FACTORS THAT AFFECT FACULTY ATTITUDES TOWARD ADOPTION OF TECHNOLOGY-RICH BLENDED LEARNING

By

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ABSTRACT

Universities worldwide are transitioning to blended learning where technology is used to enhance and augment traditional face-to-face instruction. Investigation of how well blended learning strategies are accepted and adopted in multicultural settings is needed to facilitate this transition. This study investigated factors and barriers that influence faculty attitudes toward the adoption of technology-rich blended learning at Jazan University in Saudi Arabia. The influence of faculty incentives, faculty's technology experience and demographic variables including gender, academic rank were important considerations.

In his Diffusion of Innovations model, Everett Rogers identifies five stages in the adoption process: knowledge, persuasion, decision, implementation, and confirmation. The amount of time that transpires before adoption is influenced by several factors including readiness of the adoptees, perceived barriers and incentives. Knowledge of technologies may influence readiness for adoption of blended learning.

This study employed a mixed method approach using quantitative and qualitative data. Participants were 303 faculty members (234 male, 69 female) from 36 departments. Descriptive statistics, independent t-test, simple and multiple regression analysis, and correlation coefficients were employed. Faculty reported positive attitudes toward blended learning (M=3.94) on a five point Likert scale. Female faculty (M=2.88) reported more barriers to implementing blended learning than male faculty (M=2.49), (t 301=-4.43, $p<.05$). Female faculty also reported less experience in using educational technologies (M=3.54), than male faculty (M=3.95), (t 301=3.76, $p<.05$). Faculty experience with educational technologies was a significant predictor of attitudes

toward adopting blended learning, F (1,301) =32.55, $p<.05$. Faculty attitudes toward adoption of blended learning were negatively correlated with perceived barriers ($r= -.30$, $p<.05$). There was a positive correlation between attitudes and perceived incentives for adopting blended learning ($r=.72$, $p<.05$).

This Saudi university is making progress toward adopting blended learning. Female faculty members appear to be at the beginning of the Rogers implementation stage while male faculty may be approaching confirmation. Male faculty may be further along in adopting blended learning because they perceive fewer barriers and they have more advanced technical skills. Adequate technical support is important for implementing blended learning. Also, professional development programs are needed to support faculty competencies on current and emerging technologies. This support should benefit the faculty's willingness and ability to support blended learning. Future research might consider the impact of various professional development support strategies and infrastructure support on the adoption of bended learning in diverse cultural settings.

DEDICATION

I dedicate this work to:

My beloved Mother and Father, the source of my happiness and optimism
Thank you for your love, supplications, unlimited support, and encouragement. I love you.

My beloved wife, Amani Moukali, the source of my inspiration
Thank you for your support, patience, and encouragement, which gave me the ability to achieve our dream.

My wonderful children: Elyas, Hussain, and Amjad, the light of my life
Thank you for your love, which always gives me hope, joy, and happiness.

My brothers and sisters
Thank you for your support, encouragement, and care about my family and me.

ACKNOWLEDGMENTS

In the Name of Allah, the Beneficent, the Merciful

First and foremost, praise, thanks, gratitude, and veneration are due to Almighty Allah (God), the Lord of the worlds, for his blessing and all the mercy he bestowed to me. Peace and blessings be upon our prophet Muhammad, the faithful and the honest. I thank Allah, my creator and sustainer, for giving me the health, wellness, patience, and ability to pursue my graduate education and to complete this humble work and to earn the Ph.D. degree. This endeavor can't be possible without the help and guidance of Allah.

Second, although words will not reflect the extent of my gratitude, I would like to express my thanks, full gratitude and sincere appreciation for anyone who contributed in the completion of this work. I would like to thank my parents for their unlimited support, encouragement, and love. From my parents, I learned how to respect and appreciate the work and how important are patience and optimism in all matters. I ask Allah to give them the health and accept their good deeds.

I am especially indebted to the government of the Kingdom of Saudi Arabia, Saudi Embassy in Washington D.C., Saudi Arabian Cultural Mission to the U.S.A, the Ministry of Higher Education, and Jazan University, for the generous support they have given me. Special thanks go to the administrators at Jazan University for facilitating the process of conducting this study at Jazan University. I am grateful to the faculty members at Jazan University who participated in this study.

I would like to express my sincere appreciation and thanks to my academic advisor at The University of Kansas, Dr. Ronald Aust, who has given me advices since my first day in the PhD program and throughout my PhD dissertation. Your overwhelming support, encouragement,

valuable ideas, significant comments and supervision helped me to focus on my PhD program and to achieve my goals successfully.

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Love and sincere appreciation go to my small family, my beloved wife, Amani, and children, for their love, encouragement, and sacrifice. You always bring joy, hope, and happiness to me, which make me focus on my work. Thank you my wife for the efforts and sacrifices that you provided for me during my entire academic journey. I would also like to thank my wonderful children, Elyas, Hussain, and Amjad for realizing how important the time was for their father to work on this dissertation.

I would also like to thank my brothers, sisters, and relatives for their support and encouragement, which helped me to work with a high level of confidence. Without your love and care, this work can't be done this way. May Allah give you the health and accept your good deeds.

Last but not least, I would also like to thank my friends, classmates, workmates, and everyone that I unintentionally forgot to mention their names here. Thank you for the contribution that you provided to me whether directly or indirectly which led to the success of this study.

TABLE OF CONTENTS

LIST OF TABLES

Table Page

LIST OF FIGURES

Figure Page

CHAPTER I

INTRODUCTION

Introduction

We live in the age of technology; a huge revolution in information technology has occurred in the twenty-first century. Therefore, educators need to develop their teaching skills in order to keep up with the current educational situation. The world has become as a small village because of the tremendous development in information and communication technologies. Lime and Morris (2009) pointed out that as a result of the advancement in communication and network technologies, more innovative delivery and learning solution have emerged in order to provide meaningful learning experiences for learners in academic settings. The use of technology and online learning in social work education has increased in recent years as Ayala (2009) stated that a newly emerging trend in higher education is blended learning, the purposeful integration of face-to-face and online learning.

According to Stacey and Gerbic (2008), there is a new landscape in educational technology where physical and virtual environments are blended to support learning in university courses. Hofmann (2011) agreed with this idea and said with the expansion of the global workforce, and the continuous shifting of global economic factors, the time for blended learning has arrived. Blended learning is defined as a learning system combining face-to-face instruction with technology-mediated instruction (Graham, 2006).

Garrison and Vaughan (2008) stated that most administrators, faculty, and students in higher education believe that there has to be change in how we design educational experiences. This change aims to improve education and its strategies to raise learning efficiency. It is not

reasonable to education remains based on the initial foundations that have been designed in previous eras because what fits a certain period of time, not necessarily commensurate with the current era. Yes, we need to preserve the educational values that have been developed over different time periods, but at the same time taking into account the importance of integrating technology in education.

Garrison and Vaughan (2008) pointed out that blended learning in higher education provides a vision and a roadmap for higher education faculty to understand the possibilities of organically blending face-to-face and online learning for engaging and meaningful learning experiences.

