CRITICAL FACTORS RELATED TO THE IMPLEMENTATION OF WEB-BASED INSTRUCTION BY HIGHER-EDUCATION FACULTY AT THREE UNIVERSITIES IN THE KINGDOM OF SAUDI ARABIA

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DEDICATION

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ABSTRACT

CRITICAL FACTORS RELATED TO THE IMPLEMENTATION OF WEB-BASED INSTRUCTION BY HIGHER-EDUCATION FACULTY AT THREE UNIVERSITIES IN THE KINGDOM OF SAUDI ARABIA

Mohammed Saleh Albalawi

The facilitating and impeding factors that affect faculty decisions in Saudi Arabia either to participate or not participate in Web-based instruction (WBI) were investigated in this study. Information about the characteristics of faculty and the effect of those characteristics on participation in developing WBI were also examined. Incentives and barriers to WBI, faculty attitudes, and participants’ demographic information were explored. This study was an investigation of the current use of WBI in Saudi institutions and the facilitating and impeding factors affecting faculty decisions to participate or not to participate in WBI. Information gathered regarding the attitudes of faculty toward development and implementation of a distance-education program in Saudi Arabia provided insight into the key issues concerning adoption and sustainability of distance education in general and WBI in particular. A survey research design was used. The survey was distributed in 2 forms, hard copy and online. Descriptive and inferential statistics were used to answer research questions. In this study, factors related to WBI
were explored from the perspective of faculty in Saudi universities. In general, faculty had positive attitudes towards WBI.
CHAPTER I
INTRODUCTION

Saudi universities are considering delivering distance-learning courses because of the growth in the number of Saudi students in the years 2001-2006. The population in Saudi Arabia is growing very fast, and access to education is a critical issue. Presently the Saudi population is expanding at 3.7% to 4.0% per year (Field, 1994; Long, 1997). This trend has continued, and there is no sign of it slowing down. Researchers predict that the Saudi population will grow by one third every 8 years (Bishop, 1999). At the turn of the century there were 16.9 million Saudis; by 2011 the population will reach 25 million. Of the Saudi national population, 54.3% are male and 45.7% female (Saudi Arabian Information Resource, 2007). Currently, it is estimated that almost half the Saudi population is under the age of 20 (Saudi Arabian Information Resource). This growth will place a tremendous pressure on the country’s educational systems.

Colleges and universities in Saudi Arabia serve the majority of the students through traditional instruction on their campuses. The Saudi minister of higher education, Dr. Khalid Al-Anqari (2003), announced that the Ministry of Higher Education will accept all high school graduates for the academic year in all the Saudi universities. During the past few years, Saudi higher-education institutions have been debating the feasibility of implementing a distance-education program as an alternative to a regular classroom education (Al-Erieni, 1999). The total capacity of universities and colleges in
Saudi Arabia cannot accommodate the rapid growth of the college student population. The total number of government universities in the Kingdom has reached 19, up from only seven 3 years ago (Al-Angari, 2007; Ministry of Higher Education, 2007).

The demand for higher education in Saudi Arabia is extremely high (Al-Arfaj, 2001). The number of students admitted to universities has increased by 62% in only 3 years: from 68,000 in 2003 to 110,000 in 2006 (Ministry of Higher Education, 2007).

Institutions of higher education in Saudi Arabia are faced with problems of overcrowding and a lack of sufficient traditional facilities to provide appropriate educational services to the country’s qualified students (Al-Erieni, 1999).

Web-based education has been proposed as an effective way to provide learning and teaching experiences to students, especially as a way to reach the large number of expected students. Web-based instruction (WBI) can meet the demand for speed, flexibility, and outreach when learners are dispersed in terms of time and geography. WBI opportunities can reduce the costs of instructor and student travel while leveraging instructor productivity. The number of Web-based courses in Saudi universities is increasing; these courses provide Saudi students with the opportunity to pursue a college education (Abahussain, 1998; Al-Erieni, 1999; Sharaf, 1991).

Saudi Arabia is a large country with many of its communities isolated from major cities and established colleges and universities. Providing higher-education programs through distance education would greatly benefit the people and the nation (Abahussain, 1998). Through the use of distance learning and the integration of Web-based training and technology, information and knowledge can be made available to students in the Kingdom of Saudi Arabia anytime and anywhere. The introduction of additional Web-
based educational opportunities will help Saudi universities move from formal classroom training and education to a new way of teaching and learning that does not require classrooms at all. In addition, new methodologies of teaching and learning can be integrated into practical instruction.

The World Wide Web (WWW) has provided a new and interesting teaching and learning environment (McCormack & Jones, 1998), which has, in turn, affected higher education. Individual faculty, academic institutions, research centers, colleges, universities, and institutions of all kinds began to develop an Internet presence early in the emergence of the Web in the 1990s. The WWW became a popular teaching and learning tool during this time as well (Christianson, 2001; Crossman, 1997). The development of online or Web-based curricula accessed via the student’s computer connected to a college network and the Internet has permitted students to learn from the comfort of their own homes (Cherepski, 2000). Additionally, WBI courses can be convenient for students, instructors, and institutions.

With the rapid increase in the number of students in Saudi Arabia graduating from high schools, there is a growing strain on higher-education resources (Al-Mogbel, 2002). Institutes of higher education do not have the necessary resources to provide all of these students with a good education (Al-Mogbel). In the past decades, many institutions of higher learning in Saudi Arabia were able to respond to the continuing pressure of the growth of the student population by expanding existing colleges and universities or by building new ones (Al-Arfaj, 2001). Although the price of oil is high and the government has a surplus, and universities are being built as fast as possible, resources still are not available to educate all potential students. Some administrators believe that creating
education programs that make use of modern technology, such as video and television broadcasting and the Internet, address the financial constraints and limited resources being experienced in the Kingdom (Al-Mogbel; Al-Rashoud & Al-Abdul-Kareem, 2001).

WBI can also offer opportunities for men and women who, inhibited by cultural and social barriers, desire to pursue higher education. For cultural and religious reasons, the higher-education system in Saudi Arabia is separated by gender, compounding the lack of necessary resources to fulfill the student demands (Abanmie, 2002; Al-Erieni, 1999). In response, Al-Arfaj (2001) stated, “Female students in Saudi Arabia were very interested in distance WBI” (p. 6). The use of WBI could be one method to solve the problem of a lack of access to higher education in Saudi Arabia (Al-Erieni; Al-Mogbel, 2002; Al-Rashoud & Al-Abdul-Kareem, 2001). Several Saudi universities have already realized the significance of this possible solution (Abahussain, 1998; Al-Arfaj).

Understanding the perceptions and attitudes of administrators, faculty, and students (who are the major players) on the subject of distance education in Saudi Arabia is vital because there have been few WBI courses implemented in Saudi Arabia. There is also a need to understand how WBI is currently used (Al-Mogbel, 2002). With the modernization of the higher-education system, Saudi universities have placed a high priority on providing Saudi citizens with the opportunity to obtain a quality education. Around the world, the number of the courses on the WWW has increased; Web-based education has progressed rapidly. The integration of the Web into the educational environment makes it possible for students to study from cities far away from the main campuses. Whereas some professors consider themselves technologically adventurous in
putting their syllabi and class notes online, more and more institutions are beginning to make entire degree programs accessible online (Arenson, 1998).

The Saudi education system is shifting gradually from the traditional classroom to Web-based distance learning in higher-education (Al-Erieni, 1999). In Saudi Arabia, as a supplementary delivery system, distance learning is one among many applications the universities are employing to provide educational services to remote cities (Al-Dawood & Al-Kasabi, 2001).

Institutions of higher education in Saudi Arabia are facing new levels of competition for resources to educate as many students as possible by implementing more online courses. In response to these initiatives, this researcher investigated WBI as an effective solution to the many problems related to education in Saudi Arabia. In this study, the attitudes of Saudi faculty members toward development and implementation of WBI were investigated.

Statement of the Problem

The population in Saudi Arabia is growing very fast. The number of students in need of a university education is increasing quicker than classrooms can be built and professors can be found (Al-Brydi, 2006; Al-Mogbel, 2002). The Saudi Arabian government has mandated that universities in the Kingdom provide an education to all citizens. The use of information technology in distance learning or WBI could be one way to deal with this challenging situation.

Using technology in instruction has been a part of education for decades; however, WBI is still a new pedagogy (Cherepski, 2000; Huang, 2003), especially in countries challenged to provide technology access to all citizens. The role of the faculty...
in higher education across the world is changing as technology evolves. Faculty attitudes affect the success or failure of the WBI implementation (Cherepski; Huang, 2001); for some faculty members, there is a willingness to participate in offering Web-based courses, while for others, there is not. The differences in the level of willingness may be related to factors such as (a) attitudes, (b) incentives, (c) support, (d) training, (e) policies, (f) time, and (g) tenure problems (Huang, 2001). Understanding these factors, in inhibiting or encouraging faculty members in Saudi universities to participate in distance learning, will facilitate decisions on the use of WBI in the Saudi education system.

Therefore, understanding faculty attitudes and examining the factors that encourage or impede faculty members to participate in WBI would be useful to the implementation of WBI. This study investigated faculty attitudes and the influence of other factors toward adopting WBI or distance learning.

Purpose of the Study

The study had three main purposes. First, the researcher sought to investigate the attitudes of the faculty members at three Saudi universities toward WBI in an effort to describe the current status of WBI in the Saudi educational system. In addition, results of the study can provide the Saudi universities and the faculty with insight into factors affecting adoption of WBI. Finally, since there have been few implementations of WBI across the Kingdom, it was important to explore how WBI is currently used in Saudi universities and to determine critical factors that could affect the implementation of WBI.
Research Questions

Based on the theoretical framework and statement of the problem, research questions were formulated. The following questions were investigated in this study:

1. What are the attitudes of the Saudi faculty toward Web-based instruction?
2. How do the factors related to the barriers influence faculty participation in Web-based instruction?
3. How do the factors related to incentives influence faculty participation in Web-based instruction?

Significance of the Study

The challenge to Saudi universities to meet the educational needs of a growing student population who desire to attend universities increases from year to year. As a result, Saudi universities are looking for new course delivery methods, including WBI as a proposed expansion solution (Al-Arfaj, 2001). The results of this study can be used by Saudi universities and their faculty to identify which factors should be strengthened and which factors can become barriers as faculty move forward in developing WBI in Saudi Arabia. In particular, the results of the study can help identify factors that may affect the implementation of WBI in Saudi higher education institutions.

This research can be helpful to Saudi universities by assisting them to conduct a comparison of what they are doing and what they could be doing to increase the involvement of their faculties in adopting distance-learning technology. The findings of this study can assist Saudi universities in developing effective distance-learning adoption plans by (a) providing a systemic view of the current status of distance learning, (b)
identifying factors important to distance-learning adoption, and (c) demonstrating how these factors can encourage or discourage additional WBI opportunities.

Overview of the Study

This study was an investigation of the current use of WBI in Saudi institutions and the facilitating and impeding factors affecting faculty decisions to participate or not to participate in WBI. A survey research design (Pinsonneault & Kraemer, 1992) was used to collect information about the characteristics of the faculty and the effect of those characteristics on participation in developing WBI. Incentives and barriers to WBI, faculty attitudes, and participants’ demographic information were also explored in this study.

Assumption of the Study

One assumption was the ability to measure the faculty attitudes toward WBI. It was also assumed that faculty participation plays an important part in the adoption of WBI.

Delimitation of the Study

It was decided for the purposes of this study that the investigation be limited to faculty of three universities in Saudi Arabia. The responses of the faculty members were used to explore the critical factors of participation in WBI. The information provided by this study may lead to further research, and the results could be generalized to all of the universities in Saudi Arabia as well as to other universities in the Arab world.
Definition of Key Terms

The following terms are used in this study and are defined to provide readers with a full understanding of the conducted study:

Asynchronous delivery. Asynchronous delivery is a method of distance education in which the instructor and students are not required to have real-time contact on a regular basis. It is not time and location dependent (Marsh, Price, & McFadden, 2000).

Attitude. Attitude is the Saudi faculty’s belief, disposition, and opinion regarding the implementation of the WBI.

Barrier. Barriers to Web-based training are factors that prevent or hinder university organizations from implementing Web-based training (Wu, 2003).

Computer-mediated communication (CMC). Computer-mediated communication is the process by which people create, exchange, and perceive information using networked telecommunications systems (or nonnetworked computers) that facilitate encoding, transmitting, and decoding messages. CMC refers to “a wide range of technologies that facilitate both human communication and the interactive sharing of information through computer networks” (Barnes, 2003, p. 4). Computer networks make it possible to conduct CMC by providing connectivity between people.

Criteria for implementing Web-based training. The criteria for implementing web-based training are standards on which a judgment or decision about the implementation of Web-based training in business organizations may be based (Wu, 2003).

Distance education. Distance education is an educational process with the instruction often occurring when students and instructors are not in the same place; the
method of communication may be synchronous or asynchronous (Huang, 2003). Willis (2000) defined distance education as “the process of providing instruction when students and instructors are separated by physical distance, and technology, often in tandem with face-to-face communication” (p. 357).

_E-learning_. E-learning is comprised of educational contents delivered through the use of electronic or digital technologies, such as audio-videotape, CD-ROM, interactive TV, satellite broadcasting, intranets, or the Internet. Computer-based training and Web-based training are included in the range of e-learning (American Society for Training and Development, 2001).

_Faculty_. Faculty are the teachers at the three Saudi universities who participated in this study.

_Higher education_. Higher education is the courses and degrees offered to students who have completed high school. Higher education includes individual programs, technical training certification, bachelor’s degrees, master’s degrees, and doctoral degrees.

_Online university or college_. An online university is the offshoot of the traditional college or university. In this case, the institution may offer some courses and programs on the Internet or WWW, but not all of them (Connick, 1999).

_Synchronous delivery_. Synchronous learning takes place when the learner can interact with the instructor and other learners in real time (Belanger & Jordan, 2000). The technology used in synchronous delivery includes two-way interactive video telecourses, one-way video with two-way audio, audio-conferencing, and audio-graphic conferencing,
and may include electronic white boards, radio, television, closed-circuit and satellite (Marsh et al., 2000).

*Virtual learning environment (VLE).* VLE is an Internet-based software program that allows lecturers to create course Web sites quickly and easily. VLE is a set of teaching and learning tools designed to enhance a student’s learning experience by including computers and the Internet in the learning process. There are a number of commercial VLE software packages available, including Blackboard, WebCT, Lotus LearningSpace, and COSE (Rosenberg, 2001).

*Virtual university or college.* A virtual university or college has no physical campus and offers courses and programs exclusively on the Internet and WWW (Cherepski, 2000).

*Web-based instruction (WBI).* According to Khan’s (1997) definition, “WBI is a hypermedia-based instructional program which utilizes the attributes and resources of the WWW to create a meaningful learning environment where learning is fostered and supported” (p. 6).

*Web-based training.* Web-based training is instruction or computer-based training that is delivered or transferred over the Internet or intranets through the use of a Web browser. With Web-based training, the Internet or an intranet is the primary medium to deliver instruction anytime, anywhere around the globe (Belanger & Jordan, 2000; Hall, 1997; Kilby, 2000).

**Chapter Summary**

In this study, the researcher concentrated on the willingness of faculty to develop and offer Web-based courses in Saudi Arabia universities. Saudi universities are facing
major changes. Some universities want to change from a formal, traditional method of learning and teaching to distance learning. Universities in Saudi Arabia are facing severe challenges; how to apply new instructional delivery systems to educate the growing student population is a matter of immediate urgency. Since the development of WBI is an inevitable trend around the world, developing WBI may be a wise choice for universities in Saudi Arabia.

The researcher investigated what facilitating and impeding factors are affecting faculty decisions to participate or not to participate in WBI, identified information about faculty characteristics, and determined whether these characteristics affect participation in developing WBI, gathered information regarding the attitudes of faculty toward development and implementation of a distance-education program in Saudi Arabia, and gained insight into the key issues concerning adoption and sustainability of distance education in general and WBI in particular.

The objectives of this study were to (a) identify factors related to faculty attitudes that might help in developing and implementing distance learning in general and WBI in particular at Saudi universities, (b) determine the perception of the faculty towards development and implementation of WBI, and (c) identify any issues related to the personal and professional characteristics of faculty members that could influence attitudes toward distance learning.
CHAPTER II
REVIEW OF THE LITERATURE

Introduction

In the literature review of this study, several areas related to distance learning and its specific impact on online education were examined. The first part provides a brief description of the Saudi Arabian education system. The definition of distance learning and Web-based instruction (WBI) are examined in the second part. Then, the historical background of distance education is explored. Next, factors that inhibit faculty from participating in distance learning are explored. Finally, factors that motivate faculty to participate in distance learning are presented.

Distance learning is not a new phenomenon. With the development of the postal service in the 19th century, commercial correspondence colleges provided distance education to students. This trend continued well into the 20th century with the diffusion of radio, television, and other media innovations that allowed for learning at a distance. During the 1990s, distance education changed significantly with the integration of computer-mediated learning, two-way interactive video, and a variety of other technologies (Phipps & Merisotis, 1999).

Garrison and Shale’s (1987) model presents four generations that can be discussed in terms of a delivery system: (a) Generation 1—print, radio, and television; (b)
Generation 2—video and cable television; (c) Generation 3—electronic mail, chat rooms, and bulletin boards; and (d) Generation 4—unlimited with the possibilities of virtual reality or video desktop (two-way audio and video). Al-Arfaj (2001) stated that there are three generations of distance education: (a) correspondence education, (b) broadcast and teleconferencing, and (c) WBI. The researcher of this study found that the main generations of distance learning are (a) invention of the printing press and correspondence education, (b) development of the World Wide Web (WWW), (c) WBI, and (d) multimedia and virtual reality.

A wide range of technological options are available to the distance educator. Gutenberg’s invention of the printing press was an extremely early example of technology revolutionizing distance-education processes (Spodick, 1996). Print formats including textbooks, study guides, workbooks, and course syllabi form the foundation of distance-education support systems. Technologies have facilitated access to learning opportunities through radio, voice, telephone, audio-conferencing, tapes, television, fax machines, videotapes, two-way video communication (whether through satellites or communication networks), auto-tracking cameras, phonographs, computer networks, and electronic mail (Spodick; University of Idaho, College of Engineering, 1999).

Moore and Kearsley (1996) pointed out that each medium and each technology has its own set of strengths and weaknesses, and one of the worst mistakes an organization or an instructor can make is to become completely focused on delivery by a single medium. Baird and Monson (1992) stated that distance education offers tremendous opportunities as well as challenges to today’s educational stakeholders.
Higher-Education System in Saudi Arabia

General Information

Because higher education in Saudi Arabia is the focus of this study, a brief description of the Saudi Arabian education system is important to help frame the general educational issues found in the Kingdom’s higher-education system. The leadership of the Kingdom of Saudi Arabia has realized for many years the importance of educating qualified Saudis to build the nation. The Saudi government believes that the cultural and scientific progress of the nation is closely dependent on qualified citizens who can take on the nation-building task (Al-Erieni, 1999; Royal Embassy of Saudi Arabia, 2003).

The Kingdom of Saudi Arabia was founded in 1932 and, at that time, education was accessible to only a few; educational opportunities were limited to individualized instruction at religious schools in mosques in urban areas. These schools taught Islamic law and basic literacy skills. Some 70 years later, Saudi Arabia has a nationwide educational system that provides free education and training from preschool through university to all citizens. The system also provides students with free books and health services. Although the study of Islam remains at its core, the Saudi educational system also provides instruction in modern and traditional arts and sciences. This combination of efforts helps meet the Kingdom’s growing need for highly educated citizens (Royal Embassy of Saudi Arabia, 2003).

Formal primary education began in Saudi Arabia in the 1930s. By 1945, King Abdulaziz bin Abdelrahman Al-Saud, the country’s founder, had initiated an extensive program to establish schools in the Kingdom. Six years later, in 1951, the country had 226 schools with 29,887 students. In 1954, the Ministry of Education was established and
headed by Prince Fahd bin Abdulaziz, as the first Minister of Education (Royal Embassy of Saudi Arabia, 2003). In 2002, Saudi Arabia’s nationwide educational system was comprised of 11 universities, over 24,000 schools, 48 women’s colleges, and over 30 colleges and other educational and training institutions that offer a variety of programs (Al-Mogbel, 2002). In 2000, the Saudi budget for education, including vocational training, was 13.17 billion U.S. dollars—over 25% of the total national budget (Royal Embassy of Saudi Arabia).

The purposes of education in the Kingdom of Saudi Arabia are (a) promoting an understanding of Islam, including the Islamic faith and Islamic values; (b) developing constructive behavioral trends; (c) reforming society economically, socially, and culturally; and (d) preparing individuals for a useful and constructive role in society (Ministry of Higher Education, 2003; SAMEX, 2007; Saudi Arabian Information Resource, 2004). Based on this policy, the aims of higher education in the Kingdom represent Islamic principles and values, while ensuring and complementing the general aims of the comprehensive development plan (Saudi Arabian Information Resource).

The Ministry of Higher Education

Saudi Arabia has devoted special attention to fostering higher education. Established in 1975, the Ministry of Higher Education began to enable the Saudi educational system to provide the manpower necessary to run an increasingly sophisticated economy.

The Ministry of Higher Education is responsible for all universities and institutes of higher education in the Kingdom of Saudi Arabia. One of the first objectives of the Ministry was to establish new institutes of higher education throughout the country and
expand existing ones. Another objective was to establish undergraduate and postgraduate programs in most disciplines at Saudi universities and colleges. As a result, Saudi students can now obtain degrees in almost any field within the country (Royal Embassy of Saudi Arabia, 2003). All of the universities in Saudi Arabia teach in Arabic and English.

