of the communities, rather than isolated individuals communicating via computers. Yamada and Akahori (2007) concluded in their study that social presence does have an impact on learners’ performance and productivity. The use of synchronous online courses provides both learners and instructors with opportunities to gain immediate feedback that will enable students to overcome any difficulties which they may face (Swenson & Redmond, 2009). Piskurich (2006) also stated that synchronous online courses are easier to design and implement than asynchronous online courses.

Recently, there have been many debates among educators as to which form of web-based learning is better than the other. Hrastinski (2008) suggested that educators should not debate about which one is better, but rather they should focus on understanding when, where, and how to use each type. He stated that asynchronous communication advantages include providing learners with choices regarding when and where they want to take part in the class activities. It also provides them with more time to check and refine their responses to a given topic. Disadvantages of asynchronous communication include the feeling of isolation and disconnect from other group members, and difficulties in keeping track of and facilitating the responses of large groups (Hrastinski, 2008).

In contrast, the advantages of synchronous communication include providing them with opportunities to address issues other than those being discussed, the ability to get immediate

feedback to their inquiries, form social communities, and facilitate large groups (Hrastinski, 2008). According to Oates and Rengarajan (2002), “one reason synchronous e-learning will continue to gain popularity is because it mimics a format most of us are comfortable with - the traditional classroom or instructors-led training, which thrives on real-time interaction” (p. 57). Synchronous communication provides learners with verbal and non-verbal clues which are not typically presented in asynchronous communication settings. Disadvantages include not providing learners with enough time to provide thoughtful answers to the inquiries. Thus, the focus is mainly on quantity rather than on quality. Moreover, it is difficult to initiate responses in small groups (Hrastinski, 2008).

In summary, educators need to get more insights into the advantages and disadvantages of synchronous and asynchronous communication. Piskurich (2006) pointed out that inadequate planning and implementation is associated with the educational institutions which provide online courses that do not consider the cost and effectiveness of the method of online delivery being used. He also pointed out that inadequate planning and implementation leads to unsuccessful adoption of online learning. Educators need to know when, why, and how to make use of each type. An in-depth assessment of factors affecting students’ attitudes and preference of different types of online courses is important for advocates of web-based learning. This knowledge will provide educational practitioners, educators, and curriculum designers with the necessary knowledge that will aid them in constructing productive learning environments which attend to the students’ academic, individual, and social needs.

Factors Impacting Learners' Preferences for Synchronous and Asynchronous Web-based Courses

Various studies that investigated factors impacting students' perceptions and attitudes about online courses, whether fully synchronous or asynchronous, revealed that interaction was a major factor which affected learners' perceptions and attitudes about using technology (Moore & Kearsley, 2005; Wang & Reeves, 2007). According to Moore and Kearsley (2005), "effective teaching at a distance depends on a deep understanding of the nature of interaction and how to facilitate interaction through technology transmitted communication" (p.140). They also pointed out that in web-based learning settings there are three types of interactions which include learner-content interaction, learner-learner interaction, and learner-instructor interaction. The ideas expressed by Moore and Kearsley and by various other studies all support those presented by the social-constructivist theory, which emphasized the significance of interaction, social context, and dialogue in providing a productive learning environment (Canella & Reiff, 1994; Vygotsky, 1978).

Knowing how students adopt, use, and feel about the content presented to them is very important for gaining more insight into factors impacting the students' preferences for synchronous and asynchronous web-based learning. Park (2009) presented a study investigating how postsecondary students get accustomed to using e-learning. The sample included 628 university students who had taken online courses in the spring semester of 2007 at Konkuk University's Seoul Campus. Both the Structural Equation Modeling (SEM) technique and the general structural model that was developed based on the Technology Acceptance Model (TAM) were employed in the study. The results suggested that TAM is an excellent instrument which could be utilized to gain a better understanding of users' acceptance of e-

learning. In addition, the researcher pointed out that “even though perceived usefulness and ease of use had no direct effect on university students’ intention to use e-learning, these constructs were related to the attitudes toward e-learning” (p. 159). Park added that “Overlooking these constructs could have detrimental effects on the user’s acceptance of information technology” (p. 159).

Wang and Reeves (2007) also carried out a similar study which focused on gaining more insight into the participants’ opinions about synchronous online courses. The participants in the study were four female Taiwanese students and one male Taiwanese student studying at a large university in the United States. All the participants in the study had spent one year in the United States and were enrolled in their first synchronous web-based course. A qualitative research method consisting of interviews and observations was employed by the researcher to collect data. The findings revealed that the students favored face-to-face classrooms to synchronous online courses. The study findings also highlighted the importance of instructional design of the web-based courses.

Cao, Griffin, and Bai (2009) conducted a qualitative study that investigated factors impacting synchronous interaction. The study was conducted on a sample of 102 undergraduate students taking courses in the Department of Computer Information Systems. The findings of the study suggested that students’ satisfaction with synchronous interactions impact their overall satisfaction with web-based courses. Guan (2007) also investigated factors affecting students’ success in a research class that was offered in both online and face-to-face educational formats. The sample consisted of 250 participants who took the research class in either a face-to-face or online format. Both formats of the course were offered by the same instructor and similar assignments, tests, and activities were provided to students taking the

course. Course evaluation surveys were also used to measure students' satisfaction with the course. The findings of the study suggested that there were not significant differences between students taking the course through both formats, but factors such as the duration of online courses had an impact on students' learning outcomes. Continual assessment of the effectiveness of learners' interactions with instructor, peers, and content was viewed to be an essential part of the web-based learning to ensure that the learning process is heading in the right path.

Furthermore, individual factors such as gender, learning style, and perceived usefulness of the web-based format presented can also impact the learners' preferences for synchronous and asynchronous web-based course formats. Lu and Chiou (2010) investigated the affect of predetermined contingent variables on the relationship between predictors and students' satisfaction with online courses. These included job status, gender, and learning styles. The sample consisted of 522 students who were enrolled in online courses at a Taiwanese university and who came from different departments and specializations. A questionnaire was employed by the researchers to measure the participants' satisfaction with online courses. The findings of the study suggested that there are three main factors which affect students' satisfaction in web-based learning environments which include gender, job status, and learning styles. In another Taiwanese study, Chen (2010) investigated in his study how web-based learning programs are employed. The sample in the study consisted of 110 third-year students enrolled at a technology university in central Taiwan. The findings revealed that learners with different cognitive styles felt that cognitive learning styles played an important role in their preferences of web-navigation tools. Chen recommended that educators should provide web-based instruction that accommodates different cognitive learning styles.

Jin (2005) conducted a case study investigating the characteristics of students taking web-based courses to examine their perceptions of online interactions and knowledge construction in online learning environments. The findings suggested that learners tended to be more motivated to take part in online discussions when they felt that it was related to them and their needs. Moreover, Young and Norgard (2006) pointed out that previous research indicated that students' satisfaction with online instruction was impacted by the quality of online interaction, student-student interaction, quality and timely interaction between students and instructors, consistent course design, and availability of technical support during online interaction. The researchers developed a survey to assess that quality of online course delivery. The participants in the study included 913 graduate and undergraduate students at an educational institute in the Costal Bend region in Texas. The results of the survey suggested that student satisfaction was greater among students who had more experience with online courses. Moreover, the results pointed out that faculty members needed to focus on developing online classes that attended to the needs of their students' and which provided learners with productive interaction with instructors, peers, and course content.

Offir, Lev, and Bezalel (2008) conducted a study that investigated how synchronous and asynchronous online course formats impacted students' academic achievement. The participants in the study were 160 students taking an introductory computer course to computers delivered online via synchronous and asynchronous format. A mixed-method approach was employed by the researchers to provide them with a better understanding of the phenomena. A MANOVA was adopted for data analysis. The results highlighted how the degree of interaction among students and between the students and their teachers influenced their satisfaction with online courses. The results suggested that students preferred

synchronous online course delivery format over asynchronous online course delivery as it provided a richer interaction learning environment. However, the results also pointed out that students with high-level thinking were better able to overcome the negative interaction aspects associated with asynchronous online learning.

Furthermore, if the medium of instruction differs from that of the learners, it can impact the quantity and quality of interaction between learners and their instructors, learners and their peers, and learners and content. A study was conducted by Sequeira (2009) to investigate how textual Synchronous Computer Mediated Communication (SCMC) can help students improve oral language proficiency and can motivate and enhance the students' learning of the language. The participants in the study were 56 9th and 10th grade English-speaking students enrolled in a Spanish class. Both quantitative and qualitative research methods were employed. The results suggested that engaging students in authentic interaction with other students with a higher level of language proficiency through the use of textual synchronous technology boosted their motivation and language learning experiences. Similarly, Hirotsu (2006) investigated the impact of synchronous and asynchronous Computer Mediated Communication (CMC) on the development of oral proficiency among learners of Japanese. The participants in the study were 36 novice learners of Japanese enrolled in the fourth semester Japanese at a large Midwestern university. The participants were put in three groups (synchronous and asynchronous CMC groups, and a face-to-face group). The groups were pre- and post-tested, and the findings of the subjective ratings revealed that the student favored face-to-face over the other formats, and learners felt that synchronous CMC better helped them achieve a higher level of syntactic complexity than asynchronous CMC. Moreover, McBrien, Jones, and Cheng (2009) also conducted a study that investigated undergraduate students' satisfaction with synchronous

online course format. The data was collected from participants enrolled at six undergraduate and graduate courses. The participants in the study were enrolled in three graduate and undergraduate courses at a university in Florida. Elluminate Live was the software employed in this study. The participants were urged to complete course evaluation surveys. The results of this study pointed out that even though the participants were satisfied with the experiences they gained through the use of synchronous online platforms, they felt that using too many stimuli in synchronous online interaction and lack of non-verbal communication can cause confusion among learners. The study also found that technological difficulties affect students' attitudes and perceptions about synchronous online learning environments.