Educational System in Saudi Arabia

Education has been one of the first and most prominent benefits accompanying the development of the modern State of Saudi Arabia. The directorate of education in Saudi Arabia was established in 1925. It was followed a year later by the Basic Instructions that laid the foundation for a centralized national system of government (Saudi Arabian Cultural Mission to the USA, 2006).

However, Education system in Saudi Arabia gradually evolved through several stages which lay the necessary foundations for building an inclusive education system. According to one of the versions of Saudi Arabian Cultural Mission (SACM) about the educational system in Saudi Arabia which published in 2006:

> A new era in the development of modern education began in 1953 with the establishment of the Ministry of Education on December 24, 1953, as part of the Council of Ministers. King Fahd Ibn Abdul-Aziz, who was appointed the first Minister of Education, guided the Ministry's unprecedented expansion and modernization of educational resources. With its establishment, more schools were opened, and public education started to expand throughout the country. The expansion in education was so rapid that the Ministry of

> Education found it necessary to create "school districts" in different parts of the country to assist the Ministry by distributing some of its responsibilities (Saudi Arabian Cultural Mission to the USA, 2006, p. 1).

The General Organization for Technical Education and Vocational Training (GOTEVT) was established in 1980 to coordinate and implement the kingdom's manpower development plans and supervise all related training centers and institutes (Saudi Arabian Cultural Mission to the USA, 2012).

Higher Education in Saudi Arabia

In 1975, a segment of the Ministry of Education became a separate entity, and was renamed the Ministry of Higher Education, with the purpose of dealing exclusively with higher education (Ministry of Higher Education, 2011).

Higher education in Saudi Arabia has undergone a tremendous growth over the last five decades. According to Ministry of Higher Education (2012), the higher education system, which is based on diversification, has expanded to include:

- 24 Government Universities
- 18 Primary Teacher's Colleges for men
- 80 Primary Teacher's Colleges for women
- 37 Colleges and Institutes for health
- 12 Technical Colleges
- 24 Private Universities and Colleges

In addition to the undergraduate studies programs, the universities and colleges offer graduate studies programs which grant master and doctoral degrees in some fields. Like other elements of the educational system in the Kingdom, higher education is designed and evaluated in relation to the overall national development plan, and is considered essential for fulfilling the

potential of the Kingdom's greatest resource for its people (Saudi Arabian Cultural Mission to the USA, 2006, p. 6).

Universities in Saudi Arabia

The number of Saudi Arabian universities has been increased in the last six years based on the line of development for higher education system in Saudi Arabia. There are now 24 government universities in addition to the 24 private universities and colleges. These institutions are distributed in all regions of the Kingdom in order to facilitate learning for all students.

According to the statistics provided by the Ministry of Higher Education in Saudi Arabia in April 2012, there are about 45,593 faculty members and about 898,251 students studying in the government universities. Jazan university statistics among these data are explained in detail as follows: 98 Professors, 112 Associate Professors, 447 Assistant Professors, 546 Lecturer, 277 Teaching Assistant, 76 Teachers, and 22 other. The total of faculty members is 1,578 and the total of students is 33,862 (Ministry of Higher Education, 2012).

Jazan University

Jazan University was established in 2006 and it offers undergraduate programs for male and female students. Jazan University has campuses in several cities in Jizan Province as follows: Jazan, Sabya, Abu Arish, Farasan, Ad-darb, Samtah, Al-Daer, and Al-Ardah.

Currently, in 2012, the number of colleges has increased to the following colleges: College of Islamic Law, College of Medicine, College of Dentistry, College of Pharmacy, College of Applied Medical Sciences, College of Science, College of Engineering, College of Computer and Information Systems, College of Health Sciences, College of Arts and Humanities, College of Architecture and Design, Community College, College of Business

Administration, College of Education, and College of Public Health and Tropical Medicine. The university offers bachelor's degree programs in all colleges except the community college awards diplomas only. However, Jazan University has a plan to offer graduate programs in the near future.

There are a variety of programs offered by Jazan University for students. However, students are admitted in the university according to the regulations of acceptance issued by the Ministry of Higher Education in Saudi Arabia. The study approaches at Jazan University vary based on the programs being offered. Most of the classes are offered in the traditional way as face-to-face classes. In this type of classes, students come to campus to attend the classes and to do the exams. However, some classes are offered off campus without any requirement for students to come to campus and theses classes are offered in special program that called “Entisab Program” or “Affiliation Program”. In these types of classes, students get all the required materials from the instructor at the beginning of the semester and then they study at home, but they need to attend final exams on campus. In addition, there is a new approach is currently offered at Jazan University and it is called “Advanced Entisab Program”. In these types of classes, students don’t have to attend classes on campus. They attend all classes online via using Learning Management System (LMS), which is provided by the university. However, they need to attend final exams on campus. Also, some instructors are now using blended learning as an approach to offer their classes. In these blended learning types of classes, students need to attend classes on campus and at the same time; they need to do some activities, quizzes, and discussions in the online environment via learning management system.

E-Learning in Saudi Arabia

There is a significant development in E-learning in Saudi Arabia especially in the last six years. There are several projects to improve the quality of the provided E-learning in Saudi Arabia that have been established by the Ministry of Higher Education. Some of them have done and others still in progress right now. For example, AAFAQ project, Saudi National Center for E-learning and Distance Learning (NCEDL). According to NCEDL, The King Abdullah Ibn Abdul-Aziz Al Saud, the Premier and the Chairman of Higher Education Council, approved the Council's decision on the establishment of Saudi Electronic University in August 13, 2011 (National Center for E-learning and Distance Learning, 2011).

Also, The Minister of Higher Education, Dr. Khalid Bin Mohammed Al- Anqari, pointed out that:

> The University is a governmental educational institution that provides electronic education based on information and communication technologies and the techniques of e-learning and distance learning, noting that it includes the Faculty of Administrative and Financial Sciences, the Faculty of Computing and Informatics, and the Faculty of Health Sciences (National Center for E-learning and Distance Learning, 2011).

What is blended learning?

Blended learning has been defined in a variety of ways in the current specialized literature. Blended education can be defined as a design approach whereby both face-to-face and online learning are made better by the presence of the other (Garrison & Vaughan, 2008, p. 5). The *Chronicle of Higher Education in the USA* reports that the President of Pennsylvania State University regards the convergence between online and residential instruction as the “single greatest unrecognized trend in higher education today” (Young, 2002, p. A33, Cited in Graham & Dziuban, 2008). Lynch and Dembo (2004) pointed out that blended Learning is a distributed

education represents an eclectic blend of technologies and modalities to enable both synchronous (real time) and asynchronous (anytime) teacher-learner and learner-learner interactions in a single course or program (p. 1). The use of the term "blended learning" is relatively new in both higher education and corporate settings (Graham, 2009). He stated that "in higher education, the term 'hybrid learning' was often used prior to the emergence of the term 'blended learning' and now the two terms are used interchangeably" (p. 375).

Why blended learning?