Saudi Arabia’s Higher-Education Organization and Web-based Instruction

Saudi universities must take full advantage of the benefits of technological change. Saudi universities need to diffuse new instructional technology (IT) knowledge; the advancements in the field of IT will help Saudi universities implement WBI in a professional way and increase growth of quality education in Saudi universities. In many Arab countries there has been no real implementation of distance education despite attempts by local institutions and international organizations like the United Nations Educational, Scientific and Cultural Organization (UNESCO) to promote regional cooperation through distance education (Nasser & Abouchedid, 2000). The adoption of WBI should be evaluated carefully with regard to benefits for Saudi universities.

Identifying the critical barriers enables organizations and the stakeholders they serve to determine the possible influences of Web-based training and contributes to the future success of implementing Web-based training (Carliner, 2000). Many organizations are unable to implement WBI because they cannot get top management’s support and buy-in (Rosenberg, 2001). In order for Saudi universities to implement Web-based training, they must identify the barriers and determine the possible influences of Web-based training on their organizations. This is an important critical first step to successful implementation.
In Saudi Arabia, large student growth is expected to occur in institutions of higher education. The number of students has been increasing year by year. In 2003, to help meet this growth, the Saudi government added three universities. In the academic year 2006-2007, the number of students who applied to Saudi colleges and universities increased 62% from 68,000 in 2003 to 110,000 (Ministry of Higher Education, 2007). A response to the growth in the number of students is becoming urgent, and distance education appears to be a viable solution. The use of WBI may help the Saudi government develop solutions for solving problems of the increasing numbers of students through extension of access to students. WBI is giving students in small communities the same opportunities for an education that are found in larger cities (Cherepski, 2000; Huang, 2003).

Since the 1980s, billions of dollars have been spent on education in Saudi Arabia. In spite of the fact that education holds the highest priority in the Kingdom’s annual budget, many areas of the country do not have access to higher education (Abahussain, 1998). People living in remote areas in small communities and villages are often isolated by distance and lack of contact with other communities and government services (Abahussain). Today, more WBI is being implemented by Saudi universities to give more Saudi students opportunities for higher-education.

Definition of Distance Learning and WBI

For the purpose of this research study, the researcher defines WBI as distance learning. This research focused on WBI for higher education, especially for distance
learning. WBI is one of the tools with which education is delivered. Web-based learning systems are generally housed administratively in distance education. This section identifies both WBI and distance learning.

**Distance Learning**

Roberts (1996) defined *distance learning* as any instructional delivery approach that replaces the traditional same-time, same-place, and face-to-face classroom environment. Hall (1997) defined *Web-based training* as an instruction that is delivered over the Internet or intranets through the use of a Web browser. Belanger and Jordan (2000) indicated that in Web-based training the Internet or intranets are used as primary mediums to deliver instruction anytime and anywhere around the globe. The terms *distance education* or *distance learning* have been applied interchangeably by many different researchers to a great variety of programs, providers, audiences, and media. Distance education is also referred to as distance learning and learning at a distance (Abahussain, 1998).

Distance education takes place when a teacher and student are separated by physical distance, and when technology (i.e., voice, video, data, or print) bridges that distance. Distance programs (a) provide individuals with a second chance at a college education, (b) reach individuals disadvantaged by limited time or distance, and (c) enable individuals to update their skills at places of work. For this study, *distance education* is defined as “the separation of teacher and learner in space and/or time” (Perraton, 1988, p. 34).
Web-Based Instruction

WBI is defined as an innovative approach for delivering instruction using the World Wide Web (WWW) as the delivery system (Khan, 1997). WBI is not simply placing lecture notes online, nor is it creating a library of links to content-related sites. WBI requires instruction, teaching, content, cognitive, visual, and usability design principles to be followed; WBI ensures fulfillment of teachers’ and students’ needs (Rice, McBride, & Davis, 1998).

In WBI, content in hypertext, audio, video files, and other multimedia formats are provided. Resources such as chat, threaded discussion, e-mail, and hyperlinks are included (Marsh et al., 2000). The developer of Web-based learning environments uses the resources of the Web to create a context in which learning is supported and fostered (Daugherty & Funke, 1998). WBI is growing faster than any other instructional technology (Cherepski, 2000; Crossman, 1997). In Saudi Arabia, more and more university faculty members are using WBI as an integral part of instructional activities (Al-Arfaj, 2001; Al-Erieni, 1999). For this study, WBI is defined as a comprehensive set of instructional materials available through a browser over the Internet or intranet.

Historical Background

To provide a clear understanding of WBI and distance learning, several areas need to be reviewed. In this historical background, information related to correspondence education, radio broadcasting, television broadcasting, cable and satellite television, the Open University concept, telecommunication, computer, and WBI is presented.
Correspondence Education

Two technological developments, the invention of printing and the introduction of universal postal services, allowed distance education to reach individuals in their homes or place of work (Al-Mogbel, 2002). Historically, printed materials sent through the mail facilitated communication, teaching, and learning, taking the form of correspondence courses (Cherepski, 2000). In this form of nontraditional learning, course materials were sent out by mail to distant students. In the beginning, such course materials were in written form and included traditional textbooks, workbooks, and study guides. Students completed school work at home on their own, and the finished assignments were mailed back to the instructor. The first distance-education program was a correspondence study that came into being in the 19th century, perhaps dating back to 1828, when mail service became sufficiently reliable to permit adults to take courses at home and communicate with the teacher by mail (Belanger & Jordan, 2000; Spodick, 1996; Moore & Kearsley, 1996; Weisburg & Ullmer, 1995; Weisner, 1983). Simonson, Smaldino, Albright, and Zvacek (2000) found an early 1833 Swedish advertisement “that touted the opportunity to study composition through the medium of the Post” (p. 22). In 1883, a correspondence university, headquartered at Cornell University, was established. From 1883 to 1891 the Chautauqua College of Liberal Arts, authorized by the State of New York, granted academic degrees to students who successfully completed work at summer institutes and through correspondence activities during the academic year (Cherepski, 2000; Gerrity, 1976; Nasseh, 1997; Watkins & Wright, 1991). Correspondence education started in Saudi Arabia around 1980, when students participated in courses provided by international universities outside the Kingdom (Al-Arfaj, 2001).
Radio Broadcasting

By the 1920s, distance education entered into electronic and technological times using radio technologies (Holmberg, 1986). The University of Iowa offered its first credit courses by radio in 1925 (Moore & Kearsley, 1996). During the period between the two World Wars, the U.S. Federal Government permitted and approved radio broadcasting licenses to 202 colleges, universities, and school boards (Nasseh, 1997). The technology of radio and available materials greatly reduced barriers of distance (Spodick, 1996).

In 1932, King Abdul Aziz established his own private radio network in the Kingdom of Saudi Arabia, primarily to enable him and his officials to keep themselves informed of events. In the full sense of public broadcasting, transmissions began in the Kingdom of Saudi Arabia in 1948 from a small station in Jeddah, followed 3 years later by a station in the Holy City of Makkah. In 1964, the Riyadh broadcasting station and the Call of Islam station (based in the Holy City of Makkah) began transmissions. In 1973, the Kingdom began short-wave and high-frequency broadcasting in Bembari, Bengali, English, French, Indonesian, Farsi, Somali, Swahili, Turkistan, Turkish, and Urdu. Radio broadcasts from the various stations were unified into the General Service in 1979. Saudi radio channels broadcast radio education programs with support from the Ministry of Higher Education and the Ministry of Education. Although not official distance-learning programs, these radio programs were designed to assist students in the traditional learning system (Saudi Arabian Information Resource, 2004).
Television Broadcasting

In the early 1930s, the University of Iowa, Purdue University, and Kansas State College produced experimental television education programs (Simonson et al., 2000). The University of Iowa began delivering televised college courses in 1934; by 1939 it was delivering almost 400 televised courses (Moore & Kearsley, 1996); and by the 1950s it was offering credit via broadcast television (Simonson et al.). After World War II, television was considered as another delivery option in correspondence study (Nasseh, 1997). In the 1960s, the number of educational television stations in the U.S. increased rapidly (Jeffries, n.d.). From the middle of the 20th century until today, television has been used as an important tool to deliver distance programs (Belanger & Jordan, 2000).

More than any other technology to this point in time, television provided a way to duplicate the classroom environment in a medium that could be distributed to a learner’s home (Spodick, 1996). A wide variety of media could be integrated into television productions: video-instructional tools include still images such as slides, moving images (e.g., film, videotape), and real-time moving images combined with audioconferencing (University of Idaho, College of Engineering, 1999).

In 1964, the late King Faisal commissioned the American National Broadcasting Corporation (NBC) to construct a national television network for Saudi Arabia. The first test television transmissions in the Kingdom took place in 1965 from stations in Riyadh and Jeddah. Throughout the development of the Kingdom’s television services, the Ministry of Culture and Information has ensured that only the most advanced technology be utilized (Saudi Arabian Information Resource, 2004). In 2007, there are four Saudi television channels, three in Arabic and one in English. Saudi television channels
broadcast educational programs with assistance from the Ministry of Higher Education and the Ministry of Education. As with the use of radio offerings, those programs are not official distance learning programs, but they are presented to help students who are in the traditional learning system (Saudi Arabian Information Resource).

Gender segregation is required at all levels of public and higher education in the Kingdom of Saudi Arabia. Male instructors are allowed to teach female students through telecommunications systems or distance-learning technologies, including closed circuit systems used to teach both males and females. One-way video and two-way audio are used to broadcast lectures between two locations, one where the teacher is and the other where the students are. This system was in great demand in higher-education systems because of religious traditions, the shortage of colleges, university professors, and experts in different fields (Ministry of Higher Education, 2003).

Saudi universities in the early 21st century use Interactive Television Technology (ITT) transmitted via fiber optic lines—a technology that provides visual and auditory communication to students in remote areas who are seeking an education. ITT has proven to be a valuable asset for reaching students who otherwise would not have access to an education (Abahussain, 1998).

Cable and Satellite Television

Satellite technology was developed in the 1960s and became cost effective in the 1980s (Watkins & Wright, 1991). In the late 1970s and early 1980s, cable and satellite television came into use as a delivery medium for distance-education courses (Nasseh, 1997; Watkins & Wright). Taking advantage of the technologies, by the mid-1970s, many institutions across the U.S. were delivering satellite courses and conferences to
remote sites throughout the world (Moore & Kearsley, 1996). In the 1980s, cable and satellite television began to be used as a delivery medium for distance education (Public Broadcasting Service, 2002).

In the late 1980s and early 1990s, the use of satellite communication technology by business organizations for training purposes gradually increased (Schreiber, 1998). At the same time, developments of fiber-optic communication systems contributed to the expansion of synchronous distance education (Simonson et al., 2000). In late 1991, 18 U.S. institutions, including the University of California, the University of Oklahoma, Pennsylvania State, and Washington State, became part of the Mind Extension University™ (ME/U™) educational network to deliver video course materials for independent study courses (Nasseh, 1997). Satellites offer one-way audio and video presentation where digital video, audio, and data can be transferred simultaneously through fiber-optic cables worldwide and to evolving satellite networks (Tiffin & Rajasingham, 1995). The development of microwave and satellite technologies has greatly expanded radio and television coverage. Signals can be broadcast farther, to more locations, at reduced cost compared to terrestrial systems (Spodick, 1996).

Satellite systems rank among the most expensive technologies in terms of research, development, and procurement costs; but this factor is usually compensated for by the flexibility and marginal costs associated with down-linking (Al-Rashoud & Al-Abdul-Kareem, 2001; Whittington, 1990). In the past 10 to 20 years, as the cost of reception equipment has declined and the variety of programs available has increased, there has been an increase in television-based distance-education courses distributed via satellites.
The Kingdom of Saudi Arabia is playing an active role in the development and exploitation of satellite communication system opportunities. In 1985, Saudi Arabia and other Arab countries launched two communications satellites called ArabSat. The two communications satellites facilitate almost instantaneous transmission of many forms of data, including alphanumeric text, voice, still pictures, and moving pictures. Their use in news dissemination, business, entertainment, and education is limited only by the imagination and resources of the user. The King Fahd Satellite Communications City in Jeddah is the largest complex in the Middle East and is composed of four ground stations, which provide telephone, telex, television, and cable services (Saudi Arabian Information Resource, 2004).

The Open University Concept

The Open University of the United Kingdom, founded in 1969, served as a degree-granting distance-teaching university and has become a model for other distance learning systems (Christianson, 2001). The Open University has been characterized as the largest and most innovative educational organization in the world (Moore & Kearsley, 1996; Nasseh, 1997; Zigerell, 1984) and is a leader in the large-scale application of technology to facilitate distance learning. Consequently, it has overcome the concept of place and time and eliminated national and nationality boundaries (Nasseh). The Open University of the United Kingdom “serves as the best example of a total systems approach to distance education” (Moore & Kearsley, p. 27). Hafiz (1976) recommended that “an open university is necessary to serve as a way to overcome the shortages of qualified manpower and to become the chief arm and active agent for Saudi Arabian higher education and human resource development” (p. 271).
The Arab Ministers of Education convened in Beirut, Lebanon, on September 18, 2000, and announced the establishment of the Open Arab University in the year 2001 (Nasser & Abouchedid, 2000). His Royal Highness Prince Talal Bin Abdulaziz, president of the Arab Gulf Program for United Nations Development (AGFUND), promoted the concept of the Arab Open University (AOU). An organizational goal of AOU management is to establish itself as a leading institution of open learning, offering opportunities for independent study and creating a forum for lifelong learning. The AOU system relies heavily on tutoring processes and attempts to promote a proactive environment of learning. Course lectures are programmed in nature and are aligned with textbooks, supporting notes, audio and video cassettes, CD-ROMs, and online Web sites. Library and computer-based resources have been established at AOU’s regional branches in the following countries: Kuwait, Bahrain, Egypt, Jordan, Lebanon, and Saudi Arabia (Arab Open University, 2004). The AOU launched its programs of study in October 2002 in the following areas: Kuwait (Headquarters Branch), Bahrain, Egypt, Jordan, Lebanon, and Saudi Arabia (Arab Open University).

Telecommunications, Computers, and WBI

Whittington (1990) stated that the rapid growth in the use of telecommunications technologies in higher education during the 1980s stimulated interest in distance learning. In the 1980s, with the availability of personal computers for home and office use, a wide variety of uses of computer-based instruction or computer-assisted instruction were initiated. Since the 1980s, multimedia products have been available, and advancements in Web technologies have permitted educational opportunities to be widely delivered at relatively low costs (Marquardt & Kearsley, 1999).
The capabilities offered through the Web, including Internet tools, multimedia components, content development, authoring programs, servers, and browsers, facilitate active learning in Web-based learning environments (Khan, 1997). Khan indicated that well-designed WBI provides numerous features that together contribute to the learning environment, such as interactivity, online search, online resources, open systems, global accessibility, authenticity, and collaborative learning. Furthermore, Hall (1997) observed that these features encompass pedagogical, technological, organizational, institutional, and ethical issues. Khan concluded that “the more components a WBI program integrates, the more features it is able to offer” (p. 7). The use of WBI is growing faster than any other instructional technology, and more and more university faculty are using WBI as an integral part of instructional activities (Crossman, 1997; Fredrickson, 1999; Mwaura, 2003).

The potential collaborative and interactive benefits of WBI are touted. Web-assisted and Web-based courses provide the opportunity for students to move from individual to collaborative learning, from the consideration of ideas in isolation to an examination of their meaning in global context (Clayton, 2002, Huang, 2001).

WBI has gradually become the current mainstream choice for distance education, especially in higher education (Olgren, 2000; Robinson, 1994). During the 1990s, the use of the Internet expanded because of opportunities for completely online courses through distance education (Smith & Benscoter, 2000). In 1998, data from the U.S. Department of Education showed that the number of distance-education programs offered by colleges and universities had increased by 72% between 1995 and 1998. It has been estimated that
1,680 institutions were offering a total of 54,000 distance-education courses between the years of 1995 and 1998 (Lee, 2001; Wood, 2001).

In the U.S., university administrators’ interests in nontraditional methods of course delivery (Orwig, 1999) include computer applications such as computer-assisted instruction and computer-managed instruction, in which the computer is used to organize instruction and track students’ records and progress. In addition, computer-mediated education facilitates the delivery of instruction and includes (a) electronic mail, (b) fax, (c) real-time computer conferencing, and (d) WWW applications (Glenn, 1999).

*Computer-based education* and *computer-based instruction* refer to any kind of computer use in educational settings, including drill and practice, tutorials, simulations, instructional management, supplementary exercises, programming, database development, and writing by using word processors. These terms may refer either to stand-alone computer learning activities or to computer activities that reinforce material introduced and taught by teachers (Cotton, 2003). The use of computer-mediated communication (CMC) in classes creates online-learning opportunities for students at a distance and has become an extremely popular strategy in higher-education institutions (Berge, 1998). *CMC* refers to human communication via computers, including computer network communication on the Internet and the WWW (Berge).

The Internet is changing the way colleges and universities teach and do business (Lee, 2001). It is possible to study for a college degree online in hundreds of programs (Lee). Advancements in telecommunication technologies have created opportunities whereby educators in higher-education institutions can expand the educational process
beyond the traditional classroom and deliver instruction and training to geographically diverse audiences locally, nationally, and internationally.

In Saudi Arabia, current Internet-based learning is presented through text and graphic images. Many universities in Saudi Arabia use Web-enhanced methods as an extension in their teaching processes. Saudi students can download syllabi and course summaries from the Internet and use e-mail to interact with instructors (Al-Rashoud & Al-Abdul-Kareem, 2001). In Saudi Arabia, the Internet has become a popular way to communicate information to distance students (Al-Rashoud & Al-Abdul-Kareem).

Abdullah Bin Abdulaziz Schools’ Net Project is a good example of the use of the distance education and WBI in Saudi schools. The project connects all Saudi schools and educational directorate districts with a wide area network and local area networks (Ministry of Higher Education, 2003). The Schools’ Net Project provides every student, teacher, parent, and educator with content and various services. The Schools’ Net Project content and services include subject curricula and educational references. Abdullah Bin Abdulaziz Schools’ Net Project provides (a) electronic books, (b) teachers’ guides, (c) special needs, (d) syllabi, (e) interactive multimedia, (f) teacher training, (g) school management systems, (h) Web-design tools for schools, (i) e-mail, (j) chatting, (k) announcements, (l) Internet links, (m) students’ magazines, (n) teachers’ magazines, (o) educational statistics, (p) students’ training, (q) students’ sites, (r) informational technology skills for all, and (s) a questions-and-answers bank (Ministry of Higher Education).

In 1999, Internet service first became available in the Kingdom of Saudi Arabia, with connections routed through a state server that served as the Internet Service Provider
(ISP), at the King Abdul Aziz City for Science and Technology (Saudi Arabian Information Resource, 2004). The Ministry of Communications provided the external means to access the Internet, making the service available for research agencies, academics, and public and private companies.

In July 2001, Saudi Telecom Company (STC) introduced asymmetric digital subscriber line (ADSL) service for the Kingdom, which significantly reduced the cost of the Internet service. ADSL technology made it possible for all the universities to implement more WBI (Saudi Arabian Information Resource, 2004). By April 2003, there were 21 operational Internet Service Providers (ISPs) in Saudi Arabia, providing Internet access to 1.6 million users.

Factors Inhibiting Faculty Participation in Distance Learning

Schifter (2002) suggested in his study of factors that inhibit faculty participation in asynchronous learning networks (ALNs) that “the lack of institutional support for faculty, technical infrastructure and course development needs” (p. 15) are the top three factors that inhibit faculty participation in ALNs. Frequently mentioned barriers include (a) decreased live, face-to-face interaction with students; (b) lack of time to plan and deliver an online course; and (c) the lack of support and assistance in planning and delivering an online course (McKenzie, Mims, Bennett, & Waugh, 2000). In addition, factors such as lack of release time, lack of technical support from the institution, concern about faculty workload, and lack of grants for material expenses have negatively influenced faculty participation (Betts, 1998).

The primary factors inhibiting faculty from teaching via distance as identified in the literature include (a) increased workload, (b) the altered role of the instructor, (c) lack
of technical and administrative support, (d) reduced course quality, and (e) negative attitudes of colleagues (Clay, 1999a). Instructors have other concerns about distance learning, primarily, how distance will change their role in education (Kincannon, 2000). Faculty concerns about teaching via distance are related to (a) time, (b) cost, (c) instructional design, (d) instructor-student relationships, (e) reward structure, (f) degree programs, (g) policy, and (h) training (Rockwell, Schauer, Fritz, & Marx, 2000).

Bichelmeyer, Misanchuk, and Malopinsky (2000) listed factors that impact the adaptation process of WBI, such as (a) instructor experience and openness to innovation, (b) technological capacity and infrastructure, (c) rationale for adaptation to WBI, (d) fit of course goals with technological capacity, (e) labor force available for course adaptation, (f) technological equipment and sophistication of learners, (g) learner motivation for taking the course, (h) administrative support, and (i) tuition and fees. Faculty reported a wide range of challenges in the development and delivery of WBI. The most frequently identified barriers included (a) lack of technical support, (b) lack of software and hardware, (c) lack of faculty and administrative support, (d) lack of preparation time required to create assignments, and (e) student resistance (Daugherty & Funke, 1998).

Enabling the ability to teach and learn anytime, anywhere with institutional responsiveness requires three components: (a) administrative leadership, (b) the technical and workforce infrastructure to fulfill the mission, and (c) faculty willing to risk experimentation (Truman-Davis & Hartman, 1998). Clay (1999b) found that faculty resists teaching distance-education courses because of increased workloads and lack of administrative support. In addition, Clay found the following issues to be important: (a)
altered role of the instructor in distance-education instruction, and (b) negative perception of the distance-education instructor by colleagues. Clay pointed out that not all of these issues exist at every institution, but that they do exist in various forms at many of them.