In summary, educators should realize that learners hold the key to the success or failure of web-based learning. In order for educators to provide learners with high-quality learning they should continually assess the usefulness of web-based instruction, pay attention to their students learning styles, and make sure that web-based learning environments attend to learners' academic, societal, and individual needs.

Importance of Gaining Feedback about Students' Preferences for Online Courses

Currently, education in its various forms throughout the world is to attend to learners' needs and help them construct meaningful knowledge which relates to their lives. Many educators today feel that the constructivist theory forms the basis of web-based learning as it highlights that learners are the key to the success of web-based learning in its various forms. Therefore, continual feedback from students taking web-based courses will provide administrators and educators with an overview of how successful the teaching-learning process is. According to Park (2009), it "is necessary that managers and developers of e-learning help students confirm or increase their perception positively through e-learning" (p. 159).

Moreover, teachers, curriculum designers, and web-courses designers need to gain insights into what factors affect students' interaction in online learning settings, what kind of instructional design and online courses delivery formats students prefer, and how instructors and curriculum designers could play a major role in maximizing the benefits students gain from online courses, as well as boost their motivation and preferences for web-based courses.

According to Espasa and Meneses (2010), "feedback as a tool to promote the regulation of learning could be the key to good teaching practice, especially in online environments" (p. 290).

The purpose of this study is to provide educators, curriculum designers, and online course designers both in the United States and Saudi Arabia with an understanding of factors affecting Saudi college level student's preferences for synchronous and asynchronous online learning. With this information, educators, curriculum designers, and online course designers can make use of this knowledge in constructing better courses that attend to the various needs of Saudi students enrolled in web-based courses.

CHAPTER 3

Methodology

This study investigated factors affecting Saudi college-level students' preference for either asynchronous or synchronous web-based learning. The population of this study was limited to undergraduate Saudi students who took, or were taking web-based courses at Indiana State University. A hard copy survey (questionnaire) was distributed to the participants in this study. The outcome of this study was to provide both Saudi and American university curriculum designers, online courses designers, and instructors with useful information about college-level Saudi students' preferences in web-based courses. Moreover, this knowledge can be used to aid universities in developing better instruction for web-based learners in Saudi Arabia.

This study was based on the methodology utilized by Burton (2009) in his study *Development and Analysis of a Survey Assessing Eleventh Grade High School Students' Preferences for Specific Types of Online Course Structures*, which was conducted in the United States. The purpose of his research was to develop a survey to determine high school students' preferences for various types of online course structures, such as face-to-face, hybrid, synchronous, and asynchronous. The target population consisted of high school juniors. The results suggested that the majority of the participants favored hybrid courses over other forms

of online course structures. In contrast, the current study only focused on Saudi students' preferences for synchronous and asynchronous online courses.

Research Questions

Based on the literature review and the statement of the problem, a set of research questions was developed. These questions include:

- Are there significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on the number of credit hours successfully completed?
- Are there significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on learners' perception of their English language proficiency level?
- Is there a significant interaction between the number of hours successfully completed and learners' perceptions of their English language proficiency on preference for synchronous learning?
- Are there significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on the number of credit hours successfully completed?
- Are there significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on learners' perception of their English language proficiency level?
- Is there a significant interaction between the number of hours successfully completed and learners' perceptions of their English language proficiency on preference for synchronous learning for online courses delivered in Arabic?

- Are there significant differences between preferences for synchronous learning in English (L2) and preferences for synchronous learning in Arabic (L1)?

The null hypotheses for this study are:

- There are no significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on the number of credit hours successfully completed.
- There are no significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on learners' perception of their English language proficiency level.
- There is no significant interaction between the number of hours successfully completed and learners' perceptions of their English language proficiency on preference for synchronous learning.
- There are no significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on the number of credit hours successfully completed.
- There are no significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on learners' perception of their English language proficiency level.
- There is no significant interaction between the number of hours successfully completed and learners' perceptions of their English language proficiency on preference for synchronous learning for online courses delivered in Arabic.
- There are no significant differences between preferences for synchronous learning in English (L2) and preferences for synchronous learning in Arabic (L1).

Research Design

A survey research design was used in this quantitative study. The survey approach was utilized to enable the researcher to collect data for testing the null hypotheses and provide answers to the research questions by evaluating the preferences of the participants in this study toward synchronous and asynchronous web-based courses. The participants in this study were limited to undergraduate Saudi students enrolled at Indiana State University. The population consisted of 110 Saudi students. Only undergraduate Saudi participants who were at least 18 or older and who had taken or were taking web-based courses at Indiana State University were invited to participate in this study. The instrument was designed to ask participants structured and predefined questions. The survey instrument took between 10- and 20-minutes for participants to complete. The survey included closed-ended items that were used to determine an account of the survey participants based on their demographic factors, to analyze their responses to the measurable items of the survey, and to examine the significance of the selected variables which impacts the participants' preferences for synchronous and asynchronous web-based learning. A four-point Likert scale was used to gain an overall score that would indicate the students' preferences for synchronous and asynchronous web-based courses. Data was gathered from the participants in this study at one time through use of a hard-copy survey. A 3x4 ANOVA statistical design was to be used to measure learners' preferences for synchronous and asynchronous web-based courses. Summaries of the quantitative data through descriptive and inferential statistical analysis were analyzed and discussed in detail in Chapter 4. The findings and recommendations for further research based on the results are included in chapter 5.

Study Setting

The survey (questionnaire) was distributed to Saudi undergraduate students who had enrolled or were enrolled in online courses at Indiana State University (ISU). ISU was founded in 1865 under the name of Indiana State Normal School and in 1929 was renamed Indiana State Teachers College and Indiana State College in 1961. In 1965, the college was renamed Indiana State University. The total enrollment for 2010-11 was 10,534, which included 8,460 undergraduate students and 2,074 graduate students.

Population and Sample

This research study was conducted with undergraduate Saudi students at Indiana State University, who took, or who were taking, web-based courses between the fall semester of 2010 and the spring semester of 2011. The convenience sample included only undergraduate Saudi students 18 years or older who were willing to take part in this study. Of the 110 potential participants, 82 completed the survey.

Variables

Research questions mainly addressed two issues. The first issue pertains to how the language confidence affected Saudi college level students' preference for synchronous and asynchronous web-based learning. Research on the second issue pertained to how the number of hours successfully completed by the students affected the Saudi college-level students' preference for synchronous web-based learning. For both variables of interest, there were 22-items on the survey that were used to measure students' preferences in web-based courses. The number of hours successfully completed by the students and their perceptions about their English language proficiency level represented the independent variables, while students'

preferences for synchronous and asynchronous web-based courses represented the dependent variables in this study.

Instrumentation

For this study, data was collected using a modified version of a survey that was designed by Burton (2009). Dr. Burton gave his permission for the researcher to adapt his original survey to meet the instrumentation needs of this study (Appendix B). The original survey was modified by this researcher so that it could be limited to only fully asynchronous and synchronous web-based course structures and be appropriate for the research questions and sample population. The modified survey included only 22 items, which measured students' preferences for synchronous and asynchronous web-based courses as the other items in the original survey addressed other formats of web-based learning which included mixed synchronous and asynchronous online courses, hybrid courses with an on-site instructor, and hybrid courses with an on-site facilitator.

The items of the survey were divided into three sections. The first section included basic demographic information and items from 1 to 5 addressed this section. The second section consisted of items from 6 to 16. It included statements about students' preferences for both synchronous and asynchronous web-based courses when the medium of instruction for the online courses was English. The third section consisted of items from 17 to 27. It included statements about students' preferences for both synchronous and asynchronous web-based courses when the medium of instruction for the online courses was Arabic.

Measurement

For *Part 1* of the survey, each item was rated on the basis of respondents' answers. For *Parts 2* and *3*, questions were measured on a 4-point Likert scale. There were two types of

question formats on the 4-point Likert scale. The first format of the 4-point Likert scale ranged from 1 to 4 with (1) *regularly* (2 or more times per week), (2) *occasionally* (2 to 4 times per month), (3) *infrequently* (2 to 4 times per course), and (4) *rarely* (once or never per course). Items 6, 7, 8, 12, 13, 17, 18, 19, 23 and 24 used the first format of a 4-point Likert scale. The second format of the 4-point Likert scale ranged from 1 to 4 with (1) *strongly agree*, (2) *agree*, (3) *disagree*, and (4) *strongly disagree*. Items 9, 10, 11, 14, 15, 16, 20, 21, 22, 25, 26, and 27 used the second format of the 4-point Likert scale. Where appropriate, items were reverse-scored.

Reliability and Validity of the Survey

Validity refers to the degree to which a survey instrument can truly measure the concept it is supposed to measure (Slavin, 1992). Reliability refers to the degree to which a survey instrument consistently measures whatever it is intended to measure (Slavin, 1992).

Cronbach's alpha coefficient, one of the most commonly used measures of reliability to determine the internal consistency of various measuring instruments (Cronbach, 1951), was used to measure the reliability for the research questionnaire developed by Burton (2009) for his study. Cronbach's alpha coefficient for Burton's survey was $\alpha = 0.785$ for all 20-items presented in the survey, and this is considered to be an acceptable level for reliability. The survey instrument was further modified by the current researcher, and only items which did not relate to the research question were deleted. Since no new items were added to the survey, it was assumed that the validity and reliability of the survey remained constant.