There are a number of potential advantages to blended learning that are emerging. Some of these revolve around accessibility, pedagogical effectiveness, and course interaction (Dziuban, Moskal, & Hartman, 2005). On the other hand, Niemiec and Otte (2009) stated that:

> The potential benefits of blended learning are so considerable because blended learning is, at least potentially, the most transformative and pervasive initiative an institution can undertake. It touches on everything, from students and faculty to administration and infrastructure (p. 94).

Rydeen (2002) pointed out that blended learning is a mixing of different learning environments, giving learners and teachers a potential environment to learn and teach more effectively. A study conducted by Bele and Rugelj in 2007 found that blended learning a convenient and efficient approach to learning and that most of the participants plan to use it for learning in the future.

Theoretical Framework

Several theories and models were used to frame this study and to describe the variables and the ideology of its elements. According to Garman (2005), "instructional design can be a volatile topic, often characterized by competing theories and differing philosophies. But in practice, value can be drawn from many instructional situations" (p.1). The following is an explanation for all of theories and models that used in this study.

Theory of Diffusion of Innovations

In 1962 Everett Rogers, published *Diffusion of Innovations*. In the book, Rogers synthesized research from over 508 diffusion studies and produced a theory for the adoption of innovations among individuals and organizations.

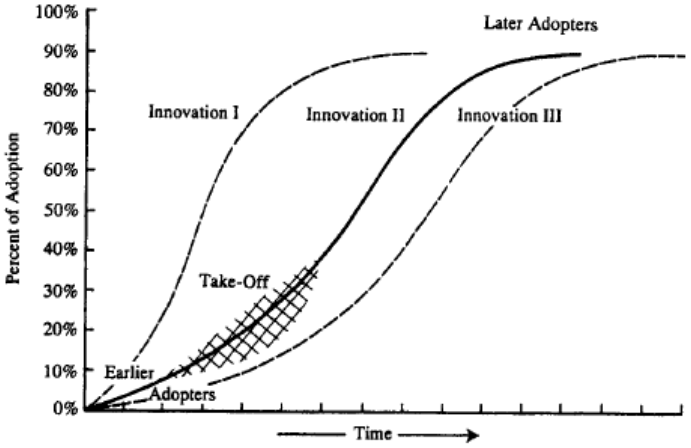
Rogers (2003) stated that many innovations required a lengthy period of many years from the time when they become available to the time when they are widely adopted (p.1). Diffusion is defined as the process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 2003, p. 5). The four main elements of the diffusion theory are the innovation, communication channels, time, and the social system (See Table 1, and Figure 1).

Table 1. Four Main Elements in the Diffusion of Innovations

	Descriptions
The Innovation	An innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption. Therefore, if an idea seems new to the individual, it is an innovation. However, newness in an innovation need not just involve new knowledge because someone may have known about an innovation for some time but not yet developed a favorable or unfavorable attitude toward it, nor have adopted or rejected it.
Communication Channels	Communication is the process by which participants create and share information with one another in order to reach a mutual understanding. Diffusion is a particular type of communication in which the message content that is exchanged is connected with a new idea. A communication channel is the means by which messages get from one individual to another.
Time	The time dimension is involved in diffusion in: 1. The innovation-decision process by which an individual passes from first knowledge of an innovation through its adoption or rejection. 2. The innovativeness of individual or other unit of adoption compared with other members of a system. 3. An innovation's rate of adoption in a system usually measured as the number of members of the system who adopt the innovation in a given time period.
A Social System	A social system is as a set of interrelated units that are engaged in joint problem solving to accomplish a common goal. The members or units of social system may be individuals, informal groups, organizations, and/or subsystems.

Source: Adapted from Rogers, E. M. (2003). *Diffusion of Innovations*. New York: Free Press, p. 12-24.

Figure 1. Diffusion is the process by which (1) an Innovation is (2) Communicated through certain Channels (3) Overtime (4) among the members of a Social System



Source: Adapted from Rogers, E. M. (2003). *Diffusion of Innovations*. New York: Free Press.

The innovation-decision process

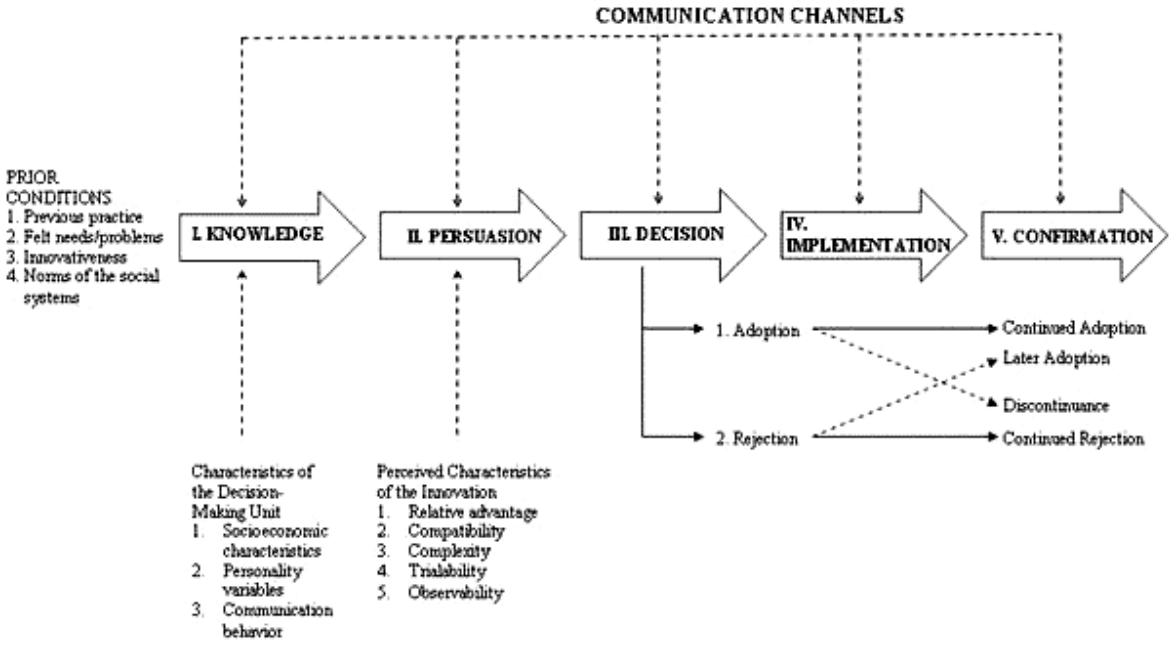
Rogers (2003) stated that:

> The innovation-decision process is the process through which an individual or other decision-making unit passes from first knowledge of an innovation, to the formation of an attitude toward the innovation, to a decision to adopt or reject, to implementation and use of the new idea, and to confirmation of this decision. The innovation-decision process includes five main steps which are: (1) knowledge, (2) persuasion, (3) decision, (4) implementation, and (5) confirmation (p. 168) (See Figure 2).