On the other hand, others have indicated why instructors prefer to teach distance education and online courses. Clay (1999b) listed reasons for teaching distance-education courses as (a) opportunities to reach more students, (b) intellectual challenges, (c) opportunities to work with more motivated students, (d) provision of release time, (e) financial rewards, (f) motivation to use technology, (g) opportunities for research, (h) opportunities for recognition, (i) opportunities to use support services, (j) increased course quality, (k) reduced travel, and (l) increased flexibility. Arthur (1998) identified barriers that might prevent distance education from becoming a viable alternative form of education as (a) interactive issues, (b) familiarity with distance education, (c) technology, (d) time, (e) money, (f) the role of the faculty, (g) motivation to change, and (h) curriculum development.

Clark (1993) suggested that faculty support for distance courses was framed within concerns for quality of interaction, administrative support, and rewards. Berge and Muilenburg (2000) indicated that barriers, as perceived by managers and administrators, include (a) organizational resistance to change, (b) lack of shared vision for distance education in the organization, (c) lack of strategic planning for distance education, (d) a slow pace of implementation, and (e) difficulty keeping up with technological changes. Critical barriers and factors can be organized in four general areas: (a) instructional support and administration issues, (b) technical issues, (c) faculty experience and professional development, and (d) course development needs. Exploration of these areas
provides context to how faculty and university administrators respond to the challenges of distance learning.

**Institutional Support and Administration Issues**

Institutional support for faculty involvement in distance education is essential and takes on a variety of forms, especially in terms of the recognition that there is a wide range of faculty motivations and needs (Bower, 2001). Administrators must understand what motivates and inhibits faculty distance-education participation to maximize efforts and ensure that any issues related to the institution culture are taken into consideration (Al-Erieni, 1999; Schifter, 2002). Faculty need administrative support and opportunities to develop effective technology-based courses (Thomson & Stringer, 1998).

University administrators often pressure faculty to teach courses online; many faculty have never taught online and, therefore, wonder what they are getting into (Smith, Caris, & Ferguson, 2001). As distance education changes the way education is being delivered, administrators should reexamine policies, rules, and regulations (Gilbert, 1996) to make sure that they respond to problems in ways that encourage faculty participation. Availability of the necessary technology resources, including computers and access to telecommunication networks, is also an important issue in making decisions regarding institutional policies (Al-Erieni, 1999).

Faculty and administrators must work together to make a distance program successful (Schifter, 2002). As the use of distance education increases, college and university administrators must develop strategies for successful implementation of online degree programs (Ensminger & Surry, 2002). Rockwell et al. (2000) stated, “For faculty to be successful in distance-education teaching, higher-education institutions must take
into account the wants, needs, interests and aspirations of the faculty so they can help faculty develop distance learning educational models and techniques” (p. 10). As an outcome of such initiatives, many administrators are leading efforts to review the extent to which distance education will apply toward awarding tenure and promotion (Wolcott, 1997).

Two core challenges are faced by administrators who want to facilitate delivery of courses and programs, especially when preparing faculty to teach in this environment. First, the online environment has created an increased need for faculty with interests and skills in this area, who can master the technology, take advantage of the new pedagogy mandated by teaching in a virtual environment, and maintain their subject area competence. Second, faculty must be sufficiently trained to take advantage of these resources in the design and delivery of Web-based courses (Schweber, Kelly, & Orr, 1998). A clear policy will guide faculty toward the use of the technology and aid in achieving the institution’s mission (Al-Erieni, 1999).

The need to reform existing educational programs and implement new ones requires understanding of both teachers’ and directors’ beliefs concerning distance education. Nasser and Abouchedid (2000) found that faculty who were involved in distance-education programs consider literacy, awareness, and interest as powerful agents for change. Abahussain (1998) found that teachers and administrators who were working in higher education in Saudi Arabia favored having courses available to remote areas of the Kingdom of Saudi Arabia and suggested that a sense of change in the traditional environment may already be in process.
The evidence of WBI effectiveness can serve as a reference base and as justification for the use of WBI (Berge & Muilenburg, 2000). In addition, such evidence can be the basis for making strategic decisions (Cegles, 1998).

**Technical Issues**

Many faculty have expressed the need for additional support and compensation to meet expectations concerning WBI. The challenge for faculty is to meet the expectations of students and their administration to incorporate this technology into their teaching practice and still retain their own definition of quality teaching (Kincannon, 2000). To integrate technology into teaching and learning processes, two key objectives have been identified: (a) to preserve a sense of community in colleges and universities, especially among teachers and learners, and (b) to sustain or increase the quality and frequency of communication between students and teachers within these groups (Clayton, 2002).

Beggs (2000) and Lan (2001), among others, identify technology factors related to the success of online instructional programs as (a) adequate equipment and technological resources, (b) incentives for using technology, (c) comfort level using technology, (d) time for training, and (e) need to change existing instructional methods. Along with the need for current Web technology skills, faculty need the ability to design and deliver their course on the Web using a variety of instructional strategies in interactive formats (Gerlich & Mills, 2003).

From an individual faculty member’s perspective, Betts (1998) found that the intrinsic factors (a) intellectual challenge, (b) personal motivation to use technology, (c) ability to reach new audiences who cannot attend classes on campus, and (d) opportunity to develop new ideas were important factors when examining faculty issues. Neglecting
faculty beliefs about the rapid developments in technology and uses for instruction often leads to limited implementation (Cuban, 1997).

Cost is a consideration when investing in an organization’s new technology or equipment infrastructure (Chute, Thompson, & Hancock, 1999; Greengard, 1999). Acquisition costs for technology are high, and rapid development of new technology reduces the effective life of equipment already in place (Al-Mogbel, 2002). Faculty should be able to identify and recognize strengths and weaknesses of technology and select the most appropriate delivery mechanism for a particular lesson (Gunawardena, 1990).

Another issue relates to individual attitudes toward technology. Delcourt and Kinzie (1993) argued that experience and a positive attitude are predictive of self-efficacy for use of computer technologies. A person’s individual confidence in his or her ability to complete certain tasks will provide a positive attitude toward technology (Al-Mogbel, 2002).

There are also potential technology-related factors that may prevent faculty from pursuing technology innovations, including fear of (a) change, (b) increased time involved, (c) appearing incompetent, (d) failure, (e) not knowing where to start, (f) making bad choices, (g) typing, and (h) reprisals and rejection (Williams, 1996). Addressing these fear factors helps to promote use of distance education in order to meet organizational goals.

*Faculty Experience*

One of the most important steps in the development of WBI is to obtain a clear view of faculty characteristics. In the U.S., a faculty member’s prior knowledge or
experience has a potential influence on online delivery (Colley, Gale, & Harris, 1994) and is one of the most important considerations when deciding on the implementation of online delivery (Lyon, 2001). Not only are faculty members’ knowledge and skills needed for implementing distance education, but also their perceptions of and attitudes toward the use of technologies for the purpose of education are needed (Tobin, Tippins, & Gallard, 1994). The basic skills required for faculty include understanding of (a) basic educational psychology, (b) basic principles of instructional design, (c) basic principles of effective instructional delivery, and (d) basic Web page design, including use of tools that positively impact learning (Formosa, 1998).

In a review of the literature, Dillon and Walsh (1992) found that faculty involved in distance-education endeavors developed more positive attitudes as their experiences with distance-education projects increase than those faculty who were not involved. Faculty experience changes their teaching practice when faculty transition from face-to-face classrooms to Web-based learning environments (Kincannon, 2000).

Understanding the attitudes of faculty, students, and administrators is very important in trying to implement a program of distance education (Al-Mogbel, 2002). Al-Erieni (1999) showed in her study that although many of the faculty in King Saud University had limited knowledge of computers, they did have positive attitudes regarding distance-education programs as an alternative to on-campus traditional classrooms. The faculty also felt that for distance-education programs to be effective, “good policies and procedures, quality assurance, compatibility, adequate course offerings, appropriate faculty training, necessary staff and administrative support,
reasonable faculty workload and satisfactory faculty promotion and rewards were vital” (Al-Erieni, p. 51).

Faculty’s lack of knowledge about and experience in distance learning can be major barriers to further development (Al-Mogbel, 2002). Stinehart (1987) provided descriptive information on the factors that affect faculty attitudes toward distance teaching, finding that full-time faculty held concerns about losing control of the teaching and learning process in distance education and that the level of control the instructor perceived was the greatest predictor of the willingness to teach at a distance.

Many faculty fear distance learning is just a means of reducing the number of faculty or a means to solve budget problems. Others fear dehumanization and alienation of students and a loss of critical thinking and social skills (Novek, 1996). Faculty experiences color their teaching strategies, but professional development can be a way to expand those experience levels to meet instructional challenges. Keegan (1995) suggested that instructors can prepare for the classroom by including multimedia use, speaking voice, and even font size considerations. Instructors also need to realize that the support systems are a central part of the distance learning experience. Taking advantage of support systems permits faculty to focus on what they do best—facilitate the teaching and learning process.

*Faculty Professional Development*

Teaching in the online environment requires faculty to have training in how to design and deliver interactive instruction using this online format (Gerlich & Mills, 2003). Killian (1997) said, “If we are to serve the faculty well, we need to show them how the computer can help them do what they want to do anyway” (p. 31). Teaching in
the online environment also requires faculty to have certain basic technical skills and a technical support infrastructure that may not be as critical in a traditional classroom (Gerlich & Mills). Shaeffer and Farr (1993) proposed that faculty development is a prerequisite to successful distance-education programs.

Faculty professional development is critical to the success of any distance-education program (Lee, 2001; Willis, 1993). Professional development should be strategically planned and integrated (Al-Ertieni, 1999). Faculty is unlikely to request assistance in learning new skills and techniques without institutional motivation and encouragement. Colleges and universities must address how faculty members will be trained in their efforts to integrate technology into instruction, and faculty need to learn how to establish and maintain contact at distance (Lee).

One area that is of prime concern is a lack of knowledge in the areas of instructional development and delivery (Formosa, 1998). Faculty are concerned with the integrity and quality of the teaching and learning process that occurs with their work, including how to best engage their students through interactivity (Yong & Wang, 1996).

Course Development Needs

Preparation time. Two factors viewed as critical in the successful implementation of distance environments are time and interaction. These factors impact faculty, learners, and the institution as a whole. The factor of time is the most consistent faculty complaint in designing WBI; Web-based teaching takes enormous amounts of preparation time, more time than required for face-to-face teaching (Kincannon, 2000). Hiltz (1997) found that the faculty indicated that their greatest area of concern was the increased workload. This concern was attributed to the increased preparation time needed for each course. In
addition, the faculty felt that class size should be limited to 25 students, as any more than that adds significantly to the time necessary to conduct the class. Faculty also identified the grading process as a concern, as projects would arrive at different times and often by different means, adding to time, effort, and confusion (Cherepski, 2000).

Faculty feel they are learning to be more effective teachers online, but it has been a difficult transition (Kincannon, 2000). The increased amount of time necessary to prepare for distance learning adequately takes away from the activities faculty are evaluated on, such as grant writing and publishing (Valentine, 2002). University administrators should recognize this fact and incorporate appropriate compensations when planning distance-education initiatives (Bower, 2001). The faculty is aware of the substantial time required for developing, integrating, and administering interactive elements courses (Clayton, 2002).

Learners’ interaction. A second development need involves interaction strategy design, development, and implementation. Moore (1989) proposed three types of interactions for successful distance education: (a) learner-content interaction, (b) learner-instructor interaction, and (c) learner-learner interaction. Strategies for all three types should be included in distance learning courses if instruction is to be successful. Mungall, Green, and Skunza (2001) explained that any program must address learner orientation before launching a successful online degree program.

Frankola (2001) argued that “the emotional connection between instructor and student may be even more important for online courses than in the classroom” (p. 14). Learners in an online format need curricular, instructional, and technological support. Learners should be actively involved in the evaluation and implementation of the course
Successful distance-education learners are self-motivated and disciplined; they operate well on their own without constant reminders from faculty or peers to meet project deadlines (Feasley, 1993).

Black (1997) cited a study in which online students learned 20% more when compared to the traditional students. The way students are classified may, in some instances, indicate their level of acceptance of online learning, although this may not always be the case (Cherepski, 2000).

Most distance-education research literature has centered on methods and learning from the student’s perspective (Al-Erieni, 1999). Dillon and Walsh (1992) indicated that most of the research centered on the learner. In fact, most of the research, according to Dillon and Walsh, has examined “learner outcomes, learner characteristics, and learner attitudes” (p. 5).

Factors Motivating Faculty To Participate in Distance Learning

Faculty participate in distance environments for a variety of reasons. Among the top factors motivating faculty to participate as distance instructors include (a) the opportunity to reach remote students, (b) intellectual challenge and the opportunity to develop new ideas, (c) the opportunity to work with more motivated students, (d) release time, (e) financial reward, (f) opportunities for research, (g) motivation to use technology, (h) the opportunity for recognition, (i) the opportunity to utilize support services, (j) reduced travel, (k) increased course quality, and (l) increased flexibility (Clay, 1999a). Faculty are motivated to teach online for many other reasons: (a) flexible working conditions, (b) the ability to reach new audiences, (c) the enjoyment of conducting online instruction, and (d) the opportunity to enhance their technology skills while planning and
delivering online courses (McKenzie et al., 2000). Additional incentives include (a) faculty recognition, (b) awards, (c) travel supplements, (d) grants for materials, (e) modified teaching assignments, and (f) credit toward advancement (Wolcott & Haderlie, 1995).

Betts (1998) conducted a study at George Washington University in Washington, DC, to identify factors that influence faculty to participate in distance education and found that (a) faculty who have extensive experience in higher education are more likely to participate in distance education than faculty with less experience; (b) faculty are more likely to participate in distance education if inhibiting factors are eliminated by the administration; (c) faculty participation will not increase significantly unless the administration eliminates inhibitors that deter faculty from participating in distance education; and (d) regardless of whether or not faculty feel positive or negative toward distance education, the faculty recognize the value of distance education. Taylor and White (1991) found that the primary benefits of distance teaching include (a) ability to reach new populations of learners, (b) opportunity to work with better prepared and motivated students, (c) flexibility in work schedule, and (d) pedagogical advantages such as the necessity for more efficient organization and the ability to use a broader range of media-based resources.

Distance-education researchers reveal a cross-section of incentives that have been used to motivate faculty to participate in distance education; these incentives include (a) salary increases, (b) merit payments, (c) overload payments, and (d) stipends (Al-Erieni, 1999). These concerns are often reflected in the literature as a need for faculty to have incentives for WBI development (Daugherty & Funke, 1998).
Chapter Summary

Higher-education institutions offer a wide selection of distance-learning courses that break time and location barriers. Distance education has evolved from correspondence education to online education, or Web-based delivery of education. The Internet and WWW have extended the scope of traditional education to anytime and anyplace. The growth of distance education worldwide and in Saudi Arabia is remarkable; the different methods of delivering distance education provides educators and students with the flexibility to choose a distance program that is right for them.

In this chapter, relevant information was provided about Web-based training according to the research questions explored in this study, and a picture of Web-based training in education institutions was provided. This researcher identified critical factors affecting university teaching faculty. Presented in the chapter is (a) an introduction to distance learning and WBI, (b) an explanation of the higher-education system in Saudi Arabia, (c) definition of distance learning and WBI, (d) a brief historical background about distance learning, (e) thoughts about factors that inhibit faculty participation in distance learning, (f) an identification of factors that motivate faculty to participate in distance learning, and (g) the chapter summary.
CHAPTER III
METHODOLOGY

Introduction

The researcher in this study investigated the facilitating and impeding factors affecting faculty decisions to either participate or not in Web-based instruction (WBI). The researcher also provided information about faculty characteristics to determine whether these characteristics affect participation in developing WBI. The population of this study was the faculty of three Saudi universities: (a) King Abdul Aziz University in Jeddah, (b) King Saud University in Riyadh, and (c) King Fahd University of Petroleum and Minerals in Dhahran. The outcome of this study is useful for Saudi universities and faculty in identifying (a) factors that should be strengthened, and (b) barriers that must be considered as faculty move forward in developing WBI.

This study was a replication of Huang’s (2003) study conducted in Taiwan; this study was conducted in Saudi Arabia. The purpose of Huang’s study was to investigate the factors faculty should have been concerned with when the Taiwanese institutes of technology wanted to develop Web-based courses. Huang’s study (a) utilized a survey approach to explore and describe the factors that might affect faculty participation in WBI and (b) identified faculty attitudes toward developing Web-based courses. The participants of Huang’s study were faculty from institutes of technology in Taiwan.
Presented in this chapter are (a) the research design, (b) study setting, (c) population and sample, (d) instrumentation, (e) variables, (f) data collection, (g) procedure, and (h) information about the Saudi universities included in this study. A summary of the methodology is also presented.

Based on the literature review and the statement of the problem, a set of research questions were developed. These questions are

1. What are the attitudes of Saudi faculty toward Web-based instruction?

2. How do the factors related to barriers influence faculty participation in Web-based instruction?

3. How do the factors related to incentives influence faculty participation in Web-based instruction?

Research Design

The researcher used a survey research design. This design was chosen because of a need to (a) collect data for testing the research hypotheses and (b) provide answers to the research questions by evaluating the attitudes and perceptions of selected faculty members regarding various aspects of distance education. The way to gather information in a survey research design is to ask participants structured and predefined questions. Descriptive statistics are used to present information about the sample of respondents (e.g., mean, standard deviation). Inferential statistics are used to generalize from the sample results to the population of interest. In this framework, the researcher gathers data from a sample population at one time through use of a survey, summarizes the quantitative data through descriptive and inferential statistical analyses, and then finally
decides whether it is reasonable to generalize to a particular population (Leedy & Ormrod, 2001).

The survey includes closed-ended items. For the closed-ended items, the quantitative approach is used in this study (a) to determine an account of the survey participants based on their demographic factors, (b) to analyze their responses to the measurable items of the survey, and (c) to examine the significance of the selected variables in the attitude of the survey participants.

Study Setting

Three Saudi Arabian universities were the institutions selected for this study: (a) King Saud University in Riyadh (founded in 1957 as Riyadh University and renamed King Saud University in 1982), (b) King Fahd University of Petroleum and Minerals in Dhahran (founded in 1963 and granted university status in 1975), and (c) King Abdul Aziz University in Jeddah (founded in 1967). A map describing the location of the three Saudi universities is provided in Appendix A.

The three universities are relatively old compared to other Saudi universities, and each has recently started to implement distance learning. At this time in their development, evaluating attitudes of the faculty toward WBI can provide insight into the key issues concerning adoption of this relatively new innovation.

Background Information About Saudi Arabia and the Three Saudi Universities

Saudi Arabia. One of the Arab countries in the Middle East, Saudi Arabia occupies most of the Arabian Peninsula, southwest of Asia. Saudi Arabia is the largest oil
producer in the world. The official name for Saudi Arabia is the Kingdom of Saudi Arabia. The population of Saudi Arabia is 24,000,000, and all citizens are Muslim.

*King Abdul Aziz University in Jeddah (KAU).* KAU was founded in 1967. KAU had 2,032 faculty members and more than 37,000 students in the academic year 2003-2004 (Saudi Arabia Information Resource, 2004). Established initially as a private university, KAU was converted to a state university in 1971 and has the following colleges: Arts and Humanities, Dentistry, Economics and Administration, Education (in Madinah), Engineering, Geology, Marine Sciences, Medicine, Meteorology, and Science. The Research and Development Center (which forms part of the Faculty of Economics and Administration), the International Center for Research in Islamic Economics, and the King Fahd Medical Research Center (all in Jeddah) are attached to the University (Saudi Arabia Information Resource).

*King Saud University in Riyadh (KSU).* KSU was founded in 1957 as the Riyadh University and renamed in 1982. KSU had more than 2,600 faculty members and more than 46,000 students in the academic year 2003-2004 (Saudi Arabia Information Resource, 2004) and has the following colleges: Administrative Sciences, Agriculture, Agriculture and Veterinary Sciences (in Al-Qasim), Architecture and Planning, Arts, Computer Sciences, Dentistry, Economics and Administration (in Al-Qasim), Education (in Abha), Engineering, Languages and Translation, Medicine (in Abha and Al-Qasim), Applied Medical Sciences, Pharmacy, and Science. There is also a College for Graduate Studies, a Center for Women’s University Studies, an Arabic Language Institute, a Center for Continuing Education, and an Institute of Languages (Saudi Arabia Information Resource).
King Fahd University of Petroleum and Minerals in Dhahran (KFUPM). KFUPM was founded in 1963 under the name of the College of Petroleum and Minerals, with fewer than 100 students. In 1964, the University decided to admit other Arab and Muslim students along with Saudi students (Saudi Arabia Information Resource, 2004). The College was officially inaugurated in 1965. By 1974, student enrollment had increased to 1,500, and the college was accorded university status in 1975. In December 1986, the university became the King Fahd University of Petroleum and Minerals. In academic year 2003-2004, the University had 680 faculty members and 5,739 students. KFUPM is a university with internationally acknowledged and respected standards of academic and technical excellence in the fields of petroleum and mineral technology (Saudi Arabia Information Resource).

Population and Sample

This research study was conducted in Saudi Arabia. Three Saudi universities were selected from all other Saudi universities. The sample of faculty came from the three universities.

Population

The target population of this study was the faculty of three Saudi universities: (a) KAU, (b) KSU, and (c) KFUPM. The three universities are located in the eastern, central, and western provinces of Saudi Arabia (Appendix A).
Sample

The sample of faculty comes from the population of faculty who taught during the Summer 2006 semester. In this study, the sample size was 10% of the population size as suggested by Grinnell (2001); the sample was randomly selected. In Table 1 the participating universities, target population, and the sample size are presented.