Procedures

The survey was administered at Indiana State University after the researcher completed all the Institutional Review Board (IRB) forms. The entire population that met the criteria was

invited to participate in the study. Data was collected during two meetings with participants. Fixed dates were scheduled for participants on the campus of Indiana State University after the researcher made arrangements with members of the Saudi Club in Terre Haute. Initial contact with participants was made using e-mails generated from the Saudi Club database for Saudi students, and the time and location of the meeting were included within the emails received by the participants. The second meeting with the participants was set for those who did not attend the first meeting. On the meeting days the participants were provided with an overview of the research and were also provided with the opportunity to ask questions before participating in this study. Writing utensils were handed out. Participants were informed that the survey was anonymous and that the participants in the study were not going to be identified by name or other means. They were also assured about the confidentiality of the information and that it was only going to be used for the purpose of answering the research questions set by this study. The participants were also informed that at any time during the session, they could choose to discontinue participation and take their copy of the survey or destroy it. After all the participants completed the surveys, they were instructed to place them in a secure file box that was provided by the researcher. At no time were the participants or the surveys left unattended during the administration periods. After all of the participants completed their copy of the survey, they were informed that their contribution to the research was appreciated and highly valued by the researcher. The researcher secured the data and utilized it for data analysis under secure and private conditions. Finally, after the researcher collected all the data from the participants, the researcher stored it in a secure database. The researcher was the only person allowed access to the database records and the collected data was only used for the purpose of answering the questions set by the researcher of this study.

Risks and Benefits

This research involved minimal risk to the participants. The researcher did not ask the participants to connect themselves with data, and the participants did not know the specific criteria by which they had been selected. Students were only asked to provide the minimum information needed for this study which includes identifying how many hours of university credit they had successfully completed and their perception about their language proficiency level. Other demographic information which included age, major, and gender were utilized for statistical description of the sample and population of the study and were not used for identification purposes.

Data Collection

The participants were asked to complete the survey during the meetings times set by the researcher. During the meetings the researcher distributed a hard copy survey to all the participants who met the criteria set by the study.

Data Analysis

Data analysis was based on students' responses to the preferences questions. A 4-point Likert scale was used to gain an overall score that indicated the students' preferences for synchronous and asynchronous web-based courses. Higher scores referred to stronger preferences for synchronous web-based learning, while low scores referred to stronger preferences for asynchronous web-based learning. The number of hours successfully completed by the students and their perceptions about their English language proficiency level represented the independent variables, while students' preferences for synchronous and asynchronous web-based courses represented the dependent variables in this study. The number of hours successfully completed for the independent variable consisted of four levels

which include: freshman (0-31 credit hours), sophomore (32-62 credit hours), junior (63-93 credit hours), and senior (94 and above credit hours). The students' perceptions about their English language proficiency variable consisted of three levels which included: "I have little confidence," "I am somewhat confident," and "I am highly confident." Items 1 through 3 were only used for statistical description of the sample. Moreover, Items 4 and 5 on the survey provided information about participants' perceptions of their language proficiency and how many hours they have successfully completed. The rest of the items on the survey provided information about students' preferences for synchronous or asynchronous web-based courses. Two 3x4 factorial ANOVA analysis of variance tests were to be used to measure each independent variable in this study. The first test consisted of a 3x4 factorial ANOVA analysis of variance test, and it was used to measure learners' preferences for synchronous and asynchronous web-based courses when the courses were delivered in English for each specified individual variable specified in this study. The second test consisted of a 3x4 ANOVA analysis of variance test, and it was used to measure learners' preferences for synchronous and asynchronous web-based courses when the courses were delivered in Arabic. A repeated measures test (paired sample *t*-test) was used to answer the question about whether there were significant differences in preferences for synchronous online learning in English and preferences for synchronous online learning in Arabic. The results of the ANOVA tests and the repeated measures were used to test the null hypotheses presented in this study.

Summary

Included in this chapter was a detailed description of the methodologies used to conduct the research study. A description of the research design, population and sample, procedures, instrument that was utilized, and how the data was collected and analyzed was presented in this

chapter. Study participants were limited to undergraduate Saudi college level students at Indiana State University, who took or were taking web-based courses. ANOVA and repeated measures tests were employed to determine the relationship between independent and dependent variables.

CHAPTER 4

Results of the Study

This chapter describes the results of a quantitative study that investigated factors impacting Saudi undergraduate students' enrolled at Indiana State University (ISU) preferences for synchronous and asynchronous web-based courses. More specifically, the focus of this study was how the number of courses completed and the participants' perception of their English language competence impacted their preferences for synchronous and asynchronous web-based learning in English instruction and in Arabic instruction. The sample consisted of 82 undergraduate Saudi undergraduate students enrolled at ISU during the spring of 2011. A hard copy modified version of a survey designed by Burton (2009) was utilized for this study. The survey contained 27 items which were divided into three parts. Part one dealt with demographic data (Items 1-5), part two dealt with learners' preferences when online courses were delivered in English (Items 6-16), and part three dealt with learners' preferences when courses are delivered in Arabic (Items 17-26).

Organization of Data Analysis

Data analysis was based on students' responses to the preferences questions presented in parts two and three of the survey. A four-point Likert scale was utilized to gain an overall score of students' preferences for synchronous and asynchronous web-based courses. The research instrument consisted of 27 items, and data were aggregated for all items with the exceptions of

Items 6, 9, 11, 17, 20, and 22, which were reverse-scored. Higher scores referred to stronger preferences for synchronous web-based learning while lower scores referred to stronger preferences for asynchronous web-based learning. The independent variables consisted of the numbers of hours successfully completed (freshman, sophomore, junior, and senior) by the students and their perceptions about their English language proficiency level (“I have little confidence”, “I am somewhat confidence”, and “I am highly confident”). Analysis of variance tests (ANOVA) were utilized to measure each independent variable in this study. The original plan consisted of using two 3x4 ANOVA tests, but due to the lack of power, as some cells had a very small number of participants in them, running such tests was impossible. Instead one-way ANOVA tests were utilized to test the null hypotheses presented in this study. A repeated measures test (paired samples *t*-test) was used to answer the question about whether there were significant differences in preferences for synchronous online learning in English and preferences for synchronous online learning in Arabic.

Descriptive Characteristics of Respondents

Descriptive statistics (frequencies, means, and standard deviations, skewness, and kurtosis) were used to conduct the demographic data analyses for gender, age, number of courses successfully completed, and the learners’ perception of their English language proficiency level.

Table 1

Descriptive Statistics for Gender

Gender	<i>F</i>	Percent
Female	6	7.3
Male	76	92.7
Total	82	100.0

Table 2

Descriptive Statistics for Age

Age	<i>F</i>	Percent
18 – 22	19	23.2
23 – 27	53	64.6
28 – 32	8	9.8
33 and above	2	2.4
Total	82	100.0

As presented in Table 1, the sample consisted of 82 Saudi undergraduate students enrolled at Indiana State University during the Spring semester of 2011. Ninety three percent of the sample was male ($n = 76$), while 7% of the sample was female ($n = 6$). Ages ranged from 19 to 40. As illustrated in Table 2, 65% of the sample ranged in age from 23 to 27, while 23% of the participants' ages ranged from 18 to 22, 10% of the participants' ages ranged from 28 to 32, and 2% of the participants' ages were 33 and older.

As shown in Table 3, major was categorized as technology ($n = 42$; 51%), business ($n = 33$; 40%), education ($n = 2$; 2%), nursing, health, and human services ($n = 2$; 2%), mathematics and computer science ($n = 1$; 1%), geology ($n = 1$; 1%), and history ($n = 1$; 1%). The majority of subjects were specialized either in technology (42%) or in business (40%). On the other hand, a minority of the students reported majoring in geology (1%), history (1%), and science (1%). As shown in Table 4 class standing was categorized as “freshman” ($n = 25$; 30%), “sophomore” ($n = 17$; 21%), “junior” ($n = 24$; 29%), and “senior” ($n = 16$; 20%).

Table 3

Descriptive Statistics for Major

Major	<i>F</i>	Percent
Business	33	40.2
Mathematics and Computer Science	1	1.2
Technology	42	51.2
Education	2	2.4
Nursing, Health, and Human Services	2	2.4
Geology	1	1.2
History	1	1.2
Total	82	100.0

Table 4

Descriptive Statistics for the Number of Successfully Completed Courses

Class Standing	<i>F</i>	Percent
Freshman	25	30.5
Sophomore	17	20.7
Junior	24	29.3
Senior	16	19.5
Total	82	100.0

Table 5

Descriptive Statistics for Level of Confidence in Using the English Language

English Language Proficiency Level	<i>F</i>	Percent
I have little confidence	15	18.3
I am somewhat confident	46	56.1
I am high confident	21	25.6
Total	82	100.0

Table 5 revealed that when the participants in this study were asked to self-assess their level of confidence in using the English language, the majority of the sample ($n = 46$; 56%) felt that they are somewhat confident, while 25% of the sample ($n = 16$) felt that they are highly confident, and 21% of the sample ($n = 15$) felt that they have little confidence.

Table 6

Descriptive Statistics for the Dependent Variables (English Instruction & Arabic Instruction)

Descriptive Statistics	English Instruction	Arabic Instruction
Mean	2.94	3.01
<i>SD</i>	.38	.40
Skewness	-.02	-.04
Kurtosis	-.62	.22

Descriptive statistics for the dependent variable for English instruction ($M = 2.94$, $SD = .378$) and both skew (-.015) and kurtosis (-.619) fell within the acceptable limits of normality as shown in Table 6. Moreover, Table 6 also shows descriptive statistics for the dependent for Arabic instruction ($M = 3.01$, $SD = .40$). Both skew (-.040) and kurtosis (.219) fell within the acceptable limits of normality.