The *knowledge* occurs when an individual or other decision-making unit is exposed to an innovation's existence and gains an understanding of how it functions. However, *persuasion* occurs when an individual or other decision-making unit forms a favorable or an unfavorable attitude toward the innovation. Then, the *decision* takes place when an individual or other decision-making unit engages in activities that lead to a choice to adopt or reject the innovation. In addition, the *implementation* occurs when an individual or other decision-making unit puts a new idea into use. Finally, the *confirmation* takes place when an individual seeks reinforcement

of an innovation-decision already made, but he or she may reverse this previous decision if exposed to conflicting messages about the innovation (Rogers, 2003, p.169).

Figure 2. A Model of Five Stages in the Innovation-Decision Process

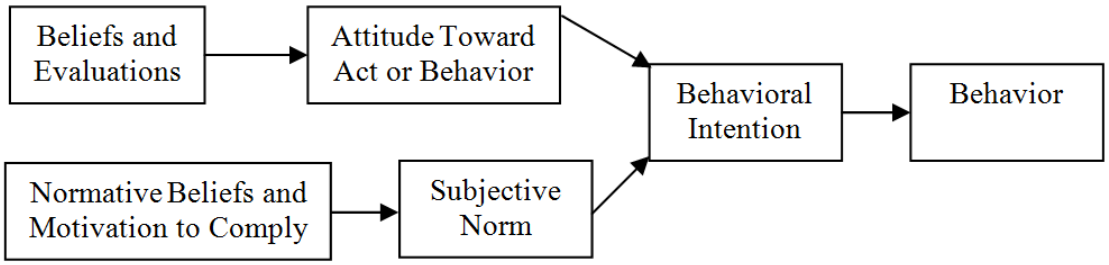


Source: Adapted from Rogers, E. M. (2003). *Diffusion of Innovations*. New York: Free Press, p. 170.

Technology Acceptance Model (TAM)

The technology acceptance model (TAM) was first created by Davis (1989) based on the theory of reasoned action (TRA) (Fishbein & Ajzen, 1975 cited in Masrom, 2007). The TRA, as Masrom (2007), stated that "individual behavior is driven by behavioral intention where behavioral intention is a function of an individual's attitude toward the behavior and subjective norms surrounding the performance of the behavior" (p. 2) (See Figure 3). In other words, TRA states that one's behavior and the intent to behave is a function of one's attitude toward the behavior and their perceptions about the behavior (Masrom, 2007).

Figure 3. Theory of Reasoned Action (TRA)



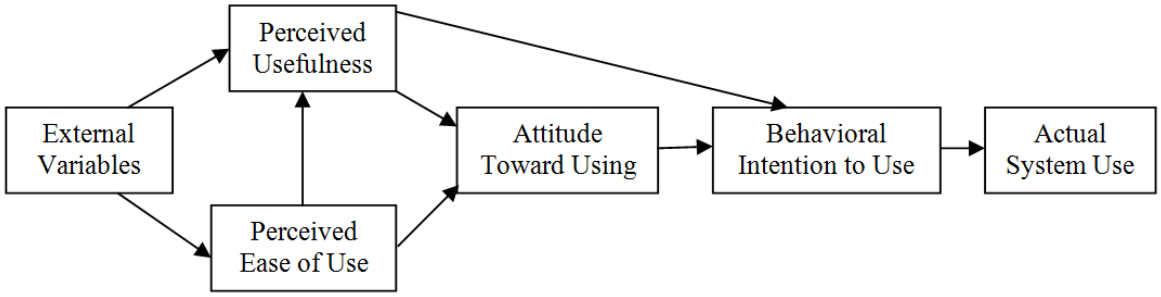
Source: adapted from Masrom, M. (2007). Technology Acceptance Model and E-learning. *Technology*, *22*(May), p. 3.

On the other hand, Rao (2002) stated that to understand the user's behavior towards new innovation, one must learn the technology adoption process. The technology acceptance model (TAM) consists of two beliefs, *perceived utilities and perceived ease of application*, which determine attitudes to adopt a new technology (Rao, 2002). The TAM proposes two specific beliefs, perceived ease of use (PEOU) and perceived usefulness (PU), that determine one's behavioral intention to use a technology (Wahid, 2007).

Perceived ease of use was considered to influence perceived usefulness of technology (See Figure 4). Perceived usefulness refers to the degree to which the user believes that using the technology will improve user work performance, while perceived ease of use refers to how effortless the user perceives using the technology (Masrom, 2007).

TAM has been applied in several studies to test the acceptance of new technology being presented to the users such as email, web browser, websites, and e-learning. For this study, the researcher applied TAM to test the acceptance of adopting blended learning at Jazan University.

Figure 4. Original Technology Acceptance Model (TAM)



Source: adapted from Masrom, M. (2007). Technology Acceptance Model and E-learning. *Technology*, *22*(May), p. 3.

Cultural Historical Activity Theory (CHAT)

Activity system was designed and developed by several theorists through different periods of time. According to Gay and Hembrooke (2004), activity theory draws inspiration from the work of the Russian semiotician and psychologist Lev Semenovich Vygotsky (1962) who posited the unity of perception, speech, and action. Kaptelinin and Nardi (2006) stated that activity theory was introduced to an international audience in the late 1970s and early 1980s.

Vygotsky also emphasized the centrality of mediating devices, such as language and other symbols or tools, in the development of mind and thought. Alexei N. Leont'ev (1981) created a formal structure for operationalizing the activity system as a complex, multilayered unit of analysis. According to Engestrom (1999), Leont'ev's (1978, 1981) created a famous three-level scheme of: activity, action, operation and, correspondingly, motive, goal, and instrumental conditions. As indicated by Engestrom's (1999a) model, an activity system consists of people, artifacts, an object or motive, sociocultural rules, and roles (Kaptelinin and Nardi, 2006).

According to Yamagata-Lynch (2010), activity theory is a methodology that spawned from Cultural Historical Activity Theory (CHAT) that can be valuable for qualitative researchers

and practitioners who investigate issues related to real-world complex learning environments. This analysis method is designed to enhance understanding of human activity situated in a collective context and is graphically represented by a series of triangle diagrams (Engestrom 1987; Kaptelinin 2005 cited in Yamagata-Lynch, 2010, p.1).

Robertson (2007) stated that:

> Activity is seen as dynamic, contextually bound and the basic unit of analysis. Activities are distinguished from one another by the tangible or intangible objects achieved. If the object changes, then so does the activity. Tools (artifacts) mediate between the subject and the object. These tools (artifacts) such as physical tools, language and symbols are created and/or transformed in the course of an activity (p. 81).