Table 1

*Study Target Population and the Sample Selected From Each University*

<table>
<thead>
<tr>
<th>Participating university</th>
<th>Faculty population</th>
<th>Sample</th>
<th>% of sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>King Abdul Aziz University</td>
<td>2032</td>
<td>203</td>
<td>38.3</td>
</tr>
<tr>
<td>King Saud University</td>
<td>2600</td>
<td>260</td>
<td>48.9</td>
</tr>
<tr>
<td>King Fahd University of Petroleum and Minerals</td>
<td>680</td>
<td>68</td>
<td>12.8</td>
</tr>
<tr>
<td>Total</td>
<td>5312</td>
<td>531</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Note:* Number of the sample is 10% of the number of the population.

Selection of Participants

The 531 faculty members who comprise the sample in this study were randomly selected from faculty member lists provided to the researcher by each of the three selected Saudi universities. The provided lists included all the faculty members, male and female, of all departments. The procedure for selecting each sample member was manually performed by choosing the 10th number of each list (10, 20, 30, and so on), to ensure that 10% of the population was selected. The 30 faculty members from KSU who participated in a pilot study were not included in the formal study.
Variables

Research Question 1 pertains to the attitudes of the Saudi faculty toward WBI. The variables of interest are 12 items on the survey. Research Question 2 focuses on the determining barriers that influence faculty participation in WBI. It is important to know whether actual faculty participation can be predicted from the barriers. Faculty participation in the response variable and the 8 barrier survey items are the set of predictor variables. Faculty participation (i.e., the response variable) is measured as the level of desire by faculty to teach on the Web (i.e., faculty perception of support). These support factors include (a) administrative support, (b) peer support, (c) technical support, and (d) governmental support. Each of these factors corresponds to a particular item on the survey. Research Question 3 also considers participation as a response variable. However, for this question, the predictor variables are the set of 9 incentive items on the survey. The research questions, their corresponding variables, and the survey items are described in Table 2.

Instrumentation

For this study, data were collected by using a survey. The survey was designed by Cherepski (2000), modified by Huang (2003), and further modified by the present researcher.

Survey Development

The survey instrument of this study was designed by Cherepski (2000), who examined factors that encouraged or discouraged faculty participation in teaching Web-
Table 2

Variable Listing and Instrument Items Related to the Research Questions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Survey item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes (Independent)</td>
<td>37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48</td>
</tr>
<tr>
<td></td>
<td>(Section IV of the survey)</td>
</tr>
<tr>
<td>Barriers (Independent)</td>
<td>16, 17, 18, 19, 20, 23, 24, 26</td>
</tr>
<tr>
<td></td>
<td>(Section II of the survey)</td>
</tr>
<tr>
<td>Incentives (Independent)</td>
<td>27, 28, 29, 30, 31, 32, 33, 34, 35, 36</td>
</tr>
<tr>
<td></td>
<td>(Section III of the survey)</td>
</tr>
<tr>
<td>Perception of support and faculty desire to teach (Dependent)</td>
<td>21, 22, 25</td>
</tr>
<tr>
<td></td>
<td>(From Section II of the survey)</td>
</tr>
<tr>
<td>Demographic information of respondents (Independent)</td>
<td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15</td>
</tr>
<tr>
<td></td>
<td>(Section I of the survey)</td>
</tr>
</tbody>
</table>

Based courses in 2-year colleges. The Cherepski survey was pilot tested by a panel of experts consisting of five faculty members from various disciplines at the University of Arkansas’ Little Rock campus. The instrument was further modified by Huang (2003), when she examined critical factors of implementing WBI by Taiwan’s higher-education faculty. In Huang’s study, the instrument was pilot tested by four educators from different institutes of technology and colleges in Taiwan that specialize in instructional technology.

For this study, the permission to use and modify the instrument was obtained from Cherepski (Appendix B). The researcher of this study modified the survey to be
appropriate for the research questions and sample subjects. The survey, after
modification, was comprised of 48 items.

The items of the survey were divided into four sections. The first section related
to basic demographic information and general WBI questions. The second section
included questions concerning factors that inhibit faculty participation in WBI, or barrier
factors. The third section included statements of factors that encourage faculty
participation in WBI, or incentive factors. The final section included statements about
faculty attitudes toward the value of WBI. Three of the response variable items pertaining
to faculty participation were embedded within the second section while the other was
embedded within the third section. The complete instrument, in English, can be found in
Appendix C and the complete instrument, in Arabic, can be found in Appendix D.

Measurement

For Section 1, each item was rated based on the respondent’s answer. For
Sections 2, 3, and 4, questions were all measured on a 5-point Likert scale ranging from 1
to 5 with 1 being strongly agree, 2 being agree, 3 being neutral, 4 being disagree, and 5
being strongly disagree. Where appropriate, items were reverse-scored such that low
numbers represented the least amount of that being measured (e.g., least agreement with
something as a barrier) and high numbers represented the greatest amount of that being
measured.

Pilot Study

After the instrument was translated into Arabic, it was used in a pilot test
involving 30 faculty members from KSU. The pilot-study sample was randomly selected
from the faculty members list provided to the researcher by KSU. The participants in the pilot study were not a part of the formal study.

Reliability and Validity of the Questionnaire

Validity refers to the degree to which a survey instrument can actually measure the concept it is supposed to measure (Slavin, 1992). To ensure the validity of the instrument, Cherepski (2000) pilot tested the instrument. The survey questionnaire was further modified by Huang (2003) and was also pilot tested by 20 faculty members. The questionnaire for this study is a modified version of the original instrument and was pilot tested by 30 faculty members.

To ensure the validity of the form of the instrument used for the current study, the researcher evaluated and assessed the content of the questionnaire, and ensured that the items were appropriately translated into Arabic (Appendixes C and D). A panel of translation experts (Appendix E) reviewed the Arabic translation before it was distributed to the pilot sample. The purpose of this review was to ensure that the translation did not drift from the intent or substance of the questions. To further make the survey understandable for the study participants, the Arabic translation was evaluated by Dr. Jamal Al-Sharhan and Dr. Abdul Rahman Al-Mogbail, specialists in the Arabic language. Based on the translation experts’ recommendations, the Arabic version was revised for clarity.

Reliability refers to the degree to which a survey instrument consistently measures whatever it is intended to measure (Slavin, 1992). Cronbach’s alpha coefficient was used as a measure of reliability for the research questionnaire developed in this study. Cronbach’s alpha coefficient is one of the most commonly used reliability
coefficients available in determining the internal consistency of various measuring instruments (Cronbach, 1951). Kerlinger and Lee (1999) noted, “Most teacher-made tests have reliabilities between .60 and .85 and they are useful” (p. 662). The following guidelines are proposed by DeVellis (1991) regarding an acceptable degree of reliability for an instrument: (a) below 0.60 is unacceptable; (b) between 0.60 and 0.65 is undesirable; (c) between 0.65 and 0.70 is minimally acceptable; (d) between 0.70 and 0.80 is acceptable; (e) between 0.80 and 0.90 is highly acceptable; and (f) above 0.90 is strongly reliable. In Huang’s (2003) study, the instrument reliability was established through a pilot study of 20 faculty members to be .79; this correlation coefficient indicates that the internal consistency of the scale was acceptable.

Pilot tested results for the instrument were collected for Sections 2, 3, and 4. The overall coefficient for the pilot study was .75. Using the correlation ranges suggested by DeVellis (1991), the internal consistency of the scale was deemed acceptable. Table 3 displays pilot instrument reliability and Cronbach’s alpha coefficient for the three sections of the survey.

Table 3

<table>
<thead>
<tr>
<th>Survey section</th>
<th>Number of items</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barriers (Section 2)</td>
<td>11</td>
<td>.70</td>
</tr>
<tr>
<td>Incentives (Section 3)</td>
<td>10</td>
<td>.75</td>
</tr>
<tr>
<td>Attitudes (Section 4)</td>
<td>12</td>
<td>.80</td>
</tr>
</tbody>
</table>
Procedure

The questionnaire was modified for the purpose of this study. The survey had been translated into Arabic because all of the faculty in the three universities were native Arabic speakers. The survey was made available to the three universities’ faculty members during the Summer 2006 semester. The paper survey was administered to the faculty via a contact person at each university.

The request to use human subjects was submitted for approval to The University of West Florida’s Institutional Review Board for Human Subjects (Appendix F). Approval was also obtained for distribution of the survey to Saudi faculty from the Ministry of Education (Arabic version of the approval, Appendix G; English version of the approval, Appendix H).

Dr. Karen Rasmussen, chair and associate professor of the Department of Engineering and Computer Technology at The University of West Florida, assisted in the study by providing an English cover letter attached to each survey, asking for faculty cooperation (Appendix I). An Arabic translation of the cover letter (Appendix J) accompanied each survey and was sent to each of the randomly selected faculty members. The cover letter explained the purpose and necessity of the study and emphasized the confidentiality of the respondents’ responses.

The survey was distributed in two forms: hard copy and online. The hard copy survey was distributed by a contact person from each university to each department; a contact site person collected the surveys after the faculty returned them. For the hard copy survey, the participating faculty could complete the survey in their offices or take the survey home to complete. Each participant was asked to complete and return the
survey to the contact person within at least 2 weeks. After 2 weeks, the contact person checked with those faculty members who had not returned the survey. All data collection was completed in 1 month. After the contact person received the surveys, the researcher of this study traveled to each university to pick up all of the surveys. The online survey was posted and placed on a Web site 1 month after the paper survey documents were collected. The online method of distribution was used to increase the opportunity for the widest range of participation. An introductory e-mail was sent to the faculty members of the three universities to notify them of the availability of the online survey and to ask them to complete the survey online; if they had already completed the paper version, they were thanked and were requested not to complete the online survey.

Data Collection

The method of gathering the data for this study was a survey questionnaire that was distributed to the study sample; the researcher of this study traveled to the three universities to deliver the survey. The survey was distributed randomly to selected faculty members at each chosen university during the Summer 2006 semester. Cover letters in Arabic and English explained the purpose of the survey and requested the cooperation of the respondents (Appendixes I and J). A contact person at each university distributed questionnaires to each department and collected them after 2 weeks. After the surveys were returned by the faculty to the contact person, the researcher traveled again to each university to collect all of the surveys.
Data Analysis

The first research question pertained to the attitudes of the Saudi faculty toward WBI. To answer this question, the participants rated their agreement to 12 attitudinal survey questions. Reliability was measured using Cronbach’s alpha. For each question, it was possible that an equal number of participants would select each option. In that case, the number of those who strongly agreed would equal the number of those who agreed, who would equal the number who were neutral, and so forth. If that were the case, then this particular attitude could not be considered high, low, or neutral. On the other hand, there could be a majority of participants responding to one or a few of the options.

The null hypothesis for the first research question was that the proportion of responses to each option for an attitude survey question would be equal. Since there were five options, .20 of the respondents would select each option. The chi-square test of independence was used to analyze the data. The .05 alpha level was used as the criterion for statistical significance. Results with a $p$-value below .05 led to the rejection of the null hypothesis. Descriptive statistics and bar graphs were then used to describe the results.

The data obtained from the returned surveys were numerically coded and entered into the statistical program SPSS (version 12.0). Descriptive statistics were used to (a) answer Research Questions 1, 2, and 3; (b) measure faculty attitudes toward developing WBI; and (c) measure and describe incentives and barriers related to the faculty who participate in WBI. Inferential statistics were used to analyze Research Questions 2 and 3 for relationships between faculty who desire to teach on the Web and their perception of support factors. Research Questions 1 through 3 were answered using (a) percentages, (b) frequency counts, (c) means, and (d) standard deviations.
Research Questions 2 and 3 required specification of predictors and response variables. It was assumed that the response variable, faculty participation, is an aggregate of administrative, peer, technical, and governmental support. An aggregate for four items pertaining to these supports was used as a response variable using multiple regression models. The predictors for Research Question 2 were the items pertaining to barriers while the predictors for Research Question 3 were the items pertaining to incentives. Since all items were assumed to address the same construct (barriers or incentives), unstandardized regression coefficients were compared between items. Statistical significance for each item was tested at alpha = .05. The correlation coefficient ($R^2$) was calculated to determine the proportion of variance in supports that are jointly associated with the set of barriers or predictors.

The null hypothesis ($H_0$) for Research Questions 2 and 3 was that there is no relationship between the level of faculty desire to teach on the Web and faculty’s perception of support. The alternative hypothesis ($H_1$) was there is a significant relationship between the level of faculty desire to teach on the Web and the faculty’s perception of support.

Chapter Summary

Included in this chapter is a detailed description of the methodologies used to conduct the research study. A descriptive survey research design framed the gathering of information relating to research questions. Descriptive statistics, such as frequency and percentage, were used to analyze the collected data to answer the questions about demographics, factors, and attitudes. Multiple regression analysis was used to determine the relationship between independent and dependent variables.
Study participants were comprised of faculty at three universities in Saudi Arabia. Brief information about the three Saudi universities was provided. Research design, population and sample, variables, instrumentation, data collection and analysis, and procedures were explained.
CHAPTER IV
RESULTS

Introduction

The purpose of this study was (a) to investigate the attitudes of the faculty members at three Saudi universities toward Web-based instruction (WBI) and (b) to provide the Saudi universities and the faculty with insight into the use of WBI. Data obtained from the survey are presented in this chapter.

The research results are presented in the following sections. The first section presents the response rate. The second section presents the demographics information of respondents. The third section contains data analyses for Research Question 1. The fourth section contains data analyses for Research Question 2. The last section contains data analyses for Research Question 3. Percentage of responses and mean distribution were provided to describe the study samples. Finally, this chapter concludes with an overall summary of the findings of this study.

Participants and Response Rate

Of the 531 identified participants, a total of 154 responses were received in the prearranged time to respond within 1 month. Of these responses, 67 (43.50%) were from King Abdul Aziz University (KAU), 56 (36.40%) were from King Saud University
(KSU), and 31 (20.10%) were from King Fahd University of Petroleum and Minerals (KFUPM). There was an overall 29% response rate. In Table 4, response rates by university and type of instrumentation are presented.

Table 4

Survey Response Rate

<table>
<thead>
<tr>
<th>Participating university</th>
<th>Returned paper survey</th>
<th>Returned online survey</th>
<th>Total returned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
</tr>
<tr>
<td>KAU</td>
<td>50</td>
<td>52.6</td>
<td>17</td>
</tr>
<tr>
<td>KSU</td>
<td>30</td>
<td>31.6</td>
<td>26</td>
</tr>
<tr>
<td>KFUPM</td>
<td>15</td>
<td>15.8</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>95</td>
<td>100.0</td>
<td>59</td>
</tr>
</tbody>
</table>

Note. KAU = King Abdul Aziz University; KSU = King Saud University; and KFUPM = King Fahd University of Petroleum and Minerals.

Participants’ Demographic Information

A complete presentation of data tables for the demographic information is contained in Appendix K. One item—What is your department?—was deleted from the analysis due to the high amount of missing information.

Faculty from 25 colleges were represented in the study. The three highest number of responses were from the Education College, KSU (n = 18, 11.70%), the Economics and Administration College, KAU (n = 16, 10.40%), and the Medicine College, KAU (n = 14, 9.10%).

Faculty teaching experience was divided into four ranges; the most reported experience range was more than 15 years (n = 58, 37.70%). The most common academic
degree reported was the doctoral degree ($n = 106, 68.80\%$). The most common position attained was assistant professor ($n = 49, 31.80\%$). The gender of faculty was 70.10% male ($n = 108$) and 29.90% female ($n = 46$). The most reported age range was from 41 to 45 years ($n = 43, 27.90\%$). Of the faculty, 74.70% were Saudi citizens ($n = 115$) and 25.30% were non-Saudi residents from other nations ($n = 39$).

Over half of the faculty reported a teaching course load of 1 to 5 courses ($n = 83, 53.90\%$). Most faculty reported daily computer use ($n = 112, 72.70\%$). Most faculty reported never having taught a Web-based class ($n = 96, 62.30\%$).

Most faculty had training in e-mail ($n = 132, 85.70\%$). Less than half of the faculty had training in threaded discussions ($n = 45, 29.2\%$), ListSers ($n = 39, 25.30\%$), chat rooms ($n = 19, 12.30\%$), teleconferencing ($n = 30, 19.50\%$), videoconferencing ($n = 48, 31.20\%$), and a Learning Management System such as WebCT ($n = 22, 14.30\%$).

Faculty displayed a willingness to participate in WBI, with 140 of the respondents (90.90%) willing to participate in WBI.

**Willingness To Participate in WBI**

Of the 154 total participants, a total 140 (90.90%) were willing to participate in WBI. Of the 140, 60 (42.90%) were from KAU, 53 (37.90%) had more than 15 years of teaching experience, 97 (69.30%) had doctoral degrees, 46 (32.90%) were assistant professors, 100 (71.40%) were male, 41 (29.30%) were 36 to 40 years of age, 105 (75%) were Saudi, 75 (53.60%) taught 1 to 5 courses, 102 (72.90%) used the computer daily, 49 (35.00%) used the Internet 2 to 3 hours each visit, and 85 (60.70%) had never had a Web-based teaching experience (Table 5).
Table 5

Frequency Distribution of Faculty Responses to Survey Items and Willingness To Participate in Web-based Instruction (N = 154)

<table>
<thead>
<tr>
<th>Survey item</th>
<th>Willing to participate</th>
<th>Not willing to participate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>University</td>
<td></td>
<td></td>
</tr>
<tr>
<td>King Abdul Aziz University</td>
<td>60</td>
<td>42.9</td>
</tr>
<tr>
<td>King Saud University</td>
<td>50</td>
<td>35.7</td>
</tr>
<tr>
<td>King Fahd University of Petroleum and Minerals</td>
<td>30</td>
<td>21.4</td>
</tr>
<tr>
<td>Teaching experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-5 years</td>
<td>29</td>
<td>20.7</td>
</tr>
<tr>
<td>6-10 years</td>
<td>35</td>
<td>25.0</td>
</tr>
<tr>
<td>11-15 years</td>
<td>23</td>
<td>16.4</td>
</tr>
<tr>
<td>More than 15 years</td>
<td>53</td>
<td>37.9</td>
</tr>
<tr>
<td>Degree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor’s</td>
<td>11</td>
<td>7.9</td>
</tr>
<tr>
<td>Master’s</td>
<td>32</td>
<td>22.9</td>
</tr>
<tr>
<td>Doctorate</td>
<td>97</td>
<td>69.3</td>
</tr>
</tbody>
</table>

*(table continues)*
<table>
<thead>
<tr>
<th>Survey item</th>
<th>Willing to participate</th>
<th>Not willing to participate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>Faculty position</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching assistant</td>
<td>22</td>
<td>15.7</td>
</tr>
<tr>
<td>Lecturer</td>
<td>22</td>
<td>15.7</td>
</tr>
<tr>
<td>Assistant professor</td>
<td>46</td>
<td>32.9</td>
</tr>
<tr>
<td>Instructor</td>
<td>27</td>
<td>19.3</td>
</tr>
<tr>
<td>Full Professor</td>
<td>23</td>
<td>16.4</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>100</td>
<td>71.4</td>
</tr>
<tr>
<td>Female</td>
<td>40</td>
<td>28.6</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 25 years</td>
<td>5</td>
<td>3.6</td>
</tr>
<tr>
<td>26-30 years</td>
<td>11</td>
<td>7.9</td>
</tr>
<tr>
<td>31-35 years</td>
<td>11</td>
<td>7.9</td>
</tr>
<tr>
<td>36-40 years</td>
<td>41</td>
<td>29.3</td>
</tr>
<tr>
<td>41-45 years</td>
<td>37</td>
<td>26.4</td>
</tr>
<tr>
<td>46-50 years</td>
<td>26</td>
<td>18.6</td>
</tr>
</tbody>
</table>

(table continues)
<table>
<thead>
<tr>
<th>Survey item</th>
<th>Willing to participate</th>
<th>Not willing to participate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>51-55 years</td>
<td>6</td>
<td>4.30</td>
</tr>
<tr>
<td>Over 55 years</td>
<td>3</td>
<td>2.10</td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saudi</td>
<td>105</td>
<td>75.0</td>
</tr>
<tr>
<td>Not Saudi</td>
<td>35</td>
<td>25.0</td>
</tr>
<tr>
<td>Number of courses teaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-5 courses</td>
<td>75</td>
<td>53.6</td>
</tr>
<tr>
<td>6-10 courses</td>
<td>43</td>
<td>30.7</td>
</tr>
<tr>
<td>11-15 courses</td>
<td>13</td>
<td>9.3</td>
</tr>
<tr>
<td>More than 15 courses</td>
<td>9</td>
<td>6.4</td>
</tr>
<tr>
<td>Computer use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>5</td>
<td>3.6</td>
</tr>
<tr>
<td>Daily</td>
<td>102</td>
<td>72.9</td>
</tr>
<tr>
<td>1-3 times per week</td>
<td>13</td>
<td>9.3</td>
</tr>
<tr>
<td>4-5 times per week</td>
<td>14</td>
<td>10.0</td>
</tr>
<tr>
<td>A few times a month</td>
<td>6</td>
<td>4.3</td>
</tr>
</tbody>
</table>

*(table continues)*
<table>
<thead>
<tr>
<th>Survey item</th>
<th>Willing to participate</th>
<th>Not willing to participate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( f )</td>
<td>( % )</td>
</tr>
<tr>
<td>Internet use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never use the Internet</td>
<td>9</td>
<td>6.4</td>
</tr>
<tr>
<td>30-60 minutes per visit</td>
<td>48</td>
<td>34.3</td>
</tr>
<tr>
<td>2-3 hours per visit</td>
<td>49</td>
<td>35.0</td>
</tr>
<tr>
<td>4-5 hours per visit</td>
<td>10</td>
<td>7.1</td>
</tr>
<tr>
<td>More than 6 hours per visit</td>
<td>24</td>
<td>17.1</td>
</tr>
<tr>
<td>Web-based teaching experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No courses on the Web</td>
<td>85</td>
<td>60.7</td>
</tr>
<tr>
<td>1-3 courses</td>
<td>25</td>
<td>17.9</td>
</tr>
<tr>
<td>4-6 courses</td>
<td>16</td>
<td>11.4</td>
</tr>
<tr>
<td>7-9 courses</td>
<td>9</td>
<td>6.4</td>
</tr>
<tr>
<td>More than 9 courses</td>
<td>5</td>
<td>3.6</td>
</tr>
<tr>
<td>Technology training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-mail</td>
<td>123</td>
<td>93.2</td>
</tr>
<tr>
<td>Threaded discussion</td>
<td>42</td>
<td>93.3</td>
</tr>
<tr>
<td>ListServs</td>
<td>36</td>
<td>92.3</td>
</tr>
</tbody>
</table>

*(table continues)*
<table>
<thead>
<tr>
<th>Survey item</th>
<th>Willing to participate</th>
<th>Not willing to participate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chat room</td>
<td>f: 19, %: 100.0</td>
<td>f: 0, %: 00.0</td>
</tr>
<tr>
<td>Teleconferencing</td>
<td>f: 29, %: 96.7</td>
<td>f: 1, %: 3.3</td>
</tr>
<tr>
<td>Videoconferencing</td>
<td>f: 44, %: 91.7</td>
<td>f: 4, %: 8.3</td>
</tr>
<tr>
<td>WebCT (Other)</td>
<td>f: 22, %: 100.0</td>
<td>f: 0, %: 00.0</td>
</tr>
<tr>
<td>Overall willingness</td>
<td>f: 140, %: 90.9</td>
<td>f: 14, %: 9.1</td>
</tr>
</tbody>
</table>
Of the 132 participants who had training in e-mail, 123 (93.20%) were willing to participate in WBI. Of the 45 participants who had training in threaded discussion, 42 (93.30%) were willing to participate in WBI. Of the 39 participants who had training in ListServs, 36 (92.30%) were willing to participate in WBI. All participants who had training in chat rooms were willing to participate in WBI. Of the 30 participants who had training in teleconferencing, 29 (96.70%) were willing to participate in WBI. Of the 48 participants who had training in videoconferencing, 44 (91.70%) were willing to participate in WBI. All participants who had training in WebCT were willing to participate in WBI. For a complete presentation of frequencies related to characteristics of faculty who were willing and not willing to participate in WBI, see Table 5.