Table 7

Descriptive Statistics for Items 6 to 27

Item	Preferences for English Instruction		Preferences for Arabic Instruction	
	Mean	<i>SD</i>	Mean	<i>SD</i>
How often do I want to communicate with my instructor when the course is offered in ...?	2.73	.96	2.80	.96
How often do I want to interact with my instructor during the course when the course is offered in ...?	2.78	.99	2.95	.97
How often do I want to interact in real-time with my classmates during class when the course is offered in ...?	2.72	.82	2.93	.99

Table 7 (continued)

Item	Preferences for English Instruction		Preferences for Arabic Instruction	
	Mean	<i>SD</i>	Mean	<i>SD</i>
I prefer to learn new material by studying on my own when the course is offered in	2.87	.58	3.15	.67
Interaction with my teacher in real-time is important for me when the course is offered in	3.04	.64	3.11	.59
I prefer flexibility in the time of day when I work on class work when the course is offered in	3.10	.49	3.09	.65
How frequently do I want deadlines to help me stay motivated to complete assigned work when the course is offered in ...?	2.89	.74	2.96	.78
How often do I want a class to meet in real time online, assuming a class length between 45 to 90 minutes when the course is offered in ...?	2.80	.89	2.82	.85
I prefer learning new material by having someone explain it to me in real time when the course is offered in	3.13	.62	3.04	.67
I prefer learning new material by discussing it with others in real time when the course is offered in	3.09	.53	3.05	.54
I prefer to have a direct conversation with a teacher if I have a question when the course is offered in	3.16	.73	3.18	.57

A reliability analysis was carried out to check the consistency and reliability of the instrument. The reliability with Cronach's alpha coefficient with 22 items (part 2 & 3 of the survey) was .77. Thus, the analysis suggested that the scale scores had reasonable consistency in responses among 22 items in this study.

Table 7 indicated the means and standard deviations for part two (Items 6 to 16) and part three (Items 16 to 27). For part two, the participants scored highest on item 16 ($M = 3.16$, $SD = .73$), which was related to having direct interaction with course instructor(s) and they scored the lowest responses on Item 8 ($M = 2.72$, $SD = .82$), which was related to meeting online with their classmates in real-time. This indicated that participants felt that direct interaction with online English course instructors was the most important activity to them, and they felt that direct interaction with their classmates in online English learning environment was the least important activity in online settings. Moreover, they also showed agreement on Item 11 ($M = 3.10$, $SD = .49$), which was related to having more flexibility in time for online courses, Item 14 ($M = 3.13$, $SD = .62$), which was related to having someone explain the new material to them, and Item 15 ($M = 3.09$, $SD = .53$), which was related to learning new material through discussions with others.

For part three of the survey, the participants scored highest on Item 27 ($M = 3.18$, $SD = .57$), which related to establishing direct interaction with course instructor(s) and the lowest responses on Item 17 ($M = 2.80$, $SD = .96$), which was related to the frequency of communicating with courses instructor(s). This indicated that participants felt that direct interaction with online Arabic courses instructors was very important to them, while they felt that the frequency of communication with instructors for online courses delivered in Arabic was the least important activity to them in online settings. Moreover they also showed agreement on the Item 20 ($M = 3.18$, $SD = .57$), which was related to having synchronous interaction with the course instructor(s), Item 21 ($M = 3.09$, $SD = .65$), which was related to having more flexibility in time for online courses, Item 22 ($M = 3.04$, $SD = .67$), which was related to having someone explain the new material to them, and Item 15 ($M = 3.05$, $SD = .54$), which was

related to learning new material through discussions with others. Their responses differed from the ones provided for part two in that they also showed agreement on Item 20 which indicated that the majority of them favored learning new material on their own when the online courses are delivered in Arabic.

Table 7 illustrated that the majority of respondents' scored approximately the same high scores on items related to interaction with the course instructor (Items 10 and 21), flexibility in time for online courses (Items 11 and 22), having someone explain the new material to them (Items 14 and 25), learning new material through discussions with others (Items 15 and 26), and having direct conversations with the teacher (Items 16 and 27). Moreover, they scored the highest responses on the same corresponding Item 16 ($M = 3.16, SD = .73$) and Item 27 ($M = 3.18, SD = .57$). Thus, the language of instruction (English \ Arabic) for the online course did not impact their preferences for synchronous and asynchronous web-based courses.

Analysis of Data

Research questions and corresponding null hypotheses were developed for this study.

The research questions included:

- Q1. Are there significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on the number of credit hours successfully completed?
- Q2. Are there significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on learners' perception of their English language proficiency level?

- Q3. Is there a significant interaction between the number of hours successfully completed and learners' perceptions of their English language proficiency on preference for synchronous learning?
- Q4. Are there significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on the number of credit hours successfully completed?
- Q5. Are there significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on learners' perception of their English language proficiency level?
- Q6. Is there a significant interaction between the number of hours successfully completed and learners' perceptions of their English language proficiency on preference for synchronous learning for online courses delivered in Arabic?
- Q7. Are there significant differences between preferences for synchronous learning in English (L2) and preferences for synchronous learning in Arabic (L1)?

The research questions are presented in a certain order to make it easier for the reader to compare and contrast the results presented in this part. Each question on preferences for online courses delivered in English (Q1, Q2, and Q3) is followed by a corresponding question for preferences for online courses delivered in Arabic (Q4, Q5, and Q6) with the exception of seventh question. The research questions are presented in the following order: (Q1 and Q4), (Q2 and Q5), and (Q3 and Q6).

Research question 1. Are there significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on the number of credit hours successfully completed?

Table 8

ANOVA Test for Courses Delivered in English (English Instruction)

	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	Sig.
Between Groups	.32	3	.11	.73	.538
Within Groups	11.23	78	.14		
Total	11.55	81			

Table 9

Descriptive Statistics for the Grade Level and English Instruction

Grade Level	<i>N</i>	Mean	<i>SD</i>
Freshman	25	2.93	.41
Sophomore	17	2.85	.42
Junior	24	3.02	.35
Senior	16	2.91	.33
Total	82	2.94	.38

Levene's statistical test was not significant ($p = .607$), which means that the assumption of homogeneity of variance was not violated. Table 8 revealed that there was no statistically significant difference in preferences for synchronous learning for online courses delivered in English between student groups based on the number of credit hours successfully completed, $F(3,78) = .73, p = .538$. Therefore, no additional analyses for this question were needed. The descriptive statistics as shown in Table 9 revealed that overall juniors ($M = 3.02, SD = .35$)

showed a greater preferences for synchronous web-based learning than freshmen ($M = 2.93$, $SD = .41$), and sophomores ($M = 2.85$, $SD = .42$), and seniors ($M = 2.94$, $SD = .38$).

Research question 4. Are there significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on the number of credit hours successfully completed?

Table 10

ANOVA Test for Online Courses Delivered in Arabic (Arabic Instruction)

	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	Sig.
Between Groups	.63	3	.21	1.31	.277
Within Groups	12.59	78	.16		
Total	13.22	81			

Levene's statistical test was not significant ($p = .307$), which means that the assumption of homogeneity of variance was not violated. Table 10 revealed that there was no statistically significant difference in preferences for synchronous learning for online courses delivered in English between student groups based on the number of credit hours successfully completed, $F(3,78) = 1.31$, $p = .277$. Therefore, no additional analyses for this question were needed. As shown in Table 11 the descriptive statistics revealed that overall in contrast to the case when the medium of instruction is English, the participants showed both juniors ($M = 3.13$, $SD = .44$) and seniors ($M = 3.01$, $SD = .31$) showed a greater preference for synchronous web-based learning than freshmen ($M = 2.95$, $SD = .46$), and sophomores ($M = 2.90$, $SD = .32$).

Table 11

Descriptive Statistics for the Grade Level and Arabic Instruction

Grade Level	<i>N</i>	Mean	<i>SD</i>
Freshman	25	2.95	.46
Sophomore	17	2.90	.32
Junior	24	3.13	.44
Senior	16	3.01	.31
Total	82	3.00	.40

Research question 2. Are there significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on learners' perception of their English language proficiency level?

Table 12

ANOVA Test for Online Courses Delivered in English

	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	Sig.
Between Groups	.34	2	.17	1.20	.306
Within Groups	11.21	79	.14		
Total	11.55	81			

Table 13

Descriptive Statistics for the Level of English Confidence and English Instruction

English Language Proficiency Level	<i>N</i>	Mean	<i>SD</i>
I have little confidence	15	3.07	.40
I am Somewhat confident	46	2.90	.35
I am Highly confident	21	2.91	.41
Total	82	2.94	.38

Levene's statistical test was not significant ($p = .585$), which meant that the assumption of homogeneity of variance was not violated. Table 12 revealed that there was no statistically significant difference in preferences for synchronous learning for online courses delivered in English between student groups based on the number of credit hours successfully completed, $F(2,79) = 1.20, p = .306$. Therefore, no additional analyses for this question were needed. As illustrated in Table 13, the descriptive statistics results revealed that students whose response was "I have little confidence" ($M = 3.07, SD = .40$) showed a greater preference for synchronous web-based learning than those whose response was "I am somewhat confident" ($M = 2.90, SD = .35$), and those whose response was "I am highly confident" ($M = 2.91, SD = .41$).

Research question 5. Are there significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on learners' perception of their English language proficiency level?

Table 14

ANOVA Test for Online Courses Delivered in Arabic

	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	Sig.
Between Groups	.06	2	.03	.17	.846
Within Groups	13.16	79	.17		
Total	13.22	81			

Table 15

Descriptive Statistics for the Level of English Confidence and Arabic Instruction

English Language Proficiency Level	<i>N</i>	Mean	<i>SD</i>
I have little confidence	15	2.95	.50
I am Somewhat confident	46	3.02	.41
I am Highly confident	21	3.02	.31
Total	82	3.01	.40

Levene's statistical test was not significant ($p = .241$), which meant that the assumption of homogeneity of variance was not violated. Table 14 revealed that there was no statistically significant difference in preferences for synchronous learning for online courses delivered in Arabic between student groups based on the number of credit hours successfully completed, $F(2,79) = .31, p = .846$. Therefore, no additional analysis for this question was needed. As shown in the Table 15 the descriptive statistics revealed that overall, when the medium of instruction was Arabic, students who responded by selecting "I am somewhat confident" (M

=3.02, $SD = .41$) and “I am highly confident” ($M = 3.02$, $SD = .31$) showed greater preferences for synchronous web-based learning than those who selected “I have little confidence” ($M = 2.95$, $SD = .50$). In contrast, when the medium of instruction was in English, students who had little confidence in their English language proficiency felt a lesser need for synchronous web-based courses when the medium of instruction was Arabic.

Research question 3. Is there a significant interaction between the number of hours successfully completed and learners’ perceptions of their English language proficiency on preference for synchronous learning?