Benefits of Using Activity System

Yamagata-Lynch (2010) indicated to some benefits of using activity system that can be described as follows:

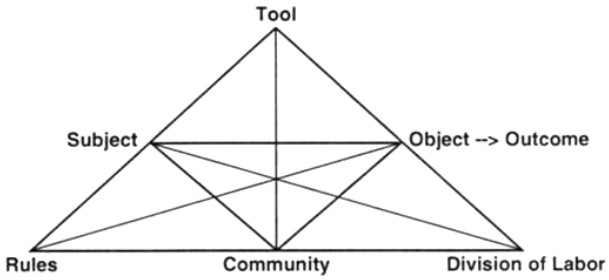
1. This method can guide researchers and practitioners in their design, implementation, analysis, and development of conclusions in a research study or in a program evaluation. It supports a systematic and systemic approach to understanding human activities and interactions in real-world complex environments.
2. It can help researchers and practitioners understand individual activity in relation to its context and how the individual, his/her activities, and the context affect one another.
3. It can help document the historical relationships among multiple activities by identifying how the results from a past activity affect activities.

Activity system: How it works?

Yamagata-Lynch (2010) summarized the elements of the activity system which was developed by Engestrom to the following description:

> In this model, the *subject* is the individual or groups of individuals involved in the activity. The *tool* includes social others and artifacts that can act as resources for the subject in the activity. The *object* is the goal or motive of the activity. The *rules* are any formal or informal regulations that in varying degree can affect how the activity takes place. The *community* is the social group that the subject belongs to while engaged in an activity. The *division of labor* refers to how the tasks are shared among the community. The *outcome* of an activity system is the end result of the activity (p. 2) (See Figure 5).

Figure 5. Engestrom's Activity System



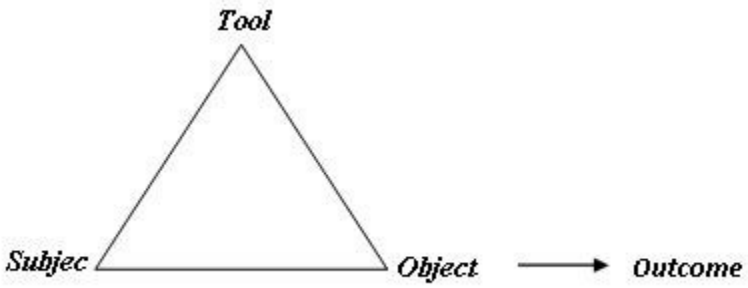
Source: Adapted from Yamagata-Lynch, L. C. (2010). *Activity Systems Analysis Methods: Understanding Complex Learning Environments*. *Media*. Springer.

Activity Theory Generations

Robertson (2007) described the three activity theory generations in detail. This explanation indicated to the level that each generation represents:

1. ***First generation:*** It represents activity at the *individual level*. The relationship between the subject and object is mediated through tools. When the object is transformed the outcome is achieved (See Figure 6).

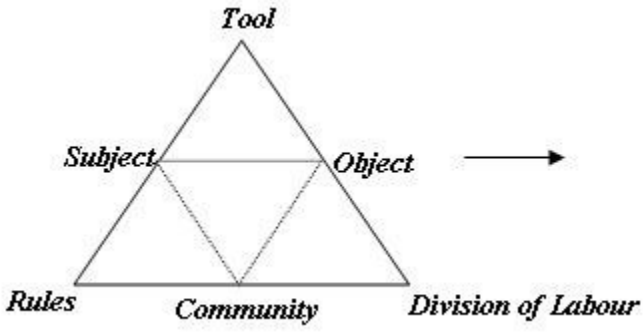
Figure 6. First Generation Activity Theory



Source: Adapted from Robertson, I. (2007). E-learning practices: exploring the potential of pedagogic space, activity theory and the pedagogic device. *Education*, *1*(February), p. 82.

2. ***Second generation:*** It represents activity at a *collective level*. Rules may be explicit and implicit. Division of labor refers to the explicit and implicit organization of the community (See Figure 7).

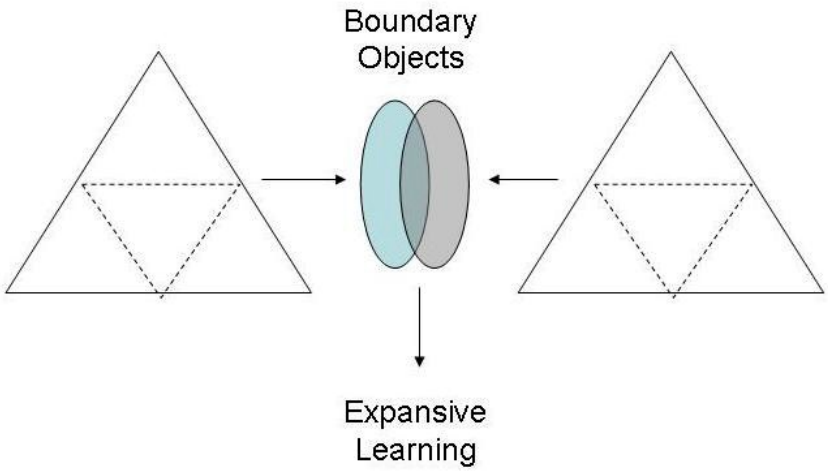
Figure 7. Second Generation Activity Theory



Source: Adapted from Robertson, I. (2007). E-learning practices: exploring the potential of pedagogic space, activity theory and the pedagogic device. *Education*, *1*(February), p. 82.

3. ***Third generation:*** It represents *networked activity* and incorporates the idea of *boundary objects*. That is, as Edward (2005 cited in Robertson, 2007) objects that operate at the interface of many contexts. Where two (or more) activity systems come into contact, there may be contradictions and tensions through which expansive learning is possible through questioning, analysis, reflection and debate (Russell, 2002) (See Figure 8).

Figure 8. Third Generation Activity Theory



Source: Adapted from Robertson, I. (2007). E-learning practices: exploring the potential of pedagogic space, activity theory and the pedagogic device. *Education*, *1*(February), p. 83.

The Need of the Study

It has become clear at the present time that education in the Kingdom of Saudi Arabia has significantly improved. Saudi Arabia has harnessed all its energies and staff in order to provide effective education that takes into account the values and religious teachings and at the same time to keep pace with the development in educational communication and technology. The higher education in Saudi Arabia depends on the outcomes of high schools in most cases unless

in graduate programs. Most high schools students attend any close university to continue their undergraduate education. In contrast, there are some students prefer to attend programs that qualify them to become professionals in any trade preferences.

The education in Saudi Arabia is free so, students don't have to pay for their tuitions and this only in the government institutions, which represent the majority. In addition to that, students receive a monthly reward or salary to help them focusing on classes. According to statistics from the Ministry of Higher Education in Saudi Arabia, there are twenty-four government universities and twenty-four private universities and these institutions offer programs for both male and female (Ministry of Higher Education, 2011). These universities are spread in all regions of the Kingdom in order to provide education to students with ease and to overcome the obstacle of distance, which may have effects on the academic achievement of students. However, Saudi universities suffer from a shortage of faculty members; therefore, blended learning will help universities to reduce the number of face-to-face sessions in most academic programs.

Blended learning is an effective approach to deliver knowledge for students at higher education level. This method of learning is highly recommended in Saudi Arabia currently for universities. The ministry of higher education in Saudi Arabia requires minimum of hours to be taken at schools in most undergraduate programs in order to meet the standards of the ministry of higher education. However, college instructors have started to use blended learning as a method of E-learning to provide students with more materials related to the content of their classes and to keep in touch with their students.