Not Willing To Participate in WBI

Of the 154 total respondents, 14 (9.10%) were not willing to participate in WBI. Of those 14, 7 (50.00%) were from KAU, 5 (35.70%) had more than 15 years of teaching experience, 9 (64.30%) had doctorate degrees, 3 (21.40%) were assistant professors, 8 (57.10%) were male, 6 (42.90%) were 41 to 45 years of age, 10 (71.40%) were Saudi, 8 (57.10%) taught 1 to 5 courses, 10 (71.40%) used the computer daily, 6 (11.10%) used the Internet 30 to 60 minutes per visit, and 11 (78.60%) had never had a Web-based teaching experience (Table 5).

Of the 132 participants who had training in e-mail, 9 (6.80%) were not willing to participate in WBI. Of the 45 participants who had training in threaded discussion, 3 (6.70%) were not willing to participate in WBI. Of the 39 participants who had training in ListServs, 3 (7.70%) were not willing to participate in WBI. Of the 30 participants who had training in teleconferencing, 1 (3.30%) was not willing to participate in WBI. Of the
48 participants who had training in videoconferencing, 4 (8.30%) were not willing to participate in WBI. For a complete presentation of frequencies related to characteristics of faculty who were willing and not willing to participate in WBI, see Table 5.

**Summary of Demographics**

Because the number of the nonwilling participants was low, it was hard to make any comparisons between the willing participants and nonwilling participants. Overall, most faculty who participated in this study were willing to participate in WBI. The participants have a wide range of characteristics mirroring the diversity of faculty in the institution.

**Research Question 1**

Research Question 1 was, What are the attitudes of the Saudi faculty toward Web-based instruction?

**Data Analysis**

The chi-square tests of statistical independence were significant for all 12 attitude questions. Chi-square values, with 4 degrees of freedom, ranged from 19.90 to 103.53. All $p$-values were less than .05. The researcher of this study concluded that the proportion of responses is not the same for all of the five options, and this is true for all 12 attitude items.

Data indicated two statements with highest mean. For the first statement, “Students tend to learn just as much in a Web-based education environment as they do in the traditional classroom” ($M = 3.31$), the majority of faculty disagreed. For the second
statement with the highest mean, “WBI will create more stress for me as an instructor” ($M = 3.25$), the majority of faculty agreed. However, data indicated that respondent faculty did select Strongly Agree with one attitude statement, “WBI is a good teaching tool due to gender segregation in the Saudi higher-education system” ($M = 2.4$). Also, data indicated that respondent faculty did agree with five attitude statements: “WBI offers students enough opportunities for interaction” ($M = 2.66$); “WBI is the wave of the future in higher education” ($M = 2.62$); “Adopting and developing WBI in the Saudi universities will create a challenge for faculty” ($M = 2.42$); “WBI provides a valuable service to students” ($M = 2.31$); and “WBI opens higher education to a broader range of students than does traditional education” ($M = 2.16$). It appears that an approximately equal number of faculty selected either Agree or Neutral in response to the statement “Adopting WBI will improve student learning” ($M = 2.62$); there were fewer faculty who selected Strongly Agree and far fewer faculty who selected Disagree or Strongly Disagree for the same attitude statement. The majority of faculty chose Neutral for “Adopting WBI in Saudi universities will encourage students to be more interested in learning” ($M = 2.60$). In addition, data indicated that respondent faculty disagreed with two attitude statements: “WBI technology is too complicated for both the students and the faculty to be successful” ($M = 2.67$), and “WBI will put their job at risk” ($M = 2.22$).

Appendix L displays the bar charts for the frequencies distribution for items related to attitude, with the interpretation of each bar chart. The mean of the responses to the Likert-type scale was calculated for each of the 12 items that comprised the measurement of faculty attitudes. Table 6 displays the frequencies for each response option, the chi-square test results, and the descriptive statistics for the questions.
<table>
<thead>
<tr>
<th>Attitude item</th>
<th>M</th>
<th>SD</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>χ²</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>38. Students tend to learn just as much in a Web-based education environment as they do in the traditional classroom.</td>
<td>3.31</td>
<td>1.163</td>
<td>24</td>
<td>37</td>
<td>58</td>
<td>21</td>
<td>39.05</td>
<td>4</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>44. WBI will create more stress for me as an instructor.</td>
<td>3.25</td>
<td>1.285</td>
<td>52</td>
<td>30</td>
<td>26</td>
<td>20</td>
<td>19.90</td>
<td>4</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>42. WBI technology is too complicated for both the students and the faculty to be successful.</td>
<td>2.67</td>
<td>1.079</td>
<td>22</td>
<td>43</td>
<td>61</td>
<td>17</td>
<td>55.87</td>
<td>4</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>43. WBI offers students enough opportunities for interaction.</td>
<td>2.66</td>
<td>1.122</td>
<td>58</td>
<td>37</td>
<td>28</td>
<td>10</td>
<td>42.67</td>
<td>4</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

*(table continues)*
<table>
<thead>
<tr>
<th>Attitude item</th>
<th>$M$</th>
<th>$SD$</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>Test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>37. WBI is the wave of the future in higher education.</td>
<td>2.62</td>
<td>1.221</td>
<td>56</td>
<td>32</td>
<td>23</td>
<td>15</td>
<td>31.00</td>
</tr>
<tr>
<td>45. Adopting WBI in Saudi universities will improve student learning.</td>
<td>2.62</td>
<td>1.205</td>
<td>46</td>
<td>45</td>
<td>18</td>
<td>15</td>
<td>27.49</td>
</tr>
<tr>
<td>46. Adopting WBI in Saudi universities will encourage students to be more interested in learning.</td>
<td>2.60</td>
<td>1.057</td>
<td>46</td>
<td>61</td>
<td>13</td>
<td>10</td>
<td>62.95</td>
</tr>
<tr>
<td>48. Adopting and developing WBI in the Saudi universities will create a challenge for faculty.</td>
<td>2.42</td>
<td>1.272</td>
<td>51</td>
<td>32</td>
<td>12</td>
<td>17</td>
<td>35.03</td>
</tr>
<tr>
<td>47. Due to gender segregation in the Saudi higher-education system, WBI is a good teaching tool.</td>
<td>2.40</td>
<td>1.240</td>
<td>47</td>
<td>30</td>
<td>20</td>
<td>12</td>
<td>30.35</td>
</tr>
</tbody>
</table>

*(table continues)*
<table>
<thead>
<tr>
<th>Attitude item</th>
<th>$M$</th>
<th>$SD$</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>$\chi^2$</th>
<th>$df$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>39. WBI provides a valuable service to students.</td>
<td>2.31</td>
<td>1.112</td>
<td>76</td>
<td>24</td>
<td>10</td>
<td>12</td>
<td>93.40</td>
<td>4</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>40. I am concerned that WBI will put my job at risk.</td>
<td>2.22</td>
<td>1.074</td>
<td>12</td>
<td>25</td>
<td>70</td>
<td>39</td>
<td>81.52</td>
<td>4</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>41. WBI opens higher education to a broader range of students than does traditional education.</td>
<td>2.16</td>
<td>1.036</td>
<td>76</td>
<td>18</td>
<td>14</td>
<td>6</td>
<td>103.53</td>
<td>4</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

*Note:* Items are arranged in decreasing mean order. Items were measured on a 5-point Likert-type scale: 1 = *Strongly Agree*, 2 = *Agree*, 3 = *Neutral*, 4 = *Disagree*, and 5 = *Strongly Disagree.*
Summary of Research Question 1

Overall, faculty attitudes toward WBI were positive. Faculty believed that adopting WBI in Saudi universities will (a) improve students’ learning, (b) encourage students to be more interested in learning, (c) be a good teaching tool because of gender segregation in the Saudi higher-education system, and (d) create a challenge for faculty. The null hypothesis was rejected.

Research Question 2

Research Question 2 was, How do the factors related to barriers influence faculty participation in WBI? For this question, 11 items of the survey were used to explore faculty attitudes and opinions towards WBI barriers.

Data Analysis

In Research Question 2, the factors that might inhibit participation in WBI were explored. These factors may include such things as fear of using new technology, lack of knowledge, lack of enough time, lack of clear WBI policies, lack of clear course ownership policies, lack of peer support, lack of technical support, lack of monetary incentive, lack of necessary campus network infrastructure, lack of administrative support, and lack of governmental support. Using multiple regression, the barriers were the predictors (eight barriers = items 16, 17, 18, 19, 20, 23, 24, and 26) and the aggregate of the support variables was the response (three barriers = items 21, 22, and 25).
Multiple regression was used to predict faculty participation from barriers. The proportion of variance in faculty participation accounted for by the barrier questions was considerably high at 52.7%. Of the eight barriers, three had statistically significant regression coefficients: a lack of clear WBI policies, $t(1) = -5.747, p < .05$; a lack of monetary incentive, $t(1) = -2.441, p < .05$; and a lack of necessary campus network infrastructure, $t(1) = -6.143, p < .05$.

Of these three, lack of clear WBI policies was the most pronounced. More specifically, an increase of one point in the rating for this barrier toward strong agreement is associated with a 1.553 point decrease in the faculty participation. Lack of necessary campus network infrastructure predicts a 0.926 decrease, and lack of monetary incentive predicts a 0.430 decrease in faculty participation.

As indicated in Table 7, faculty agreed with the following three barrier statements: (a) lack of knowledge in how to develop WBI ($M = 3.04$); (b) lack of enough time to develop WBI ($M = 3.29$); and (c) lack of clear WBI policies ($M = 3.51$). Data indicated that faculty agreed and strongly agreed to the following five barrier statements: (a) lack of clear course ownership policies ($M = 3.66$); (b) lack of governmental support ($M = 3.45$); and (c) lack of monetary incentive ($M = 3.55$). Faculty strongly disagreed with the barrier statement “fear of using new technology” ($M = 2.42$). Faculty disagreed with the barrier statement “lack of necessary campus network infrastructure” ($M = 3.01$). The results and descriptive statistics for these items are summarized in Table 7.

*Summary of Research Question 2*

Nine main barrier items were identified, including (a) lack of knowledge on how to develop WBI, (b) lack of enough time to develop WBI, (c) lack of clear WBI policies,
Table 7

Mean, Standard Deviation, and Descriptive Statistics for Barrier Survey Items 16-26 for Faculty Who Participate in WBI (N = 154)

<table>
<thead>
<tr>
<th>Barrier item</th>
<th>M</th>
<th>SD</th>
<th>β</th>
<th>s.e.</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>20. Lack of clear course ownership policies.</td>
<td>3.66</td>
<td>1.223</td>
<td>0.117</td>
<td>.215</td>
<td>0.547</td>
<td>.585</td>
</tr>
<tr>
<td>23. Lack of monetary incentive.</td>
<td>3.55</td>
<td>1.309</td>
<td>-0.430</td>
<td>.176</td>
<td>-2.441</td>
<td>.016</td>
</tr>
<tr>
<td>19. Lack of clear WBI policies.</td>
<td>3.51</td>
<td>1.243</td>
<td>-1.145</td>
<td>.199</td>
<td>-5.747</td>
<td>.000</td>
</tr>
<tr>
<td>26. Lack of governmental support.</td>
<td>3.45</td>
<td>1.091</td>
<td>-0.318</td>
<td>.200</td>
<td>-1.591</td>
<td>.114</td>
</tr>
<tr>
<td>18. Lack of enough time to develop WBI.</td>
<td>3.29</td>
<td>1.317</td>
<td>0.013</td>
<td>.183</td>
<td>0.073</td>
<td>.942</td>
</tr>
<tr>
<td>17. Lack of knowledge in how to develop a WBI.</td>
<td>3.04</td>
<td>1.357</td>
<td>0.064</td>
<td>.177</td>
<td>0.360</td>
<td>.719</td>
</tr>
<tr>
<td>24. Lack of necessary campus network infrastructure.</td>
<td>3.01</td>
<td>1.333</td>
<td>-0.926</td>
<td>.151</td>
<td>-6.143</td>
<td>.000</td>
</tr>
<tr>
<td>16. Fear of using new technology(ies).</td>
<td>2.42</td>
<td>1.375</td>
<td>0.038</td>
<td>.141</td>
<td>0.267</td>
<td>.790</td>
</tr>
</tbody>
</table>

Note: Items are arranged in decreasing mean order. Items were measured on a 5-point Likert-type scale: 1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, and 5 = Strongly Disagree.
(d) lack of clear course ownership policies, (e) lack of peer support, (f) lack of technical support, (g) lack of monetary incentive, (h) lack of administrative support, and (i) lack of governmental support. However, faculty did not think that 2 of the 11 attitudes items were perceived as barriers by faculty; these 2 items were (a) fear of using new technology(ies) and (b) necessary campus network infrastructure. The null hypothesis was rejected.

Research Question 3

Research Question 3 was, How do the factors related to incentives influence faculty participation in WBI? For this question, 10 survey items were used to explore faculty attitudes and opinions towards WBI.

Data Analysis

In Research Question 3, the factors that might motivate participation in WBI were explored. These factors may include things such as having (a) appropriate knowledge bases, (b) appropriate Web-based courses for teaching, (c) a training program, (d) enough time to develop WBI, (e) clear WBI policies, (f) clear course ownership policies, (g) a campus network infrastructure, (h) tenure and promotion incentives, (i) workload incentives, and (j) governmental support.

Multiple regression was also used to predict faculty participation from incentives. The incentives were the predictors (nine incentives = items 27, 28, 29, 30, 31, 32, 33, 34, and 35) and one support variable was the response (one incentive = item 36).

The proportion of variance in faculty participation accounted for by the incentive items was rather low at 8.5%. Of the nine incentives, one had a statistically significant
regression coefficient. This was the incentive that WBI will increase tenure and promotion, $t(1) = 2.128$, $p = .035$. The statistically significant incentive of tenure and promotion predicts a 0.686 increase in faculty participation.

All the incentive items were viewed positively ($M > 3.55$). Faculty strongly agreed that 6 of the 10 incentive items were found in their environment. These five items were (a) We have a campus network infrastructure ($M = 4.11$); (b) We have clear course ownership policies ($M = 3.73$); (c) We have workload incentives ($M = 3.71$); (d) We have a training program to prepare faculty before they teach WBI courses ($M = 3.65$); and (e) I have enough time to develop WBI ($M = 3.55$). Also, faculty agreed that 4 of the 10 incentive items were found in their environment. These four items were (a) I have the knowledge I need to develop WBI ($M = 3.94$); (b) Web-based courses are appropriate for my subjects ($M = 3.86$); (c) We have clear course ownership policies ($M = 3.73$); and (d) Web-based instruction will increase my tenure and promotion incentives ($M = 3.67$). The results and descriptive statistics for the questions are displayed in Table 8.

Summary of Research Question 3

Overall, faculty either strongly agreed or agreed that incentive items were found in their environment. Faculty strongly agreed with six of the incentives for participation in WBI: (a) have a campus network infrastructure, (b) have clear course ownership policies, (c) have workload incentives, (d) have a training program to prepare faculty before they teach WBI courses, (e) have enough time to develop WBI, and (f) have governmental support. Also, faculty agreed with the other incentive items. The null hypothesis was rejected.
Table 8

Mean, Standard Deviation, and Descriptive Statistics for Survey Items 27-36 for Faculty Who Participate in WBI (N = 154)

<table>
<thead>
<tr>
<th>Item</th>
<th>M</th>
<th>SD</th>
<th>$\beta$</th>
<th>s.e.</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>33. We have a campus network infrastructure.</td>
<td>4.11</td>
<td>1.076</td>
<td>-.595</td>
<td>.333</td>
<td>-1.788</td>
<td>.076</td>
</tr>
<tr>
<td>27. I have the knowledge I need to develop WBI.</td>
<td>3.94</td>
<td>1.112</td>
<td>.280</td>
<td>.357</td>
<td>.784</td>
<td>.434</td>
</tr>
<tr>
<td>28. Web-based courses are appropriate for my subjects.</td>
<td>3.86</td>
<td>1.168</td>
<td>-.310</td>
<td>.323</td>
<td>-.960</td>
<td>.338</td>
</tr>
<tr>
<td>32. We have clear course ownership policies.</td>
<td>3.73</td>
<td>1.162</td>
<td>.363</td>
<td>.296</td>
<td>1.226</td>
<td>.222</td>
</tr>
<tr>
<td>31. We have clear WBI policies.</td>
<td>3.71</td>
<td>1.170</td>
<td>.082</td>
<td>.312</td>
<td>.264</td>
<td>.792</td>
</tr>
<tr>
<td>35. We have workload incentives.</td>
<td>3.71</td>
<td>1.242</td>
<td>-.591</td>
<td>.326</td>
<td>-1.813</td>
<td>.072</td>
</tr>
<tr>
<td>34. Web-based instruction will increase my tenure and promotion incentives.</td>
<td>3.67</td>
<td>1.221</td>
<td>.686</td>
<td>.323</td>
<td>2.128</td>
<td>.035</td>
</tr>
<tr>
<td>29. We have a training program to prepare faculty before they teach WB courses.</td>
<td>3.65</td>
<td>1.389</td>
<td>-.195</td>
<td>.296</td>
<td>-.656</td>
<td>.513</td>
</tr>
<tr>
<td>30. I have enough time to develop WBI.</td>
<td>3.55</td>
<td>1.405</td>
<td>.061</td>
<td>.296</td>
<td>.207</td>
<td>.836</td>
</tr>
</tbody>
</table>

Note: Items are arranged in decreasing mean order. Items were measured on a 5-point Likert-type scale: 1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, and 5 = Strongly Disagree.
Chapter Summary

Results for the three research questions were presented in this chapter. Quantitative descriptive statistics were used to analyze the data gathered from the survey. Frequency distribution data were used to describe the demographics of respondents; results of the study showed individual differences of the participants relating to data such as (a) university, (b) college, (c) teaching experience, (d) academic degree, (e) position, (f) gender, (g) age, (h) nationality, (i) number of teaching courses, (j) use of computer, (k) use of the Internet, (l) teaching experience, (m) type of technology(ies) used, (n) and the percentage of faculty respondents who were willing and were not willing to participate in teaching WBI. For Research Question 1, the chi-square test was used. Multiple regression was used for Research Questions 2 and 3.
CHAPTER V
DISCUSSION AND CONCLUSIONS

Introduction

This chapter is divided into five sections. An overview of the study and results are presented in the first section. A discussion of the findings of the three research questions are described in the second section. Implications of the study are presented in the third section. Limitations of the study are outlined in the fourth section. Recommendations for further research are provided in the fifth section. A chapter summary concludes.

Study Overview

The purpose of this research study was to investigate facilitating and impeding factors that affect faculty decisions to either participate or not participate in Web-based instruction (WBI). Information about the characteristics of faculty and the effect of those characteristics on participation in developing WBI was also examined. Incentives and barriers to WBI, faculty attitudes, and participants’ demographic information were explored.

Survey

Data were collected using a survey developed by Cherepski (2000), who examined factors that encourage or discourage faculty participation in teaching Web-
based courses in 2-year colleges. The survey was further modified by Huang (2003), who examined critical factors of implementing WBI by Taiwan’s higher-education faculty.