Table 16 illustrates that there was a very small number of cases in the cells identified with (*) making a 2-way ANOVA impossible due to lack of power. Therefore, the interaction between number of credit hours successfully completed and learners’ perceptions of their English language proficiency could not be tested in the present study.

Research question 6. Is there significant interaction between the number of hours successfully completed and learners’ perceptions of their English language proficiency on preference for synchronous learning for online courses delivered in Arabic?

Similarly, Table 16 illustrates that there was a very small number of cases in the cells identified with (*) making a 2-way ANOVA impossible due to lack of power. Therefore, the interaction between the number of credit hours successfully completed and learners’ perceptions of their English language proficiency could not be tested in the present study.

Table 16

Descriptive Statistics for Dependent Variable: English Instruction

Item 4 (N. of Courses)	Item 5 (Level of Confidence)	Mean	SD	N
Freshman	I have little confidence	3.04	.384	10
	I am Somewhat confident	2.88	.430	12
	I am Highly confident*	2.76	.420	3
	Total	2.93	.410	25
Sophomore	I have little confidence*	2.91	.470	3
	I am Somewhat confident	2.89	.347	11
	I am Highly confident	2.64	.730	3
	Total	2.85	.420	17
Junior	I have little confidence*	3.45	.000	1
	I am Somewhat confident	2.96	.330	16
	I am Highly confident	3.10	.365	7
	Total	3.02	.350	24
Senior	I have little confidence*	3.55	.000	1
	I am Somewhat confident	2.83	.300	7
	I am Highly confident	2.91	.300	8
	Total	2.91	.329	16
Total	I have little confidence	3.07	.400	15
	I am Somewhat confident	2.90	.350	46
	I am Highly confident	2.91	.410	21
	Total	2.94	.380	82

Note. * indicates cells with too few respondents.

Research question 7. Are there significant differences between preferences for synchronous learning in English (L2) and preferences for synchronous learning in Arabic (L1)?

Table 17

Paired Sample Test

		Mean	SD	<i>t</i>	<i>df</i>	Sig. (2-tailed)
Pair-1	English Instruction Arabic Instruction	-.07	.47	-1.35	81	.181

Note. * $p < .05$

A paired sample *t* test was conducted to determine if there were significant differences between preferences for synchronous learning in English (L2) and preferences for synchronous learning in Arabic (L1). As shown in Table 17, there were no significant differences between preferences for synchronous learning in English (L2) ($M = 2.93$, $SD = .47$) and preferences for synchronous learning in Arabic (L1) ($M = 3.01$, $SD = .40$); $t(81) = -1.35$, $p > .05$.

Summary

The current study was conducted in order to answer seven research questions:

- Q1. Are there significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on the number of credit hours successfully completed?
- Q2. Are there significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on learners' perception of their English language proficiency level?

- Q3. Is there a significant interaction between the number of hours successfully completed and learners' perceptions of their English language proficiency on preference for synchronous learning?
- Q4. Are there significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on the number of credit hours successfully completed?
- Q5. Are there significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on learners' perception of their English language proficiency level?
- Q6. Is there a significant interaction between the number of hours successfully completed and learners' perceptions of their English language proficiency on preference for synchronous learning for online courses delivered in Arabic?
- Q7. Are there significant differences between preferences for synchronous learning in English (L2) and preferences for synchronous learning in Arabic (L1)?

Descriptive statistics, frequencies, means, and standard deviations were employed to answer the demographic data analyses; gender, age, major, number of courses successfully completed, and the learners' perceptions of their proficiency level of English language. Eighty-two Saudi undergraduate male and female students enrolled at ISU participated in this study.

Descriptive statistics (frequencies, means, standard deviations, skewness, and kurtosis) were utilized to analyze students' preference on Items 6 to 27. The reliability with Cronbach's alpha coefficient with 22 items (6 to 27) was .77 which suggested that the scale scores were reasonably reliable for respondents in this study. The descriptive statistics showed that the most agreed upon items for parts two and three were Items 16 and 27 which were related to

establishing direct interaction with the courses instructors. The descriptive statistics also revealed that the participants expressed nearly the same degree of agreement on some items from part two, which examined learners' preferences for web-based courses delivered in English and their corresponding items from part three, which examined learners' preferences for courses delivered in Arabic. These include interaction with the course instructor (Item 10 and 21), flexibility in time for online courses (Item 11 and 22), having someone explain the new material to them (Item 14 and 25), learning new material through discussions with others (Item 15 and 26), and having direct conversations with the teacher (Item 16 and 27).

The one-way ANOVA tests for English instruction revealed that there were no significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on the number of credit hours successfully completed, $F(3,78) = .728, p > .05$ or based on the number of credit hours successfully completed, $F(3, 78) = 1.31, p > .05$. Similarly, the one-way ANOVA tests for Arabic instruction revealed that there were no significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on learners' perception of their English language proficiency level, $F(2,79) = 1.20, p > .05$ or on based on learners' perception of their English language proficiency level, $F(2, 79) = .31, p > .05$. The researcher was not able to conduct two-way ANOVA tests as previously planned due to lack of power as some cells contained a very small number of cases. A paired sample t -test revealed that there were no significant differences between preferences for synchronous learning in English (L2) and preferences for synchronous learning in Arabic (L1) as $t(81) = -1.35; p > .05$. Chapter 5 presents a detailed discussion of the current results of the study. The chapter also provides conclusions, implications and recommendations for future study.

CHAPTER 5

Discussion, Conclusions, Implications, and Recommendations for Future Research

The purpose of this study was to investigate how the independent variables, which include the number of hours successfully completed and the learners' perceptions of their English language proficiency level, affect Saudi college level students' preferences for synchronous or asynchronous web-based learning. The current study was conducted in order to investigate the following research questions:

- Q1. Are there significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on the number of credit hours successfully completed?
- Q2. Are there significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on learners' perception of their English language proficiency level?
- Q3. Is there a significant interaction between the number of hours successfully completed and learners' perceptions of their English language proficiency on preference for synchronous learning?
- Q4. Are there significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on the number of credit hours successfully completed?

- Q5. Are there significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on learners' perception of their English language proficiency level?
- Q6. Is there a significant interaction between the number of hours successfully completed and learners' perceptions of their English language proficiency on preference for synchronous learning for online courses delivered in Arabic?
- Q7. Are there significant differences between preferences for synchronous learning in English (L2) and preferences for synchronous learning in Arabic (L1)?

The sample consisted of 82 undergraduate Saudi students enrolled at ISU during the Spring of 2011. Of the 82 participants 76 were male and 6 were female. The participants' ages ranged from 19 to 40. A modified hard copy version of a survey designed by Burton (2009) was utilized for this study. Both descriptive statistics, as well as analysis of variance tests (ANOVA), were utilized to address the research questions presented in this study.

Research Findings

Descriptive statistics, frequencies, means, and standard deviations were employed to answer the demographic data analyses; gender, age, major, number of courses successfully completed, and the learners' perceptions of their proficiency level of English language. Eighty-two Saudi undergraduate students enrolled at ISU participated in this study. The majority of the sample majored either in technology or in business. The study consisted of 25 freshmen, 17 sophomores, 24 juniors, and 16 seniors. Forty-six participants reported that they were somewhat confident of their level of English language proficiency level, 16 participants reported that they were highly confident, and 15 participants reported having little confidence.

Descriptive statistics (frequencies, means, standard deviations, skewness, and kurtosis) were utilized to analyze students' preferences on survey Items 6 to 27. The reliability with Cronbach's alpha coefficient with 22 items (6 to 27) was .77 which suggested that the scale scores were reasonably reliable for respondents in this study. The descriptive statistics showed that the items most agreed upon for parts two and three of the surveys were Items 16 and 27 which were related to having direct conversations with a teacher. The descriptive statistics revealed that the participants' mean scores were also high for Items 10 and 21 which were related to having interaction with the course instructor, Items 11 and 22 which were related to flexibility in time for online courses, Items 14 and 25 which were related to having someone explain the new material to them, and Items 15 and 26 which were related to learning new material through discussions with others.

One-way ANOVA tests were conducted to investigate if there were significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on the number of credit hours successfully completed. The results of the test revealed that there were no significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on the number of credit hours successfully completed, $F(3,78) = .728, p > .05$. Similarly, one-way ANOVA tests were employed to investigate if there were significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on the number of credit hours successfully completed. The results of the test revealed that there were no significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups, based on the number of credit hours successfully completed, $F(3,78) = 1.309, p > .05$.

One-way ANOVA tests were also utilized to investigate if there were significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on learners' perceptions of their English language proficiency level. The results of the test revealed that there were no significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on learners' perceptions of their English language proficiency level, $F(2,79) = 1.201, p > .05$. A similar one-way ANOVA test was conducted to investigate differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on learners' perceptions of their English language proficiency level. The results of the test revealed that there were no significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on learners' perceptions of their English language proficiency level, $F(2,79) = .309, p > .05$. The 2-way ANOVA tests were not conducted, as planned earlier, due to lack of power as some cells contained a very small number of cases.

A paired sample t test was used to examine if there were significant differences between preferences for synchronous learning in English (L2) and preferences for synchronous learning in Arabic (L1). The test revealed that there were no significant differences between preferences for synchronous learning in English (L2) and preferences for synchronous learning in Arabic (L1) as $t(81) = -1.349, p = .181; p > .05$.

Discussion

Impact of the number of courses successfully completed on students' preferences for synchronous and asynchronous web-based courses. The first research question asked "Are there significant differences in preferences for synchronous learning for online courses

delivered in English between student groups based on the number of credit hours successfully completed?” The ANOVA test revealed that there were no significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on the number of credit hours successfully completed. The descriptive statistics revealed that mean scores for 29% of the sample, which consists of juniors ($M = 3.02$, $SD = .35$) showed slightly greater preferences for synchronous web-based learning than freshmen ($M = 2.93$, $SD = .41$), sophomores ($M = 2.85$, $SD = .42$), and seniors ($M = 2.94$, $SD = .38$).