The ministry of higher education in Saudi Arabia encourages universities to implement blended learning in all academic programs. For that purpose, it established a special Learning

Management System (LMS) to be used by universities and it is called the "*Jusur System*". The Ministry of Higher Education created the National Center of E-Learning and Distance Learning (NCEL) in order to mange and coordinate the distance education in Saudi Arabia (Al-Najdi, 2011). NCEL designed a learning management system called Jusur (Jusur an Arabic word means bridges) to achieve the E-Learning operations in Saudi Arabia.

Therefore, each university will request an access to this system and then they will be able to upload their courses into the system. After that, student can login to this system and have access to the classes in which they are enrolled. As the student completes the course, scores are tabulated and reports generated. Likewise, managers and administrators can access reports on the LMS and track the students' progress. The National Center of E-learning and Distance Learning in Saudi Arabia manages the processes of E-learning as well as the Jusur System.

Purposes of the Study

This study aimed to investigate the factors that may affect the attitudes of college faculty at Jazan University toward the adoption of technology-rich blended learning. In addition to that, this study examined some barriers that might affect the adoption of blended learning at Jazan University. The incentives associated with blended learning were also investigated as factors that affect positively in the adoption of blended learning. Several related educational technologies were examined, as part of the study to test the level of experience that faculty at Jazan University possess with the most current and popular technologies in the field of education.

Research Questions

1. What are the faculty attitudes toward adoption of technology-rich blended learning at Jazan University?
2. What are the main barriers that might affect the adoption of technology-rich blended learning at Jazan University?
3. What are the main incentives that might encourage faculty to adopt technology-rich blended learning at Jazan University?
4. Is there a difference between male and female faculty in:
    a. Their attitudes toward blended learning?
    b. The barriers they have encountered?
    c. Their experience with educational technologies?
5. Does experience in using educational technology predict faculty attitudes toward adoption of technology-rich blended learning at Jazan University?
6. How well do specific demographic variables (gender, age, years of teaching experience, academic major, academic rank, graduation country, years of using computer, years of using Internet, access to computer at school, previous experience with blended learning, number of courses taught in a blended learning environment, and level of computer skills) predict faculty attitudes toward the adoption of technology-rich blended learning at Jazan University?

Research Hypotheses

The following hypotheses were generated by the researcher in order to test the above research questions:

H_1. Faculty members at Jazan University will have positive attitudes toward the adoption of technology-rich blended learning.

H_2. There are some barriers that might affect the adoption of technology-rich blended learning at Jazan University.

H_3. There are some incentives that might affect adoption of technology-rich blended learning at Jazan University.

H_4. There is a significant difference between male and female faculty members at Jazan University in terms of:

a. Their attitudes toward blended learning.

b. The barriers they have encountered.

c. Their experience with educational technologies.

H_5. The faculty members' level of experience in using educational technology will predict their attitudes toward the adoption of technology-rich blended learning at Jazan University.

H_6. The selected demographic variables (gender, age, years of teaching experience, academic major, academic rank, graduation country, years of using computer, years of using Internet, access to computer at school, previous experience with blended learning, number of courses taught in a blended learning environment, and level of computer skills) will predict faculty attitudes toward the adoption of technology-rich blended learning at Jazan University.

Significance of the Study

This study is one of the only studies of its kind to be conducted in Saudi Arabia dealing with the factors that affect attitudes of faculty members in the implementation of blended learning which depends mainly on the integration of technology with education. However, there is a lack of Arabic resources in this field, which make any decision related to this subject matter difficult to be adopted by the decision makers. Therefore, this study will provide a variety of resources to relevant authorities.

This study will examine all matters directly or indirectly affecting the adoption of blended learning as an effective method that supports the integration of technology with teaching. In addition, this study will present a possible model for adopting this type of learning. This study will also help administrators to determine the feasibility of the use of blended learning and its effectiveness in higher education, particularly in the emerging universities such as Jazan University.

Jazan University or any similar institution, especially those in Saudi Arabia, can benefit from the findings of this study. The administrators at Jazan University can use the results of this study to inform their future decisions regarding blended learning. The findings of this study can be used as a guide for any educational institution intending to adopt blended learning as a main learning approach, or to examine the factors that can affect the attitudes of faculty members before implementing technology-rich blended learning.

The results of this study will help faculty members to understand the current state of blended learning which could possibly improve their attitudes toward blended learning. They can then determine whether or not they are ready to teach blended learning courses. Faculty members

can also gain knowledge from the results of this study to help them be effective instructors by knowing the barriers and incentives of blended learning.

Educational administrators can also benefit from the results of this study by considering the barriers that might affect the integration of blended learning in the academic programs that are offered to students. This would enhance the implementation process of blended learning by providing the adequate support of the university. This support could assist faculty members to improve their skills in order to be able to teach blended courses. Accordingly, training and professional development programs could be developed to address the needs of faculty members.

Definition of Terms

Activity System: is a methodology that spawned from Cultural Historical Activity Theory (CHAT) and can be valuable for qualitative researchers and practitioners who investigate issues related to real-world complex learning environments (Yamagata-Lynch, 2010).

Attitudes: refer to affective feelings of liking or disliking toward an object (which can be basically anything) that has an influence on behavior (Psychology Glossary, 2011).

Barriers: refer to any obstacles that prevent people to use new innovation or affect their attitude toward it. For example, a barrier is a factor that affect negatively on faculty attitudes toward the adoption of blended learning.

Blended Learning: is a learning system that combining face-to-face instruction with technology-mediated instruction (Graham, 2009).

E-Learning or Online Learning: refers to the use of Internet technologies to deliver a broad array of solutions that enhance knowledge and performance (Rosenberg, 2001). Roffe (2002) defined online learning as a way people communicate and learn electronically.

Face-to-face Instruction: is the classical learning approach, which has always been popular and will continue to be so because humans learn from humans (Bleimann, 2004).

Incentive: refers to something that helps to incite people to perform greater effort and to increase the productivity. For example, an incentive is a factor that affect positively on faculty attitudes toward the adoption of blended learning.

Learning Management System (LMS): is a software application that automates the administration, tracking, and reporting of training programs, and online events (Ellis, 2009).

Chapter Summary

Chapter one is an introduction to this study and its purposes. In this chapter, the researcher explained the need for this research, the purpose of the study, and the significance of study. Research questions along with hypotheses were also described in detail. A detailed explanation to the theoretical framework on which this study relies was also provided. At the end of this chapter, the researcher defined terminology related to the study.

CHAPTER II

REVIEW OF LITURATURE

Introduction

The purpose of this study was to investigate factors that might affect faculty attitudes toward the adoption of technology-rich blended learning. This study was conducted at Jazan University in Saudi Arabia. The researcher selected this topic due to its current importance in the educational field. There have been huge developments in the communication technologies that can help to make teaching and learning more accessible. All of these technologies have had real presence with the advent of the World Wide Web (WWW). Education is subject to a range of factors that may have an effect, one way or another, on the outcomes of the educational process.