The researcher of this study modified the survey for use with the study population.

Three research questions were formulated and analyzed to pursue the study purpose. The three questions were

1. What are the attitudes of the Saudi faculty toward Web-based instruction?
2. How do the factors related to the barriers influence faculty participation in Web-based instruction?
3. How do the factors related to incentives influence faculty participation in Web-based instruction?

Data were collected in two forms, through printed instruments and via an online survey. The returned surveys were analyzed using descriptive statistics methodology to provide descriptive information corresponding to the research questions in this study. Conclusions were collectively drawn from the data sources to answer the research questions.

**Summary of Demographic Information of Respondents**

The majority of the faculty were willing to participate in WBI ($N = 140$); over 90% of the respondents were willing to participate in WBI. The highest percentage of responses came from King Abdul Aziz University ($n = 67, 43.5\%$); of those 60 (42.90%) were willing to participate in WBI. This finding may be due to the fact that King Abdul Aziz University implemented WBI before the other two universities.

Data from this study indicated that faculty members with more teaching experience were more willing to participate in WBI. Previous research studies have
indicated the same finding; that is, most of the faculty who want to teach on the Web had more teaching experience (Cherepski, 2000; Huang, 2003).

Of faculty who want to teach on the Web, most had master’s degrees \((n = 32, 22.90\%)\) or doctorate degrees \((n = 97, 69.30\%)\). Previous research studies obtained the same finding; that is, most of the faculty who want to teach on the Web had master’s or doctorate degrees (Cherepski, 2000; Huang, 2003).

The most common position attained was assistant professor \((n = 49, 31.80\%)\); of those in that position, 32.90\% \((n = 46)\) were willing to participate in WBI. Data indicated that faculty with higher positions were more willing to participate in WBI than faculty in lower positions.

Faculty who teach one to five courses \((n = 75, 53.60\%)\) appeared to be more willing to participate in WBI than faculty who teach six or more classes. The finding of this research study indicated that faculty who teach fewer courses were more willing to participate in WBI than faculty who teach more courses. This result may be due to a heavier workload that the faculty member faces when teaching more courses. Other researchers have reported the same result (Cherepski, 2000; Huang, 2003; Robinson, 2000).

The finding of this study showed the highest faculty level of those who are willing to participate in WBI were faculty who use the computer daily \((n = 102, 72.90\%)\). The finding indicated that the more faculty members used the computer and the Internet, the more willing they were to participate in WBI.

Many faculty who were willing to participate in WBI were those who never had a Web-based teaching experience \((n = 85, 60.70\%)\). The openness of these faculty to try
WBI suggest that there are opportunities for additional offerings of WBI throughout the Saudi higher-education system.

Faculty who had training on how to use Web-based technology were more willing to participate in Web teaching than faculty who had not had training. The majority of participants had training in e-mail, followed by videoconferencing and threaded discussion. In this study, the technology most used by faculty was e-mail; e-mail was the most common technology tool used in teaching. Previous researchers obtained the same finding: The most widespread technology used by faculty in teaching was e-mail (Cherepski, 2000; Huang, 2003).

Additionally, in this study, faculty aged 36 to 40 years \( n = 41, 29.30\% \) were the most willing to participate in WBI. The result of this finding indicated that the older faculty members were willing to participate in WBI. Other researchers have reported that younger faculty members were more willing to participate on WBI than older faculty (Huang, 2003; Robinson, 2000).

Discussion

In this section, the findings of this study are discussed by research questions. Each section contains an overview of the results, discussion, and conclusion.

*Research Question 1*

Research Question 1 was, What are the attitudes of the Saudi faculty toward Web-based instruction? Overall results of faculty attitude toward WBI were positive. Two of the 12 items’ means were greater than 3.25, six items’ means were between 2.40 and 2.67, and four items’ means were less than 2.40. Faculty agreed with several attitude
statements: WBI offers students enough opportunities for interaction; WBI is the wave of the future in higher education; adopting and developing WBI in the Saudi universities will create a challenge for faculty; WBI provides a valuable service to students; WBI opens higher education to a broader range of students than does traditional education; and adoption of WBI will improve student learning. Respondent faculty strongly agreed with the attitude statement: WBI is a good teaching tool due to gender segregation in the Saudi higher-education system. These results mirror findings of other researchers who found overall positive faculty attitudes in relation to WBI (Al-Erieni, 1999; Al-Mogbel, 2002; Cherepski, 2000; Clark, 1993; Dillon & Walsh, 1992; Huang, 2003).

Faculty also agreed that WBI will create stress for them as an instructor. Faculty disagreed with three attitude statements: Students tend to learn just as much in a Web-based education environment as they do in the traditional classroom; WBI technology is too complicated for both the students and the faculty to be successful; and WBI will put their job at risk. Faculty were neutral toward one attitude statement: Adopting WBI in Saudi universities will encourage students to be more interested in learning.

Faculty held generally positive attitudes toward WBI as the wave of the future in higher education. Over half of the faculty ($n = 84, 54.60\%$) indicated that WBI is the wave of the future in higher education. Cherepski (2000) and Huang (2003) found similar results.

Discussion. Several themes were discerned in the review of the data. These themes are access, learning, and professional requirements. The use of WBI is growing in institutions of higher education (Crossman, 1997; Fredrickson, 1999). In conjunction with this reality, Saudi faculty agreed that WBI provides a valuable service to students
through opportunity and access. Huang (2003) found similar results in Taiwanese faculty. Al-Mogbel (2002) found that faculty and students agreed that distance education would benefit the community and that distance education has potential value to meet student needs.

Faculty held positive attitudes that WBI opens higher education to a broader range of students than does traditional education and were, at the same time, interested in nontraditional methods of course delivery. Respondents agreed that WBI opened higher education opportunities to students living in remote areas of Saudi Arabia. The use of WBI as an instructional method allows higher education to be pursued by students located in various places (Abahussain, 1998; Al-Erieni, 1999; Huang, 2003).

A second theme, learning, revolved around interaction, performance, and motivation. By adopting WBI in Saudi universities, WBI offers students opportunities for interaction leading to engagement and active learning experiences. These strategies support and improve performance. The access to, availability of, and interaction in WBI encourages students to be more interested in learning. Cherepski (2000) and Huang (2003) found similar results in which WBI offers students more opportunities and encourages students to learn via distance education. Web-assisted and Web-based courses provide the opportunity for students to move from individual to collaborative learning, from the consideration of ideas in isolation to an examination of their meaning in a global context groups (Clayton, 2002).

A third theme, technology issues, is comprised of issues related to the use of technology in education, training, and administration. These attitudes are typified by
beliefs that WBI is a good teaching tool because of the gender segregation in Saudi’s
higher-education system but will create a challenge for faculty.

Faculty disagreed that WBI will jeopardize their jobs. The same result was found
by Cherepski (2000) and Huang (2003), who found that instructors thought there would
be more job security for them if they taught online classes. These findings are consistent
with others who found that most faculty had no fear of job loss due to the technology
(Cherepski; Christianson, 2001).

Faculty did not find WBI technologies to be complicated. The same result was
found by Cherepski (2000) and Huang (2003), who reported that instructors who were
willing to teach Web-based courses were proficient in technology. Those who were not
proficient were not interested in teaching online classes. Other researchers found the
same result, that online courses were not complicated (Al-Erieni, 1999; Al-Mogbel,
2002). Faculty believed that distance education is something that can be learned
(Cherepski, 2000). However, faculty were concerned and held a negative attitude toward
WBI because they believed that online courses would create more stress for them as
instructors.

Conclusions. In this study, overall faculty attitudes toward WBI were positive.
Faculty believed and held positive attitudes toward WBI and believed that online courses
are the future of higher education in Saudi Arabia. Faculty agreed that WBI provides a
valuable service to students. Faculty held positive attitudes toward WBI because they
believed it opens higher education to a broader range of students than does traditional
education. Additionally, faculty did not think that WBI would jeopardize their jobs or
that WBI technologies are complicated. They did believe, however, that WBI would
create more stress for them as instructors. When it came to adopting WBI in Saudi Arabia universities, faculty believed WBI (a) will improve students’ learning, (b) will encourage students to be more interested in learning, (c) will be a good teaching tool because of gender segregation in the Saudi higher-education system, and (d) will create a challenge for faculty. Additionally, as previously stated in the data analysis section of Research Question 1, the null hypothesis was rejected.

**Research Question 2**

Research Question 2 was, How do the factors related to barriers influence faculty participation in Web-based instruction? Nine main barriers items were identified, including (a) lack of knowledge on how to develop WBI, (b) lack of enough time to develop WBI, (c) lack of clear WBI policies, (d) lack of clear course ownership policies, (e) lack of peer support, (f) lack of technical support, (g) lack of monetary incentive, (h) lack of administrative support, and (i) lack of governmental support. However, faculty did not perceive 2 of the 11 attitudes items as barriers: (a) fear of using new technology(ies) and (b) necessary campus network infrastructure.

**Discussion.** Huang (2003) found the same result: Faculty hope schools will set up clear policies that are easy to follow in the implementation of WBI. In addition, faculty hope schools can provide administrative and technical support to assist them in developing WBI (Huang). Other researchers found the same result (Cherepski, 2000; Jacobsen, 1998).

Cherepski (2000) found that most of the faculty were concerned they did not have the knowledge necessary to effectively teach in a distance-education environment. Cherepski also reported the lack of monetary reward as a barrier.
Other researchers found lack of time to be a major barrier (Cherepski, 2000; Christianson, 2001; Huang, 2003; Iken, 2000; Rockwell et al., 2000). One of the findings of the study was that the majority of the faculty taught more than six courses and the faculty spent much time on the preparation of teaching materials. However, in this study, lack of time ranked sixth ($M = 3.29$) as a reason that the majority of the Saudi faculty had not yet implemented Web-based courses. Distance education classes require more faculty time than traditional courses. Institutions should recognize this and incorporate appropriate compensations when planning distance education initiatives (Bower, 2001).

A lack of technical support is also a barrier. Technical support becomes critical as faculty with little or no technical training become involved in developing courses for delivery over the Web (Carlson, Downs, Repman, & Clark, 1998; Rockwell et al., 2000). Other researchers have found similar results (Beggs, 2000; Betts, 1998; Lan, 2001). Faculty need extensive technical support; professors who are not instructional designers can also benefit from instructional consulting help when working in the new format (Bichelmeyer et al., 2000).

**Conclusions.** Nine main barriers were identified, including (a) lack of knowledge on how to develop WBI, (b) lack of enough time to develop WBI, (c) lack of clear WBI policies, (d) lack of clear course ownership policies, (e) lack of peer support, (f) lack of technical support, (g) lack of monetary incentive, (h) lack of administrative support, and (i) lack of governmental support. However, faculty did not perceive 2 of the 11 items as barriers; These 2 items were (a) fear of using new technology(ies) and (b) necessary campus network infrastructure. Consequently, as described in the data analysis section, the null hypothesis for Research Question 2 was rejected.
Research Question 3

Research Question 3 was, How do the factors related to incentives influence faculty participation in Web-based instruction? The majority of faculty agreed that incentives would provide encouragement to engage in WBI; all incentive factors had a mean of 3.55 or greater, indicating positive perceptions of those incentives.

Discussion. In this study, campus network infrastructure ranked highest in the area of incentives. Saudi faculty perceived that the campus network infrastructure should be established before implementation could begin. Cherepski (2000) found that faculty expressed needs for technical support and a workable campus infrastructure if they were to participate in distance education. Huang (2003) found the same result.

Among the highest ranked incentives were clear course ownership policies and clear WBI policies. This finding of the study was a concern for the Saudi faculty even though the majority of the Saudi faculty had never taught on the Web. Other researchers have found the same result (Cherepski, 2000; Huang, 2003).

Faculty agreed that the following factors are incentives: (a) release time, (b) appropriate Web-based courses, (c) tenure and promotion, (d) workload, and (e) faculty knowledge. Betts (1998) also identified factors that influence faculty to participate in distance education: faculty who have extensive experience in higher-education and faculty who are not involved in the tenure and promotion process are more likely to participate in distance education than faculty with less experience in higher-education and/or faculty who are vying for tenure.

Cherepski (2000) found workload incentives and release time were two important factors that faculty saw as encouraging participation. Faculty were awarded the
substantial time required for developing, integrating, and administering interactive elements courses (Clayton, 2002). However, the finding of this research study indicated that Saudi faculty were not concerned about time.

Saudi faculty viewed the knowledge of developing WBI also as one of the main encouraging factors that motivated them to develop Web-based courses. Cherepski, (2000) reported that faculty indicated that they were concerned with their lack of knowledge in regard to the distance education technologies. One of the most widely acknowledged problems in higher education is the lack of knowledge on the part of faculty in the areas of instructional development and delivery (Formosa, 1998). Although this level of knowledge is increasing, there is still much work to be accomplished to have instructors become comfortable in teaching online courses.

Conclusions. Overall, Saudi faculty had positive views about potential incentives when implementing WBI. Saudi faculty agreed that incentive items are available to faculty. With incentives in place, faculty should be inclined to participate in WBI. The evidence from the survey suggests that the great majority of Saudi faculty are, indeed, supportive of WBI. As a result, as discussed in the data analysis section, the null hypothesis for Research Question 3 was also rejected.

Implications of the Study

Based on the findings of the study, a number of implications became evident. The majority of the faculty members in this study did not have the opportunity to participate in the development of WBI. Faculty members of Saudi universities are willing to be involved in creation of the WBI and should be provided with the opportunities to create exciting learning environments for their students. In addition, faculty engagement in WBI
provides institutions with the ability to offer courses and programs to students who may not be able to attend the university in person.

**Implications for Faculty**

The majority of the faculty members in this study did not have training in the development of WBI. Also, the majority of the faculty members in this study did not have support in the development of WBI. Moreover, the findings of this study indicated a positive attitude of the faculty members of the three Saudi universities toward implementation of WBI.

Faculty feared using the new technologies related to the implementation of WBI, but they desired to learn about the use of the new technologies. Faculty fear was statistically significant. The findings of this study indicated an impact of certain demographic characteristics of faculty members on their attitude toward WBI. Faculty who taught many courses had more teaching experience, higher academic degrees, higher positions, were older, used the computer daily, used the Internet daily, and had positive attitudes toward WBI. The majority of faculty members of the three universities were familiar with the use of WBI, but they did not use WBI for teaching, apparently, at least in part, because of the lack of ownership polices and WBI instruction polices.

**Implications for Administrators**

Administrators of Saudi universities should consider providing faculty members with training courses in how to use and implement WBI technologies. Consequently, the administrators of Saudi universities should support faculty members participating in WBI. The administrators of Saudi universities should encourage faculty members to
implement Web-based courses by establishing clear WBI policies, providing administrative support, and building a campus network infrastructure.

The most significant incentives and barriers factors effecting the implementation of WBI in the Saudi universities were explored in this study. The results can be used to assist the administrators of Saudi universities when they are ready to adopt WBI. Furthermore, because Saudi Arabia is a huge country and the number of Saudi universities few, the administrators of Saudi universities should consider the development of WBI programs to be appropriate to the needs of the Saudi students who are not able to attend on-campus programs. The findings of the study indicated that there were many faculty at the three Saudi universities who were not ignoring Web-based teaching; therefore, this new way of teaching should be assisted and supported by the universities’ administrations and the Saudi government.

Limitations of the Study

There are limitations that might affect the results of this study. The possible limitations are the following:

1. The participants of this study came from three universities in Saudi Arabia. It was decided for the purposes of this study that the study be limited to the faculty of these three universities; administrators and students were not included.

2. By using the online survey form, the survey may be completed by someone not from the three universities or not a faculty member. Using an online survey may permit inaccurate information that might skew the results.
3. In this study, the current and the future status of the use and implementation of WBI in Saudi universities was investigated. The related factors affecting the implementation of WBI in these three Saudi universities were examined. This study did not cover all of the factors affecting the implementation of WBI in the Saudi universities.

Recommendations for Further Study

Based on the findings of this research, a series of recommendations were formulated. First, this study should be replicated and a similar study should be conducted using additional Saudi universities. Further research in Saudi universities is required to determine and evaluate barriers, incentives, and attitudes that could affect the implementation of WBI at the Saudi Universities. Saudi universities that implement Web-based programs in the future could use such results to provide supports for faculty and universities to improve the design, development, and implementation of WBI.

Second, further studies should be conducted to determine if there are other factors affecting the implementation of WBI at Saudi universities beyond those investigated in this research study. The researcher of this study was unable to evaluate all the potential factors that might affect implementation of WBI at the Saudi universities. The survey instrument for this study was close-ended; it is possible that by using open-ended questionnaires, additional factors not mentioned in this research study might be collected.

Third, this research study evaluated barriers, incentives, and attitudes of faculty members only. Further research should be conducted to determine and explore similar areas affecting Saudi students and administrators.
Fourth, it is recommended that the Saudi government and Ministry of Higher Education seek ways to increase faculty participation in developing more Web-based programs. Since the Saudi government and Ministry of Higher Education control the budgeting and planning process of Saudi universities, increasing the Saudi government and Ministry of Higher Education support will help faculty have the resources needed to develop and implement high-quality Web-based programs.

Fifth, this research study focused on faculty of Saudi universities only. It would be interesting to conduct further studies at Saudi community colleges, technical colleges, and industrial businesses institutions, to see if their faculty have the same perceptions of WBI.

Sixth, it is recommended that Saudi universities should develop clear course ownership policies, clear WBI policies, and a training program for faculty in how to use WBI technologies. Additionally, instructors should be given enough time to develop WBI and for administrators to build an up-to-date campus network infrastructure. These kinds of support will encourage faculty to participate in developing WBI.

Chapter Summary

In this study, factors related to WBI were explored from the perspective of faculty in three Saudi universities. In general, faculty had positive attitudes towards WBI. Based on the findings of this study, a series of recommendations were offered to help Saudi faculty and administrators design, develop, and implement WBI in universities.
REFERENCES


Al-Anqari, K. (2003, August 28). The government is giving more attention to the subject of accepting all of the high school graduated students for this year. Al-Riyadh Daily Newspaper, No. 12851, p. 24.


Smith, S., & Benscoter, A. (2000). Implementing an Internet tutorial for Web-based courses. In M. G. Moore & G. T. Cozine (Eds.), *Web-based communication, the Internet, and distance education* (pp. 131-136). University Park: The Pennsylvania State University, American Center for the Study of Distance Education.


Appendix A

Map Describing Location of the Three Saudi Universities
Appendix B

Cherepski Permission Memo
Mohammed,
I certainly have no problem with you doing that. I hope that it will prove useful to you. What is your Doctorate in? When do anticipate finishing? Would it be possible to get a copy of your dissertation when it is finished? I would like to see how you used the instrument in your study. Keep in touch and let me know how it is going. If you have any questions, you may e-mail me at this address.

Good Luck,

Don

----- Original Message ----- 
From: Mohammed Al-Balawi <msa6@students.uwf.edu>
Date: Thursday, April 29, 2004 12:15 pm
Subject: Instrument Petition

Dear Dr. Cherepski, Donald David

My name is Mohammed S. Al-Balawi. I am a doctoral candidate at The University of West Florida. Recently I read your dissertation titled “Factors That Encourage or Discourage Faculty Participation in Teaching Web-based Courses in a Two-Year College” I am highly interested in your scholarly research.

I am conducting a survey as a part of my doctoral dissertation on the topic of “Critical Factors Related to the Implementation of WBI by Higher-education Faculty at Three Universities in The Kingdom of Saudi Arabia”.

Could I use your instrument and revise it to do my doctoral dissertation?

Best Regards,
Sincerely,
Mohammed S. Al-Balawi
Email: msa2@students.uwf.edu or m@balawi.net
Tel: (001) (966)555380480
Appendix C

WBI Survey Instrument, English Version

(Reproduced as used)
## Section I. Demographic Questions and General WBI Questions

This section consists of personal and professional information, and general questions about WBI. For each item, please select the best answer.

1. **What is your University?**
   - □ King Abdul Aziz University.
   - □ King Saud University.
   - □ King Fahd University of Petroleum and Minerals.

2. **What is your College?**
   ____________________________

3. **What is your Department?**
   ____________________________

4. **How many years of teaching experience do you have?**
   - □ 1 ~ 5 years
   - □ 6 ~ 10 years
   - □ 11 ~ 15 years
   - □ More than 15 years

5. **What is your highest academic degree?**
   - □ Bachelor
   - □ Master
   - □ Doctorate

6. **What is your position?**
   - □ Teaching Assistant
   - □ Lecturer
   - □ Assistant Professor
   - □ Instructor
   - □ Full Professor

7. **What is your Gender?**
   - □ Male
   - □ Female

8. **What is your Age?**
   - □ Under 25 years
   - □ 26 ~ 30 years
   - □ 31 ~ 35 years
   - □ 36 ~ 40 years
   - □ 41 ~ 45 years
   - □ 46 ~ 50 years
   - □ 50 ~ 55 years
   - □ Over 55 years

9. **What is your nationality?**
   - □ Saudi
   - □ Non-Saudi

10. **What is the number of courses you teach?**
    - □ 1 ~ 3 courses
    - □ 4 ~ 6 courses
    - □ 7 ~ 9 courses
    - □ More than 9 courses
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<th>How often do you use a computer?</th>
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<td></td>
<td>□ Daily</td>
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<td>□ 1 ~ 3 times/week</td>
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<td>□ 4 ~ 6 times/week</td>
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<td></td>
<td>□ A few times a month (_____</td>
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<td></td>
<td>□ 30 ~ 60 minutes/visit</td>
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<td>□ 2 ~ 3 hours/visit</td>
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<td>□ 4 ~ 5 hours/visit</td>
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<td></td>
<td>□ More than 6 hours/visit</td>
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<th>How many years do you have of Web-based teaching experience?</th>
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<td>□ Never teach courses on Web.</td>
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<td>□ 1~3 years</td>
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<td>□ 4~6 years</td>
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<td>□ 7~9 years</td>
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<td></td>
<td>□ More than 9 years</td>
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<th>Select the WBI technology(s) in which you have training.</th>
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<td>□ None</td>
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<td>□ E-Mail</td>
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<td>□ Threaded Discussion</td>
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<td>□ ListServs</td>
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<td></td>
<td>□ Chat Room</td>
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<td>□ Teleconferencing</td>
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<td></td>
<td>□ Videoconferencing</td>
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<td>□ Other __________ (Please specify)</td>
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<th></th>
<th>Are you willing to participate in teaching WBI?</th>
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<tr>
<td></td>
<td>□ Yes</td>
<td></td>
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<tr>
<td></td>
<td>□ No</td>
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</tbody>
</table>
Section II. Barriers factors. Factors Inhibiting\Discouraging participation In WBI.
This section consists of factors which are possible inhibitors, discouraging your participation in WBI. For each item, please select the answer that best describes your beliefs, feeling, or attitudes.