The fourth research question asked “Are there significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on the number of credit hours successfully completed?” The ANOVA test revealed that there were no significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on the number of credit hours successfully completed. Moreover, the descriptive statistics revealed that when the medium of instruction was Arabic, 49% of the sample, which consists of juniors ($M = 3.13$, $SD = .44$) and seniors ($M = 3.01$, $SD = .31$), mean scores showed greater preferences for synchronous web-based learning than freshmen ($M = 2.95$, $SD = .46$), and sophomores ($M = 2.90$, $SD = .32$).

The results from questions one and four indicated no significant differences in preferences for synchronous learning for online courses delivered in English or Arabic between student groups based on the number of credit hours successfully completed, but the mean scores revealed that learners preferred synchronous web-based learning over asynchronous web-based learning. These findings are in agreement with those unveiled by previous studies which suggested that students preferred the synchronous online course delivery format over asynchronous online course delivery because it provided them with a richer learning

environment interaction (Cao et al., 2009; Hirotsani, 2005; Johnson, 2006; Offir et al., 2008).

One reason the participants in this study favored synchronous over the other format related to the fact the Saudi students are more accustomed to face-to-face and teacher-centered classrooms. This can explain why they felt that synchronous web-based learning offered them a richer learning environment interaction because synchronous web-based learning is in many ways similar to synchronous online communication.

The descriptive statistic results also suggested that learners who were enrolled in advanced grade levels showed a slightly greater preference for synchronous web-based courses than those who were enrolled in lower grade levels. The results of this study revealed that juniors' mean scores related to preferences for synchronous web-based learning were slightly higher than those of freshmen, sophomores and seniors when the medium of instruction was English. Juniors' and seniors mean scores related to preferences for synchronous web-based learning were slightly higher than those of freshmen and sophomores when the medium of instruction was Arabic. One explanation as to why learners who were enrolled in advanced grade levels had stronger preferences than students who were enrolled in lower grade levels was because students in advanced grade levels tended to have more experiences related to taking online courses than those enrolled in lower grade levels. This could have affected their degree of preferences for web-based courses. Another reason could be related to the fact that the participants did not have any opportunities to take online courses during the freshman and sophomore stages, but they did have that opportunity at later stages. Young and Norgard (2006) pointed out in their study that student satisfaction was greater among students with more experience with online courses. Johnson (2006) also concluded in his study that even though there were no significant differences between students who used synchronous and those who

used asynchronous learning, those students with more experience with the Internet showed a greater preference for synchronous online courses. The findings of this study agree with those presented in Johnson's study. The researcher also recommends that future studies on this issue should include an item that inquires about the number of courses the participants have taken, as this will provide a more comprehensive idea of how the number of courses taken impacts the participants' preferences.

Moreover, the results suggest that the choice of the medium of instruction impacts the degree of learners' preference across different grade levels. For example, the mean scores for Items 6 to 27 also showed that when the medium of instruction was Arabic almost 50% of the sample expressed a slightly greater preference for synchronous web-based courses, but when the medium of instruction was English only 29 % of the sample showed a higher preference for synchronous online courses. Thus, more learners showed greater preferences for synchronous online learning when the medium of instruction was in their native language (Arabic) than when it was in a different language (English). The descriptive statistic results also implied that learners who were enrolled in advance grade levels showed a slightly greater preference for synchronous web-based courses when the medium of instruction for the web-based course was in their native language (Arabic). This could be due to the fact that the learners felt they had a better command of the language when it was in their native language and this allowed the students to focus on real-time interaction in creating a richer learning environment. These findings are in agreement with the findings of Offir et al. (2008) whose study suggested that students with high-level thinking were better able to overcome the negative interaction aspects associated with asynchronous online learning. The researcher recommends conducting qualitative research on this issue to gain a better understanding of why the participants favored

synchronous web-based learning over asynchronous web-based learning and also to understand how changing the medium of instruction impacts the learners' preferences for synchronous and asynchronous web-based courses.

In summary, even though the ANOVA tests results revealed no significant differences among the student groups on the bases of their grade levels, the descriptive statistic results suggested that the grade level and medium of instruction slightly impacted the degree of learners' preferences for synchronous and asynchronous web-based courses.

Impact of learners' perceptions of their level of English language proficiency on their preferences for synchronous and asynchronous web-based courses. The second research question asked "Are there significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on learners' perception of their English language proficiency level?" The ANOVA test revealed that there were no significant differences in preferences for synchronous learning for online courses delivered in English between student groups based on their perceptions of their language proficiency level. On the other hand the descriptive statistic results revealed that mean scores for the participants whose response was "I have little confidence" (18%) showed slightly greater preferences for synchronous web-based learning than those whose response was "I am somewhat confident" (56%) or those whose response was "I am highly confident" (26%). The descriptive statistic results suggest that mean scores for learners who had little confidence were higher as they expressed a greater need for synchronous online interaction than the other groups who had a higher level of English language proficiency.

The fifth research question asked "Are there significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on

learners' perception of their English language proficiency level?" The ANOVA tests revealed that there were no significant differences in preferences for synchronous learning for online courses delivered in Arabic between student groups based on their perceptions of their language proficiency level. The descriptive statistics revealed that the mean scores for the students who responded by selecting "I am somewhat confident" (56%) and "I am highly confident" (26%) were slightly greater than those who selected "I have little confidence" (18%).

In contrast to findings for English instruction, when the medium of instruction was Arabic, the participants with little confidence in the English language expressed a lower level of preference for synchronous web-based courses than the other groups.

The descriptive statistic results from questions two and five suggested that the level of language proficiency could be used as an indicator of learners' preferences for synchronous and asynchronous web-based courses. These findings were in agreement with those found in previous studies (Offir et al., 2008; Sequeira, 2009). According to Offir et al. (2008), if the medium of instruction differs from that of the learners, it can impact the quantity and quality of interaction between learners and teacher, learners and their peers, and learners and content. The current study results imply that learners who had more command of the language showed lower degrees of preference for synchronous web-based courses than those who were at lower levels of language proficiency. Thus, the results suggested that students' level of language proficiency and choice of medium of instruction had an impact on the learners' degree of preference for synchronous and asynchronous web-based courses.

However, a closer look at the data revealed other minor differences in the mean scores between students' preferences for synchronous web-based courses. Thus, the students' choices for courses delivered in English were somewhat similar to their choice for courses delivered in

Arabic. One way to explain this is to look at the assumptions of this study which state that students have not had the opportunity to take online courses in Arabic and that their projections are based on their understanding of online learning and their comfort with their native language (Arabic). This impacts their choices for web-based courses delivered in Arabic. In future studies, the researcher recommends employing measures that ensure that all the participants have had the opportunity to take web-based courses both in English and in Arabic so that the learners' projections are based on their understandings and their experiences.

Impact of the learners' grade level and their perceptions of their level of English language proficiency on their preferences for synchronous and asynchronous web-based courses. The third research question asked "Is there a significant interaction between the number of hours successfully completed and learners' perceptions of their English language proficiency on preference for synchronous learning?" The sixth research question asked "Is there significant interaction between the number of hours successfully completed and learners' perceptions of their English language proficiency on preference for synchronous learning for online courses delivered in Arabic?" Due to the fact that there were very small numbers of cases in certain cells, as identified in Chapter 4, the researcher was not able to run the 2-way ANOVA as mentioned earlier in the methodology section, and this is due to lack of power.

Impact of the medium of instruction on learners' preferences for synchronous and asynchronous web-based courses. The seventh research question asked "Are there significant differences between preferences for synchronous learning in English (L2) and preferences for synchronous learning in Arabic (L1)?" The results of the paired sample *t*-test revealed that there were no significant differences between preferences for synchronous learning in English (L2) and preferences for synchronous learning in Arabic (L1). The mean scores for Items 6 to

27, which were utilized to measure students' preferences for synchronous and asynchronous web-based courses, also showed that the majority of the students had a positive attitude toward synchronous web-based courses. These findings mirrored those of the previous studies which yielded no significant differences in preferences between synchronous and asynchronous web-based courses (Cao et al., 2009; Sistelos, 2008; Skylar, 2009).

Moreover, even though there was no significant difference among the student groups on the basis of the medium of instruction, the descriptive statistic results suggested that the medium of instruction slightly impacted the degree of the learners' preferences for synchronous and asynchronous web-based courses. As discussed earlier, the medium of instruction seemed to have an impact on the degree of preference for synchronous web-based learning across the different grade levels, as well as English language proficiency levels. The descriptive statistics also implied that the learners' mean scores were similar for some items on the survey regardless of the medium of instruction used. The results also revealed that the items most agreed upon for English instruction and Arabic instruction based on the mean scores for Items 6 to 27 were Items 16 (83%) and 27 (91%) "I prefer to have a direct conversation with a teacher..." The participants also showed agreement on Items 10 and 21 which were related to interaction in real-time with the course instructor(s). These findings were consistent with those found in earlier studies (Johnson, 2008; Moore & Kearsley, 2005; Offir et al., 2008). Offir et al. (2008) pointed out that teacher-student interaction was a significant factor in determining the effectiveness of the teaching method, and that all learners in his study felt that the presence of the teacher was very important to them. Moore and Kearsley (2005) also highlighted the importance of the instructor's role in improving the students' learning experience. Furthermore, Young and Norgard (2006) added that previous research had indicated that students'

satisfaction with online instruction was impacted by the quality of interaction between students and instructors. Moreover, the educational system in Saudi Arabia is more teacher-centered than student-centered. Saudi students depend on direct interaction with their teachers in face-to-face learning settings, and this can impact their preferences in web-based learning setting. AlTameemy (2010) pointed out in his study that the physical presence of the teacher is very important to Arab learners and that the physical absence of the teacher in distance learning distorts their idea about distant learning. Saudi students had a positive attitude toward synchronous online learning because in many ways it is similar to face-to-face learning and in these settings presents more opportunities for real-time interaction with their instructor(s) than in asynchronous web-based learning settings. According to Oates and Rengarajan (2002), learners favored synchronous online learning over asynchronous online learning because it mimicked the traditional face-to-face classroom interaction. In addition, the feeling of isolation and disconnection in asynchronous online communication was one of the main reasons for learners' preferences for synchronous web-based courses over asynchronous web-based courses (Hrastinski, 2008). The use of synchronous online courses provides both learners and instructors with opportunities to gain immediate feedback that enables students to overcome any difficulties they may face in an asynchronous web-based learning environment (Swenson & Redmond, 2009). Moreover, synchronous web-based learning provides learners with a richer and a more productive learning environment. Yamada and Akahori (2007) concluded in their study that social presence has an impact on learners' performance and productivity. In addition, the choice of the medium seems to impact the learners' degree of preferences as more learners showed a slightly greater degree of preferences when the medium of instruction was in their

native language (Arabic). A further qualitative analysis of this factor is needed to explore how this factor impacts learners' preferences and performance in web-based courses.