Higher education in the world as a whole is facing a series of challenges in order to provide better education for students with different attitudes and abilities. For that reason, educational experts and practitioners have employed their efforts to provide effective strategies and move forward with the development of technological means of communication and information technology. They started with some strategies that help educators to integrate technology into the classroom. This created a quantum leap in education process, especially for those who never tried any type of technological tools before. Integrating technology into classrooms is a powerful idea, from which both teachers and students can benefit, but this hasn't provided enough communication between teacher and student.

There was a gap in the communication process, which led to the loss of many of the benefits from using technology. Thus, researchers provided some strategies for offering computer-based learning. This chapter reviews the literature of a series of previous studies related to the subject matter such as face-to-face learning, E-learning, and blended learning

methods. The researcher tried to connect all of these related studies based on the purposes of this study in order to cover the variables of the study.

Face-to-Face or traditional classroom learning is the classical learning approach, which has always been popular and will continue to be so because humans learn from humans (Bleimann, 2004). Table 2 shows principal advantages and disadvantages of Face-to-Face learning.

Table 2. Advantages and Disadvantages of Face-to-Face Learning

Advantages	Disadvantages
1. Direct communication	1. Uniform pace for all learners
2. Feedback / questions possible	2. Variable teaching quality
3. Very flexible	3. Name location, same time
4. Not very dependent on technology	4. No repeat (no archives)
	5. Not immediately applicable
	6. Learners might be passive

Source: Adapted from: *A New Pedagogical Approach beyond E-Learning*, Bleimann (2004)

E-Learning

The Definition of E-Learning

Terms such as E-Learning, technology-based learning and web-based learning are defined and used differently by different organizations and user groups (Roffe, 2002, p. 41). The most popular definition of E-Learning was developed by Rosenberg (2001), who states that E-Learning refers to the use of Internet technologies to deliver a broad array of solutions that enhance knowledge and performance. Roffe (2002) defined E-Learning or online learning as a way people communicate and learn electronically; which has only recently emerged as a key

source of competitive advantage in the information society. According to Rosenberg (2001), E-Learning is based on three fundamental criteria, which are described as follows:

1. It is networked, which makes it capable of instant updating, storage/retrieval, distribution and sharing of instruction or information.
2. It is delivered to the end-user via a computer using standard Internet technology.
3. It focuses on the broadest view of learning-learning solutions that go beyond the traditional paradigms of training.

History of Using Technology for Learning

According to Williams and Paprock (1999), the history of using technology for learning can be divided into three levels. They stated that:

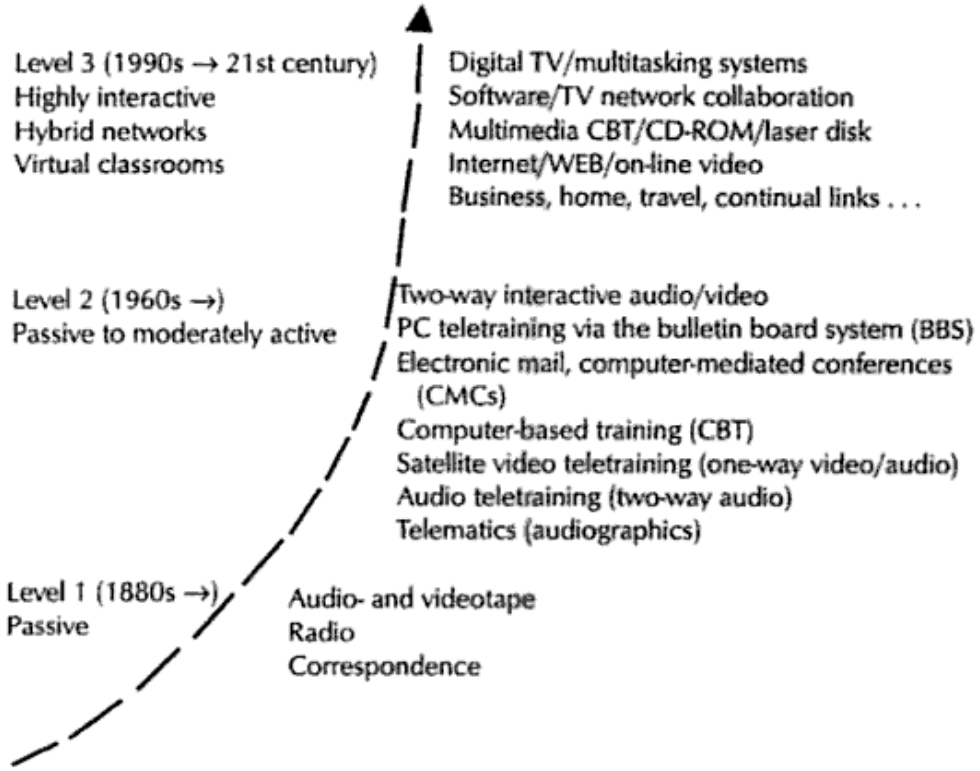
> The first level consists of printed material, audio-and videotapes, and radio transmissions. It is considered as passive distance learning because the learners have no opportunity to interact with the instructors in real time. The second level consists of two way audio teletraining, one-way vided/two-way audio teletraining, computer-based training (CBT), disks, CD-ROMs, laser disks, personal computer (PC) teletraining via the bulletin board system (BBS), electronic mail, computer-mediated conferencing (CMC), audiographics, and two-way interactive audio/video transmission. It is considered as passive to moderately active. The third level consists of hybrid environmental that combine in one virtual classroom element of all the distance learning technology previously describe, in addition to the capabilities of the Internet and the WWW. It is considered as highly interactive (pp. 4-5) (See Figure 9).

Advantages and Disadvantages of E-Learning

Bleimann (2004) pointed out that there are some advantages and disadvantages of E-Learning that need to be considered. In the E-learning environment, learning can be done at any time and location. The learners interact based on their own speed of learning. In addition, E-learning can be easily distributed with easier quality control.

On the other hand, E-learning requires a lot of resource intensive such as time, budget, and tutoring. Also, there is a serious probability for content mistakes and technology problems. In most E-learning environments, learners don't get immediate feedback from their instructors which affects negatively on their learning.

Figure 9. Distance Education Continuum



Source: Adapted from *Distance learning: the essential guide* By Marcia L. Williams, Kenneth Paprock, Barbara Covington, 1999, p.4, Sage Publications, Inc

Advantages of E-learning

E-learning advantages need to be considered when making instructional and learning decisions. Rosenberg (2001) listed several advantages of E-learning. Table 3 has a description for the eleven advantages that identified by Rosenberg.