1. Strongly Agree = SA
2. Agree = A
3. Neutral = N
4. Disagree = D
5. Strongly Disagree = SD

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<thead>
<tr>
<th>Item</th>
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<th>A</th>
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<th>SD</th>
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<tbody>
<tr>
<td>16 Fear of using new technology(ies).</td>
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<tr>
<td>17 Lack of knowledge in how to develop a WBI.</td>
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<td>18 Lack of enough time to develop WBI.</td>
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<td>19 Lack of clear WBI policies.</td>
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<tr>
<td>20 Lack of clear course ownership policies.</td>
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<tr>
<td>21 Lack of peer support.</td>
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<td>22 Lack of technical support.</td>
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<td>23 Lack of monetary incentive.</td>
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<tr>
<td>24 Lack of necessary campus network infrastructure.</td>
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<tr>
<td>25 Lack of administrative support.</td>
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<tr>
<td>26 Lack of governmental support.</td>
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</tbody>
</table>
Section III. Incentives factors. Factors Encouraging Participation in WBI.
This section consists of factors which could possibly encourage you to participate in WBI. For each item, please select the answer that best describes your beliefs, feeling, or attitudes.

1. Strongly Agree = SA
2. Agree = A
3. Neutral = N
4. Disagree = D
5. Strongly Disagree = SD

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<tr>
<th>Item</th>
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<th>N</th>
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<tbody>
<tr>
<td>27 I have the knowledge I need to develop WBI.</td>
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<tr>
<td>28 Web-based courses are appropriate for my subjects.</td>
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<tr>
<td>29 We have a training program to prepare faculty before they teach WB courses.</td>
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<td>30 I have enough time to develop WBI.</td>
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<td>31 We have clear WBI policies.</td>
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<tr>
<td>32 We have clear course ownership policies.</td>
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<tr>
<td>33 We have a campus network infrastructure.</td>
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<tr>
<td>34 Web based instruction will increase my Tenure and promotion incentives.</td>
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<td>35 We have workload incentives.</td>
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<td>36 We have governmental support.</td>
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</tbody>
</table>
Section IV. Attitudes and Opinions Regarding WBI.
This section consists of general questions about your attitudes and opinions regarding WBI. For each item, please select the answer that best describes your attitudes and opinions.
1. Strongly Agree = SA
2. Agree = A
3. Neutral = N
4. Disagree = D
5. Strongly Disagree = SD

<table>
<thead>
<tr>
<th>Item</th>
<th>SA</th>
<th>A</th>
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<tbody>
<tr>
<td>37 WBI is the wave of the future in higher-education.</td>
<td></td>
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<tr>
<td>38 Students tend to learn just as much in a Web-based education environment as they do in the traditional classroom.</td>
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<tr>
<td>39 WBI provides a valuable service to students.</td>
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<td>40 I am concerned that WBI will put my job at risk.</td>
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<td>41 WBI opens higher-education to a broader range of students than does traditional education.</td>
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<tr>
<td>42 WBI technology is too complicated for both the students and the faculty to be successful.</td>
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<td>43 WBI offers students enough opportunities for interaction.</td>
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<td>44 WBI will create more stress for me as an instructor.</td>
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<td>45 Adopting WBI in Saudi universities will improve student learning.</td>
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<td>46 Adopting WBI in Saudi universities will encourage students to be more interested in learning.</td>
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<tr>
<td>47 Due to gender segregation in the Saudi higher-education system, WBI is a good teaching tool.</td>
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<tr>
<td>48 Adopting and developing WBI in the Saudi universities will create a challenge for faculty.</td>
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Appendix D

WBI Survey Instrument, Arabic Version

(Reproduced as used)
**استبيان التعليم عن بعد باستخدام الشبكة (الإنترنت)**

**Web-Based Instruction Survey Instrument**

الجزء الأول: معلومات عامة، وأسئلة عن التعليم عن بعد باستخدام الشبكة العالمية للتعليمات (الإنترنت).

يحتوي هذا الجزء على أسئلة عامة عن المشارك في الإجابة عن البيانات، وكذلك على أسئلة عامة عن التعليم عن بعد باستخدام الشبكة العالمية للتعليمات (الإنترنت).

فضلًا حدِّد الإجابة المناسبة:

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<td>جامعة الملك فهد</td>
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<td>7 - 9 مقررات</td>
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<td>4 - 5 مرات في الأسبوع</td>
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<td>30 دقيقة/زيارة</td>
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<td>4 - 5 ساعات/زيارة</td>
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</tr>
<tr>
<td>أكثر من 6 ساعات/زيارة</td>
<td>☐</td>
</tr>
<tr>
<td>حكم سنة فتح فيها بالتدريس عن بعد</td>
<td>13</td>
</tr>
<tr>
<td>باستخدام الشبكة العالمية للمعلومات (الإنترنت)؟</td>
<td>☐</td>
</tr>
<tr>
<td>لا شيء</td>
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<tr>
<td>1 - 2 سنوات</td>
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<tr>
<td>3 - 6 سنوات</td>
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<td>7 - 9 سنوات</td>
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<tr>
<td>أكثر من 9 سنوات</td>
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<td>ما التقنية أو التقنيات التي تعتمد أو تشرع على استخدامها في مجال التعليم عن بعد</td>
<td>14</td>
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<td>البريد الإلكتروني</td>
<td>☐</td>
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<tr>
<td>الرسائل البريدية الجماعية (الإنترنت)؟</td>
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</tr>
<tr>
<td>الحوارات المحتوية (الإنترنت)؟</td>
<td>☐</td>
</tr>
<tr>
<td>غرف الدردشة (الإنترنت)</td>
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</tr>
<tr>
<td>المحادثات الافتراضية (الإنترنت)</td>
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<tr>
<td>المحادثات المرئية (الإنترنت)</td>
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<td>الأخرى ( )</td>
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<td>هل لديك الرغبة للمشاركة في التدريس عن بعد باستخدام الشبكة العالمية للمعلومات (الإنترنت)؟</td>
<td>15</td>
</tr>
<tr>
<td>نعم</td>
<td>☐</td>
</tr>
<tr>
<td>لا</td>
<td>☐</td>
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</table>
الجزء الثاني: الأسباب التي قد تعيق مشاركتك في التعليم عن بعد باستخدام الشبكة العالمية للعلومات (الإنترنت).

يقع هذا الجزء على أسئلة عامة عن الأسباب التي يمكن أن تعيق مشاركتك في التعليم عن بعد باستخدام الشبكة العالمية للعلامات (الإنترنت).

اً معايير المشاركة بالتعليم عن بعد باستخدام الشبكة العالمية للعلامات (الإنترنت)

 blossom, 129

<table>
<thead>
<tr>
<th>العبارة</th>
<th>موافق بشدة</th>
<th>موافق جزئي</th>
<th>موافق بحدادي</th>
<th>موافق نقدًا</th>
<th>غير موافق بشدة</th>
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<td>الخوف من استخدام التقنيات الحديثة.</td>
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<td>عدم وجود المعرفة المحكوفة التي تمكنك من إعداد مشاريع التدريس عن بعد باستخدام الشبكة العالمية للعلامات (الإنترنت).</td>
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<td>لا يوجد الوقت الكافي لإعداد مشاريع التدريس عن بعد باستخدام الشبكة العالمية للعلامات (الإنترنت).</td>
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<tr>
<td>تقصي السياسات والتعليمات التي تنظم التعليم عن بعد باستخدام الشبكة العالمية للعلامات (الإنترنت).</td>
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<tr>
<td>تقصي السياسات والتعليمات التي تنظم حقوق الملكية الفكرية للمشاريع التي تدرس عن طريق الشبكة العالمية للعلامات (الإنترنت).</td>
<td></td>
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<tr>
<td>نقص مساحة النشر.</td>
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<td>نقص المساحة الفنية.</td>
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<td>نقص الحواسب المالية.</td>
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<td>عدم توفير البيئ التحتية المطلوبة للشبكة العالمية للعلامات (الإنترنت).</td>
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<tr>
<td>في الجامعة.</td>
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<tr>
<td>نقص المساعدة الإدارية.</td>
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<td>نقص الدعم الحكومي لتطبيق التعليم عن بعد باستخدام الشبكة العالمية للعلامات (الإنترنت).</td>
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</tbody>
</table>

صفحة 7 من 9
الجزء الثالث: العوامل التي قد تشجع على المشاركة في التعليم عن بعد باستخدام الشبكة العالمية للمعلومات (الإنترنت).

يشير هذا الجزء إلى العوامل التي يمكن أن تشجع على المشاركة في التعليم عن بعد باستخدام الشبكة العالمية للمعلومات (الإنترنت).

[[ محفزات المشاركة في التعليم عند استخدام الشبكة العالمية للمعلومات (الإنترنت).]]

قم بإخيار الشموع المناسبة من مجال عامل اختيار العبارات المناسبة:

<table>
<thead>
<tr>
<th>العبارات</th>
<th>موافق بشدة</th>
<th>موافق جزئي</th>
<th>موافق غير بشدة</th>
<th>غير موافق</th>
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<tr>
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</tr>
<tr>
<td>باستخدام الشبكة العالمية للمعلومات (الإنترنت).</td>
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<td>□</td>
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<td>□</td>
</tr>
<tr>
<td>مناسبة المقررات للتدريس عن بعد باستخدام الشبكة العالمية المعلم.</td>
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<tr>
<td>للمعلومات (الإنترنت).</td>
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<td>□</td>
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<tr>
<td>وجود دورات تدريبية لتطوير مهارات عضو هيئة التدريس عند تدريس</td>
<td>□</td>
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<tr>
<td>مقررات عن بعد باستخدام الشبكة العالمية للمعلومات (الإنترنت).</td>
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<tr>
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<td>الشبكة العالمية للمعلومات (الإنترنت).</td>
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</tr>
<tr>
<td>وجود السياسات والتعليمات التي تنظم التعليم عن بعد باستخدام</td>
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<td>الشبكة العالمية للمعلومات (الإنترنت) في الجامعة.</td>
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<td>وجود السياسات والتعليمات التي تنظم حقوق الملكية للمقررات التي</td>
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<td>تدرس عن طريق الشبكة العالمية للمعلومات (الإنترنت) في الجامعة.</td>
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<td>وجود حيويات عند زيادة مجموع العمل الناجح عن إنشاء مقررات</td>
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<tr>
<td>وجود الدعم الحكومي لتطبيق التعليم عن بعد باستخدام الشبكة العالمية</td>
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<tr>
<td>للمعلومات (الإنترنت).</td>
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<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>
في الجزء الرابع: الموافقات التي تجاه التعليم عن بعد باستخدام الشبكة العالمية للتعليمات (الإنترنت).

يحتوي هذا الجزء على ملزمة عامة من الموافقات التي تجاه التعليم عن بعد باستخدام الشبكة العالمية للمعلومات (الإنترنت).

فضلاً، قرر الإجابة على جميع جزئية بأخذ عبارات المناسبة:

<table>
<thead>
<tr>
<th>العبارة</th>
<th>غير موافق</th>
<th>موافق بشدة</th>
<th>موافق جزئياً</th>
<th>موافق</th>
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<tbody>
<tr>
<td>التعليم عن بعد باستخدام الشبكة العالمية للمعلومات (الإنترنت) عميد المستقبل التعليم العالي.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>يضفي التعليم عن بعد باستخدام الشبكة العالمية للمعلومات (الإنترنت) بعض الخبرة الذي يقيس الطلاب. إذاً، يجب على الطلاب للاستفادة الكاملة من التعليم التقليدي.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>يضفي التعليم عن بعد باستخدام الشبكة العالمية للمعلومات (الإنترنت) خدمة قد تكون مفيدة للطلاب.</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>أظهر بالاختلاج للاستفادة عن بعد باستخدام الشبكة العالمية للمعلومات (الإنترنت) سوف يعطي طلباً للخطر.</td>
<td>☐</td>
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<tr>
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<td>☐</td>
<td>☐</td>
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<tr>
<td>تأثير تقنيات التعليم عن بعد باستخدام الشبكة العالمية (الإنترنت) معقدة جداً بالنسبة للطلاب وأعضاء هيئة التدريس مما يفتقد من نجاعية.</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>يوفر التعليم عن بعد باستخدام الشبكة العالمية للمعلومات (الإنترنت) فرصة واسعة لتفاعل الطلاب.</td>
<td>☐</td>
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<tr>
<td>التدريس عن بعد باستخدام الشبكة العالمية للمعلومات (الإنترنت) سوف يضيف جدلاً إضافياً على مستوى الجامعات.</td>
<td>☐</td>
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<tr>
<td>إن تطبيق التعليم عن بعد باستخدام الشبكة العالمية للمعلومات (الإنترنت) سوف يساعد على تحسين مستوى الطلاب عمياً.</td>
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<tr>
<td>إن تطبيق التعليم عن بعد باستخدام الشبكة العالمية للمعلومات (الإنترنت) سوف يساعد المراهقين بناءً على مستوى الطلاب عمياً.</td>
<td>☐</td>
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<tr>
<td>إن التعليم عن بعد باستخدام الشبكة العالمية للمعلومات (الإنترنت) سهل تعلمه بالنسبة للطلبة في الجامعات السعودية التي تلتزم厳 / الحضور عن بعد باستخدام الشبكة العالمية للمعلومات (الإنترنت) في الجامعات السعودية.</td>
<td>☐</td>
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</tbody>
</table>

صفحة 9 من 9
Appendix E

Translation Experts Panel
Translation Expert Panel

1. Professor Jamal Al-Sharhan, faculty member of a Saudi university in Riyadh, reviewed the Arabic version of the survey for securing its validity.

2. Professor Abdul Rahman Al-Mogbail, faculty member of a Imam Muhammad bin Saud Islamic University in Riyadh, also reviewed the Arabic version of the survey for securing its validity.

3. Dr. Ali Said Ahmed Hassan, Translator in the Training Department, Royal Saudi Navy Forces, translated the English version of the survey into Arabic.

4. Mr. Abu-Fardeh Yousef A., M.A. degree in English language, Washington International University (WIU, PA), Translator, Booz Allen & Hamilton (BAH), Training Department, Royal Saudi Navy Forces, translated the English version of the survey into Arabic.
Appendix F

The University of West Florida Institutional Review Board Approval Letter
November 16, 2005

Mr. Mohammed Al-balawi
P.O. Box 221050
Riyadh 11311, Saudi Arabia

Dear Mr. Al-balawi:

The Institutional Review Board (IRB) for Human Research Participant Protection has completed its review of your proposal titled “Critical Factors Related to the Implementation of Web-Based Instruction by Higher Education Faculty at Three Universities in the Kingdom of Saudi Arabia” as it relates to the protection of human participants used in research, and has granted approval for you to proceed with your study. As a research investigator, please be aware of the following:

- You acknowledge and accept your responsibility for protecting the rights and welfare of human research participants and for complying with all parts of 45 CFR Part 46, the UWF IRB Policy and Procedures, and the decisions of the IRB. You may view these documents on the Office of Research web page at http://www.research.uwf.edu. You acknowledge completion of the IRB ethical training requirements for researchers as attested in the IRB application.

- You will ensure that legally effective informed consent is obtained and documented. If written consent is required, the consent form must be signed by the participant or the participant’s legally authorized representative. A copy is to be given to the person signing the form and a copy kept for your file.

- You will promptly report any proposed changes in previously approved human participant research activities to the Office of Research and Graduate Studies. The proposed changes will not be initiated without IRB review and approval, except where necessary to eliminate apparent immediate hazards to the participants.

- You are responsible for reporting progress of approved research to the Office of Research and Graduate Studies at the end of the project period. Approval for this project is valid for one year. If the data phase of your project continues beyond one year, you must request a renewal by the IRB before approval of the first year lapses. Project Directors of research requiring full committee review should notify the IRB when data collection is completed.

- You will immediately report to the IRB any injuries or other unanticipated problems involving risks to human participants.

Good luck in your research endeavors. If you have any questions or need assistance, please contact the Office of Research and Graduate Studies at 850-6378.

Sincerely,

[Signature]
Dr. Keith Whimnery, Chair
IRB for Human Research
Participant Protection

[Signature]
Ms. Sandra VanderHeyden
Director of Sponsored Research

cc: Dr. Karen Rasmussen
Dr. Richard Podemski

Office of Research and Graduate Studies
11000 University Parkway
Pensacola, Fl. 32514-5750

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Appendix G

Informed Consent Form From Saudi Arabia Cultural Mission to the USA and From the Deputy for Higher Studies and Scientific Research, King Saud University,

Arabic Version

(Reproduced as used)
المملكة العربية السعودية
وزارة التعليم العالي
غرفة الوزارة للعلاقات الدولية
الإدارة العامة لشؤون البنكاث

(إضافة)

إلى من يهمه الأمر

تقدر الإدارة العامة لشؤون البنكاث بوزارة التعليم العالي بأن المنتسب بمدرسة محمد بن صالح البلوي يرغب في إجراء بحث وجمع معلومات عن جامعات المملكة وтарض في تنبيه داممسانحة حسب المتعلق.

والله الموفق...

سيب"م"ع

مدير عام الإدارة
العامة لشؤون البنكاث الملكة

د. عبد العزيز بن محمد الحميدي

الختم الرسمي
رسالة هانقية

سعادة مساعد المنسق العسكري للشؤون البحرية بأمريكا
المستشار عليكم ورحمة الله وبركاتكم...

إشارة إلى خطابكم رقم 3757/1041 هـ بشأن طلب منح الرائد
البحري/ محمد صالح البلوي - القوات البحرية ، خطاب يطلب منه مجلس البحري
لمهمته في جميع المعلومات المطلوبة لبيتها. تجدون برقمه الخطاب المطلوب.

مع أطيب التحية والتقدير والمسامحات...

المستشار الثقافي السعودي بأمريكا

د. مزيد بن إبراهيم العريض
بسم الله الرحمن الرحيم

سعادة وكيل الجامعة للدراسات العليا والبحث العلمي المحترم

السلام عليكم ورحمة الله وبركاتكم:

أفيد سعادتكم بأنّي طالب مبتعث لدراسة الدكتوراه بجامعة غرب فلوريدا الحكومية بالولايات المتحدة الأمريكية، كلية الدراسات المتخصصة، قسم تقنيات التعليم، وأرغب في توزيع الاستبانة المطلوبة لإنهاء أطروحة الدكتوراه والتي بعنوان: العوامل المؤثرة على عملية تطبيق التعليم عن بعد بواسطة الشبكة العالمية للمعلومات (الإنترنت) لدى أعضاء هيئة التدريس بالجامعات السعودية.

علماً بأنه تم اختيار جامعتكم العامعة من ضمن الجامعات الثلاث التي سوف يتم توزيع الاستبانة بها، وهي: جامعة الملك عبد العزيز بجدة، جامعة الملك سلمان بالرياض، وجامعة الملك فهد للبترول والمعادن بالظهران.

أرجو من سعادتكم التكرم بالموافقة على توزيع الاستبانة المرفقة لغرض تحكمها من قبل عدد (0-00) من أعضاء وعضوات هيئة التدريس بجميع كليات الجامعة وأقسامها المختلفة.

شكرًا ومقدراً لكم حسن تعاونكم .. وتقبلوا خالص تحياتي وتقديري.

والسلام عليكم.

محمد صالح ظاهر البلوي
جامعة غرب فلوريدا الحكومية
الولايات المتحدة الأمريكية
m@balawi.net
يسم الله الرحمن الرحيم

سعادة وكيل جامعة الملك عبد العزيز للدراسات العليا والبحث العلمي المحترم

السلام عليكم ورحمه الله وبركاته:

أفيد سعادتكم بأنني طالب مبتعث لدراسة الدكتوراه بجامعة غرب فلوريدا الحكومية بالولايات المتحدة الأمريكية، كلية الدراسات المتخصصة، قسم تقنيات التعليم، وأرغب في توزيع الاستمارة المطلوبة لإنهاء أطروحة الدكتوراه والتي يعنوان "العوامل المؤثرة على عملية تطبيق التعليم عن بعد بواسطة الشبكة العالمية للمعلومات (الأنتنت) لدى أعضاء هيئة التدريس بالجامعات في المملكة العربية السعودية"، علمًا بأنه تم اختيار جامعتكم العامرة من ضمن الجامعات الثلاث التي سوف توزع بها استمارة البحث وهي: (جامعة الملك عبد العزيز بجدة، جامعة الملك سعود بالرياض، وجامعة الملك فهد للبترول والمعادن بالظهران).