The participants also showed agreement on Items 11(93%) and 22 (85%), which were related to having more flexibility in online learning settings. The results showed that more learners expressed that they wanted more flexibility for web-courses delivered in English than in those delivered in Arabic. Surprisingly, even though flexibility is a feature that is often associated with asynchronous web-based learning, the learners' choices suggested that having more flexibility in web-based learning settings was very important to them. These findings were in agreement with those unveiled by previous studies which suggested that learners are attracted to asynchronous web-based courses because they provide more flexibility than synchronous web-based courses (Bernard et al., 2009; Chang, 2006; Hrastinski, 2008; Picciano, 1998). The results also suggested that the medium of instruction has an impact on the participants' degree of preference for flexibility in web-based learning settings as 94% of the sample expressed the need for more flexibility in web-based courses when the medium of instruction was English and only 85% of the sample expressed the same need when the medium of instruction was Arabic. Thus, when the medium of instruction was different than the learners' native language, the learners expressed a greater need for having more flexibility. The results also implied that the learners felt the need for a learning environment that is based on a mixture of elements from both synchronous and asynchronous learning. The researcher recommends that educators and curriculum designers offer online courses not only in one specific format, but rather in a format that attends to the learners' needs. As Hrastinski (2008), pointed out, educators should not debate about which one is better, but rather focus on understanding when, where, and how to use each type.

The participants also showed agreement on Items 14 (87%) and 25 (84%), which were associated with having someone explain the new material in real time. The respondents also expressed their agreement on Items 15 (90%) and 26 (88%), which were related to learning new material through discussions with others. The surprising thing about this finding is that participants' mean scores were slightly higher when the medium of instruction was English than when the medium of instruction was Arabic. One explanation is that the learners' degree of preferences for synchronous and asynchronous web-based courses is associated with their level of English language proficiency. Thus, when the medium of instruction was English, the learners had a lower level of language proficiency, and this made them express slightly higher preferences for having someone explain the new material to them and vice versa. As stated earlier, the fact that the educational system in Saudi Arabia is based on teacher-centered classrooms rather than on student-centered classrooms seems to impact the learners' preferences as well. The results also suggested that learners showed a greater preference for having someone explain the new material to them or having others explain the new material to them rather than on learning the new material on their own especially when the medium of instruction was different than their native language (Arabic). According to Vygotsky (1978), learners expressed a higher level of intellectual performance during collaboration than when they worked on their own. Making sure that learners are engaged in productive online interactions with their peers is very important for the success of web-based learning. Further research is needed to gain more insight into how changing the medium of instruction impacts students' preferences which are related to their interactions with their peers during web-based learning.

In contrast, the participants did not show the same levels of agreement on Items 20 (87%) and 9 (78%), which are related to learning the new material by studying on their own. Surprisingly, the learners' scores were higher when the medium of instruction was Arabic ($M = 3.15$, $SD = .67$) than when the medium of instruction was English ($M = 2.87$, $SD = .58$). The learners' degree of preferences for learning new materials on their own seemed to be associated with their language proficiency level. The learners had a higher level of language proficiency when the medium of instruction was in their native language than when it was in another language. This made them feel more confident to study on their own. Thus, changing the medium of instruction impacted the learners' preferences in web-based courses as highlighted in the study that was conducted by Offir et al. (2008).

In sum, the current study highlighted that students' grade level and their experiences with online courses impacted their preferences during synchronous and asynchronous web-based courses. It also found that changing the medium of instruction impacted the learners' preferences for synchronous and asynchronous web-based courses. Furthermore, the findings highlighted that providing high-quality interaction during teacher-student and student-student interaction is very essential for the success of web-based courses. According to Moore and Kearsley (2005), "effective teaching at a distance depends on a deep understanding of the nature of interaction and how to facilitate interaction through technology transmitted communication" (p. 140).

Al-Sultan (2009) pointed out that there is a need for conducting a comprehensive analysis of the current educational systems, so that educators can better identify the factors which impact efficiency. Further detailed analyses of how factors such as direct interaction with the teacher, flexibility, and interaction with peers impact students' preferences and success

in web-based learning settings is needed. This will provide educators both in the United States and in Saudi Arabia with a more comprehensive idea about this issue in order to develop better web-based courses and instruction that attends to the learners needs.

Conclusions

In spite of the small sample size, the current study revealed several interesting findings. First, there was no significant difference in student preferences for synchronous web-based courses delivered in English or Arabic on the bases of grade level (freshman, sophomore, junior, and senior) or the learners' perceptions of their level of English language proficiency ("I have little confidence," "I am somewhat confident," and "I am highly confident"). There were also no significant differences between preferences for synchronous learning in English (L2) and preferences for synchronous learning in Arabic (L1). The mean scores of the participants indicated that that the learners had greater preferences for synchronous online courses over asynchronous online course. These findings are in agreement with those reported in earlier studies (Cao et al., 2009; Offir et al., 2008; Sistelos, 2008; Skylar, 2009). The descriptive statistics on the other hand, suggested that the medium of instruction has an impact on the quantity and quality of learners' preferences for synchronous and asynchronous web-based courses as supported by Offir et al. (2008). The descriptive statistic results also revealed that grade level has an impact on the degree of learners' preferences for synchronous web-based learning as the mean scores of upper classmen were slightly higher than those who are at lower levels. Moreover, the descriptive statistics implied that direct interaction in real time with the course instructor(s) was viewed by participants to be the most important aspect of synchronous web-based interaction. The participants' mean scores also revealed a greater need for more flexibility, learning new materials through discussions with others or through having someone

explain new materials to them, and studying on their own. The descriptive statistic results also implied that the learners felt the need for a web-based learning environment that consists of synchronous elements (e.g. direct interaction with course instructor) and asynchronous elements (e.g. flexibility) as well. The researcher believes that the results revealed that the Saudi students have a positive attitude toward web-based learning and that web-based learning will aid higher education both in the United States and in Saudi Arabia in achieving their goals of providing high quality instruction to the learners.

Implications

Web-based courses have taken huge steps in higher education in the United States, but it is still in its initial stages in Saudi Arabia. The Ministry of Higher Education and many educators in Saudi Arabia have pointed out the importance of conducting further research in this area so that they could provide Saudi learners with high quality web-based instruction that attends to the learners' needs. This will help close the gap between Saudi Arabia and advanced countries in this field such as the United States. The Ministry of Higher Education in Saudi Arabia established the National Center for E-learning and Distance Education to conduct research and assess the growth of e-learning in the country, provide advice and guidance to educational institutions and to arrange conferences and workshops with educators from leading countries in field of e-learning (Ministry of Higher Education Portal, 2010). Al-Sultan (2009) also pointed out the need for conducting a comprehensive analysis of the current educational systems, so that educators could better identify the factors which impact the efficiency of the current educational systems.

Even though the results of the current study did not yield any significant results regarding how the students' class standing or perceptions of their language proficiency impact

their preferences for synchronous web-based courses, the descriptive statistic results revealed many interesting findings and implications for virtual classroom practice. First, they revealed that learners have a positive attitude toward using synchronous web-based courses over asynchronous web-based courses. These findings suggest that they felt that synchronous web-based learning settings provide them with more opportunities to engage in productive interactions with their instructor, peers, and with the content. These findings suggest that curriculum designers and course instructors should provide learners with web-based course format(s) which attend to their needs. Second, the participants' mean scores revealed that establishing direct interaction with the course instructor(s) is among learners' highest priorities in web-based learning settings. Providing Saudi learners' with synchronous web-based courses is very important as it mimics the settings in face-to-face settings. It will also help them in overcoming some of the negative aspects of synchronous online communication which include the feeling of isolation.

Third, the descriptive statistic results also pointed out learners in this study preferred having more flexibility when taking online courses, especially if the course is delivered in a language other than their native language. These findings suggest the educators, curriculum designers, and instructors need to provide learners with more flexibility in the courses so that these courses could attend to the needs of the learners. Providing them with courses which contain mixed web-based course formats will help the learners benefit from the advantages of both synchronous and asynchronous web-based courses formats.

Finally, the descriptive statistic results highlighted that the medium of instruction also has an impact on learners' preferences for synchronous and asynchronous web-based courses. Instructors and curriculum designers need to pay close attention to how the medium of

instruction impacts the quantity and quality of interaction in web-based learning settings, especially when the medium of instruction differs from that of the learners. Thus, course instructors need to pay close attention to how learners' English language proficiency level affects their interaction in web-based courses settings.

This research provides web-based course instructors and curriculum designers with vital information on how factors such as the class standing and learners' level of English language proficiency impacts learners' preferences in synchronous and asynchronous web-based learning settings. These findings allow course instructors and curriculum designers to understand the needs of students in different levels, as well as the needs of students who are at different stages in their English language proficiency. It also helps them reflect on current teaching and learning methods employed at their educational institutions. The curriculum designer should analyze the current curriculum, web-based courses formats, and instructional design to make sure that it is compatible with the needs and preferences of their students.