آرجو من سعادتكم التكرم بالموافقة على توزيع الاستمارة المرفقة على شريحة مختارة من أعضاء هيئة التدريس (محاضرين/محاضرات) بجميع كليات الجامعة وأقسامها المختلفة.

شكراً ومقدراً حسن تعاونكم ... وقبلوا خالص تحياتي وتقديري.

والسلام عليكم.

الباحث

محمد صالح ظاهر البلوي
جامعة غرب فلوريدا الحكومية
الولايات المتحدة الأمريكية

m@balawi.net
0555380480
بسم الله الرحمن الرحيم

سعادة وكيل جامعة الملك سعود للدراسات العليا والبحث العلمي المحترم

السلام عليكم ورحمة الله وبركاته:

أفيد سعادتكم بأنني طالب مبتعث لدراسة الدكتوراه بجامعة غرب فلوريدا الحكومية بالولايات المتحدة الأمريكية، كلية الدراسات المتخصصة، قسم تقنيات التعليم، وأرغب في توزيع الاستبانة المطلوبة لإنهاء أطروحة الدكتوراه والتي بعنوان “العوامل المؤثرة على عملية تطبيق التعليم عن بعد بواسطة الشبكة العالمية للمنظمات (الإنترنت) لدى أعضاء هيئة التدريس بالجامعات في المملكة العربية السعودية”، علمًا بأنه تم اختيار جامعتكم العاشرة من ضمن الجامعات الثلاث التي سوف توزع بها استبانة البحث وهي: جامعة الملك عبد العزيز بجدة، جامعة الملك سعود بالرياض، جامعة الملك فهد للبترول والمعادن بالظهران.

أرجو من سعادتكم التكرم بالموافقة على توزيع الاستبانة المرفقة على شريحة مختارة من أعضاء هيئة التدريس (محاضرين/محاضرات) بجميع كليات الجامعة وأقسامها المختلفة.

شكرًا ومقدراً حسن تعاونكم ... وتقبلوا خالص تحياتي وتقديري.

والسلام عليكم.

الباحث

محمد صالح ظاهر البلوي
جامعة غرب فلوريدا الحكومية
الولايات المتحدة الأمريكية
m@balawi.net
0555380480
بسم الله الرحمن الرحيم

سعادة ووكيل جامعة الملك فهد للدراسات العليا والبحث العلمي

المحترم

السلام عليكم ورحمة الله وبركاته:

أفيده سعادتك بأنني طالب مبتعث لدراسة الدكتوراه بجامعة غرب فلوريدا الحكومية

بالولايات المتحدة الأمريكية، كلية الدراسات المتخصصة، قسم تكنيات التعليم، وأرغب

في تنزيح الاستمارة المطلوبة لإنهاء أطرافه الدكتوراه والتي بعنوان "العاليل المؤثر

على عملية تطبيق التعليم عن بعد بواسطة الشبكة العالمية للمعلومات (الإنترنت) لدى

أعضاء هيئة التدريس بالجامعات في المملكة العربية السعودية"، علمًا بأنه تم اختيار

جامعتي العامة من ضمن الجامعات الثلاث التي سوف توزع بها استمارة البحث وهي:

(جامعة الملك عبد العزيز بجدة، جامعة الملك سعود بالرياض، وجامعة الملك فهد

للبرازو والمعادن بالظهران).

أرجو من سعادتك التكرم بالموافقة على تنزيح الاستمارة المرفقة على شرية

مختارة من أعضاء هيئة التدريس (محاضرين/محاضرات) بجميع كليات الجامعة

وأقسامها المختلفة.

شكرًا ومقدراً حسن تعاونكم ... وتقبلوا خالص تحياتي وتقديري.

والسلام عليكم.

محمد صالح ظاهر البلوي
جامعة غرب فلوريدا الحكومية

الولايات المتحدة الأمريكية

m@balawi.net
0555380480
Appendix H

Informed Consent Form From Saudi Arabia Cultural Mission to the USA and from the Deputy for Higher Studies and Scientific Research, King Saud University,

English Version

(Reproduced as used)
Kingdom of Saudi Arabia  
Ministry of Higher-education  
Cultural Mission to the U.S.A

Reference number 96/3  
Date: 25 Feb 04  
Attachment: 1

Phone Message

To: Assistant Defense Attaché for Naval Affairs in U.S.A

From: Dr. Mezyed Ibrahim Al-Mezyed, Saudi Cultural Attaché in U.S.A

Greetings,

Reference your letter number 5/15/427, dated 15 Dec 03, subject: Request for a letter addressed to Saudi universities in order to facilitate the mission of lieutenant commander Mohammed Saleh Al-Balawi from Royal Saudi Naval Forces in gathering the data required for his research.

Enclosed is the requested letter.

Regards

-----------------------------------------------------------------------------------------

From: Dr. AbduAziz Saad Al-Husseni, Acting Director General of General Department for Scholarship Affairs

TO Whom It May Concern

The Ministry of Higher-education, General Department for Scholarship Affairs certifies that Mr. Mohammed Saleh Al-Balawi desires to make research and collect data on KSA universities. Mr. Balawi requests his mission be facilitated.

To: Deputy for Higher Studies and Scientific Research, King Saud University

From: Mohammed Saleh Dhaher Al-Balawi, UWF  
E-mail m@balawi.net Mobile Phone 0504478812

Greetings,

I am a doctoral student on The University of West Florida, College of Professional Studies, Division of Technology, Research and Development. I would like to disseminate
the questionnaire required for completion my dissertation entitled “Critical Factors Related to the Implementation of Web Based Instruction”

I would like to explain that your university, as well as two other universities have been selected to receive the questionnaire. The universities are King AbdulAziz University in Jeddah, King Saud University in Riyadh, and King Fahd University for Petroleum and minerals in Dhahran.

Respectfully request you concur with dissemination the attached questionnaire. The purpose is to evaluate the data outlined in the questionnaire by faculty staff members of all university colleges and departments.

Regards;
Mohammed A-balawi.
Doctoral Candidate
Division of Technology, Research and Development
The University of West Florida
Pensacola, FL 32514
USA
m@balawi.net

--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

From: Deputy for Higher Studies and Scientific Research, King Saud University
To whom it may concern
The researcher Mohammed Al-Balawi is welcome to conduct his survey at our university.
Appendix I

Survey Introduction Letter From the Chair and Associate Professor of the Division of Engineering and Computer Technology at The University of West Florida,

English Version

(Reproduced as used)
December 2, 2005

Dear Faculty Participants in Doctoral Study:

Mohammed Al-Balawi is a doctoral candidate in the Department of Instructional and Performance Technology at The University of West Florida, Pensacola, working on his dissertation. The purpose of his study is to investigate the critical factors related to the implementation of Web-based instruction by higher education faculty at three universities in Kingdom of Saudi Arabia, King Saud University in Riyadh, King Fahd University of Petroleum and Minerals in Dhahran, and King Abdul Aziz University in Jeddah.

I am seeking your assistance for Mr. Al-Balawi as he begins to collect data for his study. He will be distributing his survey to you in the near future and I am requesting your support by completing and returning the survey. Thank you for your kind consideration; please do not hesitate to contact me if you have any questions.

Sincerely,

Karen Rasmussen, Ph.D.
Chair and Associate Professor
krasmussen@uwf.edu
Appendix J

Survey Cover Letter, Arabic Version
بسم الله الرحمن الرحيم

أخي المحاضر / أختي المحاضرة

السلام عليكم ورحمة الله وبركاته:

أضع بين يديك استبانة علمية بعنوان "الموارد المؤثرة على عملية تطبيق التعليم عن بعد

وال斯塔بة العالمية للمعلومات (الإنترنت) لدى أعضاء هيئة التدريس بالجامعات

السعودية" وذلك ضمن بحث علمي بـ "قسم تقنيات التعليم وتقنية الدراسات المتخصصة جامعة

غرب فلوريدا الحكومية بالولايات المتحدة الأمريكية وذلك لاستكمال درجة الدكتوراه.

أمل التلطف بالمساعدة في كتابة استبانة البحث العلمي المرفقة، علماً بأنه لا يشترط

كمية صور، وإن كفاءة المعلومات سوف يتم استخدامها لأغراض البحث العلمي فقط، مع

ملاحظة بأنه ليس هناك إجابة صحيحة أو خاطئة، و全长 ما يهم هنا هو رأيكم الشخصي فقط.

وفي حالة رغبتكم في الحصول على نسخة من نتائج البحث أمل كتابة عنوانك

الإلكتروني "Email"، حتى نتمكن من تزويدك بنتائج البحث.

للحصول على نسخة الإلكترونية إضافية من الاستبانة باللغة العربية أو الإنجليزية تفضل

بزيارة موقعنا على الشبكة العالمية للمعلومات (الإنترنت) على الرابط التالي:

http://www.students.uwf.edu/msa2/research/

ولزيدين من المعلومات حول البحث أو التعليم عن بعد يمكنكم الاتصال على الباحث

m@balawi.net بإرسال رسالة إلكترونية "Email" على العنوان التالي: "Email"، شاكراً ومقدراً حسن تعاونكم.. ونقبل خالص تحياتي وتقديري.

والسلام عليكم.

الباحث

محمد صالح ظاهر البلوقي

جامعة غرب فلوريدا الحكومية

الولايات المتحدة الأمريكية

ص4 من 9
Appendix K

Tables of Respondent Demographics
### Table K1

**Respondent Frequency Distribution of Faculty by University and College (N = 154)**

<table>
<thead>
<tr>
<th>College</th>
<th>KAU</th>
<th></th>
<th>KSU</th>
<th></th>
<th>KFUPM</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>Administration</td>
<td>2</td>
<td>1.3</td>
<td>1</td>
<td>0.6</td>
<td>4</td>
<td>2.6</td>
<td>7</td>
<td>4.5</td>
</tr>
<tr>
<td>Arts</td>
<td>1</td>
<td>0.6</td>
<td>13</td>
<td>8.4</td>
<td>-</td>
<td>-</td>
<td>14</td>
<td>9.0</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>3.2</td>
<td>5</td>
<td>3.2</td>
</tr>
<tr>
<td>Computer and Information Sciences</td>
<td>7</td>
<td>4.5</td>
<td>8</td>
<td>5.2</td>
<td>-</td>
<td>-</td>
<td>15</td>
<td>9.7</td>
</tr>
<tr>
<td>Dental</td>
<td>4</td>
<td>2.6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>2.6</td>
</tr>
<tr>
<td>Economics and Administration</td>
<td>16</td>
<td>10.4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>16</td>
<td>10.4</td>
</tr>
<tr>
<td>Education</td>
<td>1</td>
<td>0.6</td>
<td>18</td>
<td>11.7</td>
<td>-</td>
<td>-</td>
<td>19</td>
<td>12.3</td>
</tr>
<tr>
<td>Engineering</td>
<td>5</td>
<td>3.2</td>
<td>5</td>
<td>3.2</td>
<td>5</td>
<td>3.2</td>
<td>15</td>
<td>9.7</td>
</tr>
<tr>
<td>Environmental Design</td>
<td>10</td>
<td>6.5</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>3.2</td>
<td>15</td>
<td>9.7</td>
</tr>
<tr>
<td>Industrial Management</td>
<td>2</td>
<td>1.3</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>3.2</td>
<td>7</td>
<td>4.5</td>
</tr>
<tr>
<td>Languages and Translating</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>2.6</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>2.6</td>
</tr>
<tr>
<td>Medicine</td>
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<td>9.1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>14</td>
<td>9.1</td>
</tr>
<tr>
<td>Sciences</td>
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<td>3.2</td>
<td>6</td>
<td>3.9</td>
<td>7</td>
<td>4.5</td>
<td>18</td>
<td>11.7</td>
</tr>
<tr>
<td>Social Studies</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>0.6</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>43.3</td>
<td>56</td>
<td>36.2</td>
<td>31</td>
<td>19.9</td>
<td>154</td>
<td>99.4</td>
</tr>
</tbody>
</table>

*Note.* Responses are from Items 1 and 2 of the survey. Dashes indicate there was no response. Rounding of total percentages does not equal 100%.
Table K2

*Respondent Frequency Distribution of Faculty by Teaching Experience (Item 4)*

<table>
<thead>
<tr>
<th>Teaching Experience</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5 years</td>
<td>31</td>
<td>20.1</td>
</tr>
<tr>
<td>6-10 years</td>
<td>38</td>
<td>24.7</td>
</tr>
<tr>
<td>11-15 years</td>
<td>27</td>
<td>17.5</td>
</tr>
<tr>
<td>More than 15 years</td>
<td>58</td>
<td>37.7</td>
</tr>
<tr>
<td>Total</td>
<td>154</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table K3

*Respondent Frequency Distribution of Faculty by Highest Academic Degree Held (Item 5)*

<table>
<thead>
<tr>
<th>Degree</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor’s</td>
<td>14</td>
<td>9.1</td>
</tr>
<tr>
<td>Master’s</td>
<td>34</td>
<td>22.1</td>
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<tr>
<td>Doctorate</td>
<td>106</td>
<td>68.8</td>
</tr>
<tr>
<td>Total</td>
<td>154</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table K4

*Respondent Frequency Distribution of Faculty by Position (Item 6)*

<table>
<thead>
<tr>
<th>Position</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching assistant</td>
<td>24</td>
<td>15.6</td>
</tr>
<tr>
<td>Lecturer</td>
<td>25</td>
<td>16.2</td>
</tr>
<tr>
<td>Assistant professor</td>
<td>49</td>
<td>31.8</td>
</tr>
<tr>
<td>Instructor</td>
<td>30</td>
<td>19.5</td>
</tr>
<tr>
<td>Full professor</td>
<td>26</td>
<td>16.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>154</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table K5

*Respondent Frequency Distribution of Faculty by Gender (Item 7)*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>108</td>
<td>70.1</td>
</tr>
<tr>
<td>Female</td>
<td>46</td>
<td>29.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>154</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table K6

*Respondent Frequency Distribution of Faculty by Age (Item 8)*

<table>
<thead>
<tr>
<th>Age</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25 years</td>
<td>5</td>
<td>3.2</td>
</tr>
<tr>
<td>26-30 years</td>
<td>13</td>
<td>8.4</td>
</tr>
<tr>
<td>31-35 years</td>
<td>11</td>
<td>7.1</td>
</tr>
<tr>
<td>36-40 years</td>
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<td>27.3</td>
</tr>
<tr>
<td>41-45 years</td>
<td>43</td>
<td>27.9</td>
</tr>
<tr>
<td>46-50 years</td>
<td>29</td>
<td>18.8</td>
</tr>
<tr>
<td>51-55 years</td>
<td>6</td>
<td>3.9</td>
</tr>
<tr>
<td>Over 55 years</td>
<td>5</td>
<td>3.2</td>
</tr>
<tr>
<td>Total</td>
<td>154</td>
<td>99.8</td>
</tr>
</tbody>
</table>

*Note.* Rounding of percentages does not equal 100%.

Table K7

*Respondent Frequency Distribution of Faculty by Nationality (Item 9)*

<table>
<thead>
<tr>
<th>Nationality</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saudi</td>
<td>115</td>
<td>74.7</td>
</tr>
<tr>
<td>Non-Saudi</td>
<td>39</td>
<td>25.3</td>
</tr>
<tr>
<td>Total</td>
<td>154</td>
<td>100.0</td>
</tr>
</tbody>
</table>
### Table K8

**Respondent Frequency Distribution of Faculty by Number of Courses Teaching (Item 10)**

<table>
<thead>
<tr>
<th>Courses Teaching</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5 courses</td>
<td>83</td>
<td>53.9</td>
</tr>
<tr>
<td>6-10 courses</td>
<td>48</td>
<td>31.2</td>
</tr>
<tr>
<td>11-15 courses</td>
<td>14</td>
<td>9.1</td>
</tr>
<tr>
<td>More than 15 courses</td>
<td>9</td>
<td>5.8</td>
</tr>
<tr>
<td>Total</td>
<td>154</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Note.** Rounding of percentages does not equal 100%.

### Table K9

**Respondent Frequency Distribution of Faculty by Times of Using Computer (Item 11)**

<table>
<thead>
<tr>
<th>Times of Using Computer</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>6</td>
<td>3.9</td>
</tr>
<tr>
<td>Daily</td>
<td>112</td>
<td>72.7</td>
</tr>
<tr>
<td>1-3 times/week</td>
<td>13</td>
<td>8.4</td>
</tr>
<tr>
<td>4-5 times/week</td>
<td>17</td>
<td>11.0</td>
</tr>
<tr>
<td>A few times a month</td>
<td>6</td>
<td>3.9</td>
</tr>
<tr>
<td>Total</td>
<td>154</td>
<td>99.9</td>
</tr>
</tbody>
</table>

**Note.** Rounding of percentages does not equal 100%.
Table K10

**Respondent Frequency Distribution of Faculty by Using the Internet (Item 12)**

<table>
<thead>
<tr>
<th>Using the Internet</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never use the Internet</td>
<td>10</td>
<td>6.5</td>
</tr>
<tr>
<td>30-60 minutes/visit</td>
<td>54</td>
<td>35.1</td>
</tr>
<tr>
<td>2-3 hours/visit</td>
<td>53</td>
<td>34.4</td>
</tr>
<tr>
<td>4-5 hours/visit</td>
<td>10</td>
<td>6.5</td>
</tr>
<tr>
<td>More than 6 hours/visit</td>
<td>27</td>
<td>17.5</td>
</tr>
<tr>
<td>Total</td>
<td>154</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table K11

**Respondent Frequency Distribution of Faculty by Web-based Teaching Experience (Item 13)**

<table>
<thead>
<tr>
<th>Web-based teaching experience</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never teach courses on Web</td>
<td>96</td>
<td>62.3</td>
</tr>
<tr>
<td>1-3 years</td>
<td>25</td>
<td>16.2</td>
</tr>
<tr>
<td>4- years</td>
<td>16</td>
<td>10.4</td>
</tr>
<tr>
<td>7- years</td>
<td>11</td>
<td>7.1</td>
</tr>
<tr>
<td>More than 9 years</td>
<td>6</td>
<td>3.9</td>
</tr>
<tr>
<td>Total</td>
<td>154</td>
<td>99.9</td>
</tr>
</tbody>
</table>

*Note.* Rounding of percentages does not equal 100%.
Table K12

*Respondent Frequency Distribution of Faculty by WBI Technology (Item 14)*

<table>
<thead>
<tr>
<th>Type of technology</th>
<th>Had training</th>
<th>No training</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>E-Mail</td>
<td>132</td>
<td>85.7</td>
</tr>
<tr>
<td>Threaded discussion</td>
<td>45</td>
<td>29.2</td>
</tr>
<tr>
<td>ListSends</td>
<td>39</td>
<td>25.3</td>
</tr>
<tr>
<td>Chat room</td>
<td>19</td>
<td>12.3</td>
</tr>
<tr>
<td>Teleconferencing</td>
<td>30</td>
<td>19.5</td>
</tr>
<tr>
<td>Videoconferencing</td>
<td>48</td>
<td>31.2</td>
</tr>
<tr>
<td>WebCT (Other)</td>
<td>22</td>
<td>14.3</td>
</tr>
</tbody>
</table>

*Note:* $\sum f \neq 154$ since some respondents used more than one type of technology. $\sum % \neq 100$ since the percentage calculation was based on the total number of respondents.

Table K13

*Respondent Frequency Distribution of Faculty by Willing To Participate in Teaching WBI (Item 15)*

<table>
<thead>
<tr>
<th>Willing to participate in teaching WBI</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not willing to participate in WBI</td>
<td>14</td>
<td>90.9</td>
</tr>
<tr>
<td>Yes willing to participate in WBI</td>
<td>140</td>
<td>9.1</td>
</tr>
<tr>
<td>Total</td>
<td>154</td>
<td>100.0</td>
</tr>
</tbody>
</table>


Appendix L

Bar Charts of the Response Frequencies Distribution for Survey Items Related to Attitude
**Item 37. WBI is the wave of the future.**

*Figure L1.* The majority of faculty agreed that WBI is the wave of the future in higher education.
Item 38. Students can learn in WB class as much as in traditional class.

Figure L2. The majority of faculty disagreed that students tend to learn just as much in a Web-based education environment as they do in the traditional classroom.
Item 39. WBI provides a valuable service.

Figure L3. The majority of faculty agreed that WBI provides a valuable service to students.
Figure L4. The majority of faculty disagreed that WBI will put their jobs at risk.
Item 41. WBI opens higher education.

Figure L5. The majority of faculty agreed that WBI opens higher education to a broader range of students than does traditional education.
**Item 42. WBI technology is complicated.**

*Figure L6.* The majority of faculty disagreed that WBI technology is too complicated for both the students and the faculty to be successful.
**Item 43. WBI offers enough opportunities.**

*Figure L7.* The majority of faculty agreed that WBI offers students enough opportunities for interaction.
Item 44. WBI will add stress.

Figure L8. The majority of faculty agreed that WBI will create more stress for an instructor.
Figure L9. It appears that an approximately equal number of faculty either agreed with or were neutral toward the statement that adopting WBI will improve student learning. There were fewer faculty who strongly agreed and far fewer faculty who disagreed or strongly disagreed.
Item 46. WBI in Saudi will encourage interest in learning.

Figure L10. The majority of faculty was neutral toward the statement that adopting WBI in Saudi universities will encourage students to be more interested in learning.
**Item 47.** WBI in Saudi is a good teaching tool.

*Figure L11.* The majority of faculty strongly agreed and agreed that WBI is a good teaching tool because of the gender segregation in the Saudi higher-education system.
Item 48. WBI in the Saudi universities creates a challenge.

Figure L12. The majority of faculty agreed that adopting and developing WBI in the Saudi universities will create a challenge for faculty.