Recommendations for Future Research

The current study presents the following recommendations for further research:

- The current research was conducted at Indiana State University. Including more universities from other cities would allow the findings to be generalized.
- The current research sample was small. Conducting the same study with a bigger sample can yield more or different findings than the ones identified in this study and it could also allow the findings to be generalized.
- The surveys were administered only to university students in the U.S. Including other universities from Saudi Arabia would make it possible to compare Saudi

Students who are in English as Foreign Language (EFL) settings to those who are in English as Second Language settings (ESL).

- The current study investigated how class standing and the learners' perceptions of their level of English language proficiency impact their preferences for synchronous and asynchronous web-based courses. Further studies should look into how other factors such as gender and major impact the learners' preferences in web-based learning settings. This information will provide educators with more insights on how all of these factors influence the teaching-learning process in online settings.
- This study was carried out through the use of a quantitative research approach. There is a need to conduct further studies based on a qualitative research approach, such as interviews, and observations in order to gain a more comprehensive idea on this issue in future research.
- The current study was based on a self-reported questionnaire. Employing more valid and reliable measures of learners' proficiency needs to be carried out in future research.
- One of the assumptions of this study was that the participants have not had the chance to take online courses in Arabic and that their projections are based on their understanding of online learning and their comfort with their native language (Arabic). Employing more valid and reliable measures that ensure that all the participants have had a chance to take web-based courses delivered both in English and in Arabic needs to be employed in future research. This will make their projection on English and Arabic web-based courses based on their actual experiences with such courses.

Summary

The researcher interpreted the results of this study by discussing each pair of questions that addressed the issue separately with the exception of the last research question. An overall interpretation of the results and the findings was provided at the end of each pair of research questions being discussed. The investigator interpreted the results to explain how the learners' class standing and learner self-assessment of their English language proficiency level impacted their preferences for synchronous and asynchronous web-based courses. The researcher concluded that curriculum designers and instructors need to reflect on how changing the medium of instruction and direct interaction with instructors impact the learners' preferences in web-based learning settings. That is, they need to develop web-based courses, which correspond to the real needs of their learners. Finally, the investigator provided several educational implementation and further research recommendations.

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APPENDIX A**Survey**

Part One:

1) Please indicate your gender

Male	Female

2) Please indicate your age

3) Please indicate your major

4) How many hours have you successfully completed? (Choose only one option)

Freshman (0 – 31 Credit hours)	Sophomore (32 - 62 Credit hours)	Junior (63 - 93 Credit hours)	Senior (94 and above Credit hours)

5) How confident are you about your language proficiency? (Choose only one option)

I have little confidence	I am Somewhat confident	I am Highly confident

Part Two:

- 6) How often do I want to communicate with my instructor when the course is offered in English?

Regularly (2 or more times per week)	Occasionally (2 to 4 times per month)	Infrequently (2 to 4 times per course)	Rarely (once or never per course)

- 7) How often do I want to interact with my instructor during the course when the course is offered in English?

Regularly (2 or more times per week)	Occasionally (2 to 4 times per month)	Infrequently (2 to 4 times per course)	Rarely (once or never per course)

- 8) How often do I want to interact in real-time with my classmates during class when the course is offered in English?

Regularly (2 or more times per week)	Occasionally (2 to 4 times per month)	Infrequently (2 to 4 times per course)	Rarely (once or never per course)

- 9) I prefer to learn new material by studying on my own when the course is offered in English.

Strongly agree	Agree	Disagree	Strongly Disagree

- 10) Interaction with my teacher in real-time is important for me when the course is offered in English.

Strongly agree	Agree	Disagree	Strongly Disagree

11) I prefer flexibility in the time of day when I work on class work when the course is offered in English.

Strongly agree	Agree	Disagree	Strongly Disagree

12) How frequently do I want deadlines to help me stay motivated to complete assigned work when the course is offered in English?

Regularly (2 or more times per week)	Occasionally (2 to 4 times per month)	Infrequently (2 to 4 times per course)	Rarely (once or never per course)

13) How often do I want a class to meet in real time online, assuming a class length between 45 to 90 minutes when the course is offered in English?

Regularly (2 or more times per week)	Occasionally (2 to 4 times per month)	Infrequently (2 to 4 times per course)	Rarely (once or never per course)

14) I prefer learning new material by having someone explain it to me in real time when the course is offered in English.

Strongly agree	Agree	Disagree	Strongly Disagree

15) I prefer learning new material by discussing it with others in real time when the course is offered in English.

Strongly agree	Agree	Disagree	Strongly Disagree

- 16) I prefer to have a direct conversation with a teacher if I have a question when the course is offered in English.

Strongly agree	Agree	Disagree	Strongly Disagree

Part Three:

- 17) How often do I want to communicate with my instructor when the course is offered in Arabic?

Regularly (2 or more times per week)	Occasionally (2 to 4 times per month)	Infrequently (2 to 4 times per course)	Rarely (once or never per course)

- 18) How often do I want to interact with my instructor during the course when the course is offered in Arabic?

Regularly (2 or more times per week)	Occasionally (2 to 4 times per month)	Infrequently (2 to 4 times per course)	Rarely (once or never per course)

- 19) How often do I want to interact in real-time with my classmates during class when the course is offered in Arabic?

Regularly (2 or more times per week)	Occasionally (2 to 4 times per month)	Infrequently (2 to 4 times per course)	Rarely (once or never per course)

- 20) I prefer to learn new material by studying on my own when the course is offered in Arabic.

Strongly agree	Agree	Disagree	Strongly Disagree

21) Interaction with my teacher in real-time is important for me when the course is offered in Arabic.

Strongly agree	Agree	Disagree	Strongly Disagree

22) I prefer flexibility in the time of day when I work on class work when the course is offered in Arabic.

Strongly agree	Agree	Disagree	Strongly Disagree

23) How frequently do I want deadlines to help me stay motivated to complete assigned work when the course is offered in Arabic?

Regularly (2 or more times per week)	Occasionally (2 to 4 times per month)	Infrequently (2 to 4 times per course)	Rarely (once or never per course)

24) How often do I want a class to meet in real time online, assuming a class length between 45 to 90 minutes when the course is offered in Arabic?

Regularly (2 or more times per week)	Occasionally (2 to 4 times per month)	Infrequently (2 to 4 times per course)	Rarely (once or never per course)

25) I prefer learning new material by having someone explain it to me in real time when the course is offered in Arabic.

Strongly agree	Agree	Disagree	Strongly Disagree

26) I prefer learning new material by discussing it with others in real time when the course is offered in Arabic.

Strongly agree	Agree	Disagree	Strongly Disagree

27) I prefer to have a direct conversation with a teacher if I have a question when the course is offered in Arabic.

Strongly agree	Agree	Disagree	Strongly Disagree

APPENDIX B

Permission to Use and Modify Original Survey

From: Abdullah Al-Jabri [aaljubari@indstate.edu]

Sent: Wednesday, July 21, 2010 6:00 PM

To: Burton, Jonathan

Subject: Urgent: In Need of Your Permission

Dear Dr. Jonathan Burton,

I am a PhD. student at Indiana State University and I am interested in using some sections of your work about “DEVELOPMENT AND ANALYSIS OF A SURVEY ASSESSING ELEVENTH GRADE HIGH SCHOOL STUDENTS’ PREFERENCES FOR SPECIFIC TYPES OF ONLINE COURSE STRUCTURES”. I would like to get your permission for incorporating some survey in a survey that I am constructing at the present for my PhD. Your contribution to my work will be included within my dissertation. I think you a lot and if you need any further information just send me an email at aaljubary@indstate.edu.

Yours faithfully,

Abdullah Al-Jabri

Howdy Abdullah,

You are welcome to reference my dissertation and use my survey, in part or in whole, as part of your research. I wish you much blessing as you move through your dissertation work.

Sincerely,

Jonathan Burton, Ed.D.
Adjunct Professor
Liberty University

Howdy,

Yes, you are free to modify the survey as you need. I only ask that you identify that you are using a modified version of the survey, so that your work will not be confused with the original.

Sincerely,

Jonathan Burton, Ed.D.
Adjunct Professor
Liberty University

Howdy Abdullah,

You are welcome to reprint the survey. I wish you God's best as you complete your dissertation work.

Sincerely,
Jonathan Burton, Ed.D. '09
Adjunct Online Professor
School of Education
(440) 522-0845

APPENDIX C

Institutional Review Board Approval



Institutional Review Board

Terre Haute, Indiana 47809

812-237-3092

Fax 812-237-3092

DATE: December 9, 2010

TO: Abdullah Al-Jabri, PhD

FROM: Indiana State University Institutional Review Board

STUDY TITLE: [202740-1] Saudi College Students' Preferences for Synchronous and Asynchronous Web-based Courses: An Exploratory Study

IRB REFERENCE #: 11-062

SUBMISSION TYPE: New Project

ACTION: DETERMINATION OF EXEMPT STATUS

DECISION DATE: December 9, 2010

REVIEW CATEGORY: Exemption category #2

Thank you for your submission of New Project materials for this research study. The Indiana State University Institutional Review Board has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations (45 CFR 46). You do not need to submit continuation requests or a completion report. Should you need to make modifications to your protocol or informed consent forms that do not fall within the exempt categories, you will have to reapply to the IRB for review of your modified study.

Informed Consent: All ISU faculty, staff, and students conducting human subjects research within the "exempt" category are still ethically bound to follow the basic ethical principles of the Belmont Report: a) respect for persons; 2) beneficence; and 3) justice. These three principles are best reflected in the practice of obtaining informed consent.

We will put a copy of this correspondence in the IRB files, in the Office of Sponsored Programs.

If you have any questions, please contact Thomas Steiger at 812-237-3426 or through IRBNet. Please include your study title and reference number in all correspondence with the IRB. I wish you well in completing your study.

cc: IRB file