Table 3. *Advantages of E-learning*

Advantages	**Description**
E-Learning lowers costs	E-learning is often the most cost-effective way to deliver instruction (training) or information. It cuts travel expenses, reduces the time it takes to train people, and eliminates or significantly reduces the need for class/instructor infrastructure.
E-Learning enhances business responsiveness	E-Learning can reach an unlimited number of people virtually simultaneously. This can be critical when business practices and capabilities have to change fast.
Messages are consistent or customized, depending on need	Everyone gets the same content, presented in the same way. Yet the programs can be customized for different learning needs or different groups of people.
Content is more timely and dependable	Because it's web-enhanced, e-learning can be updated instantaneously, making the information more accurate and useful for a longer period of time. The ability to upgrade e-learning content easily and quickly, and then immediately distributed the new information to large numbers of distributed employees, partners, and customers, has been a godsend for companies trying to keep people current in the face of accelerating change.
Learning is 24/7	People can access e-learning anywhere and anytime. It's "just in time-anytime" approach makes an organization's learning operations truly global.
No user "ramp-up" time	With so many millions of people already on the web and comfortable with browser technology, learning to access e-learning is quickly becoming a non-issue.
Universality	E-Learning is Web-enabled and takes advantage of the universal Internet protocols and browsers. Concern over differences in platforms and operating systems is rapidly fading. Everyone on the Web can receive virtually the same material in virtually the same way.
Builds community	The web enables people to build enduring communities of practice where they can come together to share knowledge and insight long after a training program ends. This can be a tremendous motivator for organizational learning.
Scalability	E-Learning solutions are highly scalable. Programs can move from 10 participants to 100 or even 100,000 participants with little effort or incremental cost.
Leverages the corporate investment in the Web	Executives are increasingly looking for ways to leverage their huge investment in corporate intranets. E-Learning is emerging as one of those applications.
Provides an increasingly valuable customer service	Although not internally focused, a business e-commerce effort can be enhanced through the effective and engaging use of E-learning that helps customers derive increased benefit from the site.

Source: Adapted from Rosenberg, M. J. (2001). *E-learning: Strategies for delivering knowledge in the digital age*. New York: McGraw-Hill, p. 30-31.

Advantages and Disadvantages of E-Learning

Disadvantages of E-Learning

Wong (2007) did a critical literature review on E-Learning limitations and mentioned that these limitations can be categorizes as follows:

1. **Technological limitations:**
    a. The necessity of computer hardware and relevant resources.
    b. Lack of hardware to support e-learning in organizations.
    c. Lack of access to networked computers.
    d. Inability to access Internet services by some people in rural areas.
    e. Limited telecommunication infrastructure and facilities are hindering the e-learning process.
    f. Limited Internet bandwidth which may hinder the learning process as the downloading of multimedia materials may take a longer time.
2. **Personal issues:**
    a. Lack of information and communications technology (ICT) skills. Technical skills could cause frustration to e-learning students due to the unconventional e-learning environment and isolation from others.
    b. Novice learners need to learn new technologies.
    c. E-Learning requires a lot of self-discipline.
    d. The absence of self-motivation in E-Learning may cause some learning problems for learners who are not self-motivated
    e. E-Learning requires self-regulation by learners since it is learner-centered learning. Therefore, learners need to manage their learning and schedule their assignments.

3. **Limitations compared to traditional campus:**
    a. Lacking physical interaction which makes e-learning students feel isolated.
    b. E-Learning is criticized for not having facilities to access physical library and book stores.
    c. E-Learning may not be suitable for certain groups of learners especially science students.
    d. Difficulty in teaching an e-learning environment, as instructors may not be able to teach well.
    e. Moving into e-learning is difficult for instructors who are already familiar with the traditional teaching environment.
    f. Transition into E-Learning involves conversion of physical teaching materials into e-learning materials and this takes time to complete.
    g. Many instructors are not exposed to the necessary software, and do not want to change their teaching styles.
    h. Instructors need to have interpersonal skills to communicate effectively in an electronic classroom. As a result, instructors need e-learning training before transitioning.
4. **Design limitations:**
    a. Poor design of e-learning courseware causes users to feel frustrated and eventually stop learning.
    b. It is not easy to design e-learning courseware.
    c. Poor usability of the online course will inhibit the learner's ability to

acquire knowledge.

d. It is not easy for learners to choose a suitable courseware that comes with relevant content and adequate levels.

5. **Other limitations:**

    a. Never-ending learning and teaching process will easily stress both the learners and especially the instructors.

    b. It is also more time-consuming to guide online students.

    c. E-Learning instructors have heavy workloads and this may undermine their performance and even reduce their chances to grow with the environment.

    d. The problem with different time zones in e-learning as it is accessible for learners from all over the world.

E-Learning Delivery Methods

E-Learning can be conducted synchronously or asynchronously based on the activity being provided. When teaching online, instructors have the option of using an asynchronous delivery method, a synchronous method of delivery, or both. Naidu (2003) pointed out that E-learning would incorporate all educational activities that are carried out by individuals or groups working online or offline, and synchronously or asynchronously via networked or standalone computers and other electronic devices. Making decisions on how instructors deliver instruction to students impacts their design, as well as their teaching practice.

According to Khan (1997), online instruction is an innovative approach for delivering classroom instruction to a remote audience, using the web as the medium. There are many

benefits of using online instruction as an effective method of learning. This type of learning enables students to learn based on their characteristics and needs. One of the most important benefits of using online instruction is the flexibility of providing learning at any time. In addition, online instruction helps students who are not able to study in regular schools due to any obstacles that they might encounter such as learning disabilities, women who have children to care for, or any other reasons.

Online education learning mode as seen by Indian Management Academy (2010) can be described as follows:

> Offering online courses gives students more choices in their learning. For instance, a course may not be able to attract enough students at any one location to offer it, but can when students from all those locations are added together. Online courses allow instructors to serve students who live too far away to attend face–to–face courses. The unique nature of the web, including hypertext and multimedia, offer new ways of presenting course material and allowing students to interact with it that can improve student understanding.

There are advantages and disadvantages of using distance learning as an approach of learning. Some advantages are that students can take courses when they need them in a convenient time. Also, distance learning's online instruction provides flexible options of learning with no set class times; so students can decide when to complete assignments and tasks. Additionally, this kind of learning is available with variety of options that enable students to select the appropriate program for them based on their needs. Also, online learning leads to increase the accessibility because students can study anywhere when they have computer access (Hansen, 2011).

On the other hand, there are some disadvantages or factors that could negatively affect the success of distance education. Hansen (2011) provided a list of disadvantages of distance learning which can be described as follows: online learning learning will not provide students

with personalized attention from the teacher because both teachers and learners interact in virtual environment. Another factor that could negatively affect online instruction is the requirement of using and interacting with its environment. Therefore, when the student doesn't like computers or afraid of using new technologies, then online education will not work for him. Also, students who need extra time to complete their assignments and projects will have a hard time in the online learning because most of online activities have a time limit in order to do them such as online quizzes and online discussions.

Previously, it was difficult to implement totally online courses in Saudi Arabia, but there have been changes, and the use of E-learning has become more important. In the past, there was a big obstacle to implementing online courses related to the technical support and some other obstacles. There was no official learning management system (LMS) available for universities, but now the ministry of higher education provides all universities with an access to the LMS, and the ministry of higher education manages this system as well.

Online instructors should engage their students to make them more active in the online activities and encourage students to participate in online discussions. Teachers should have a high sense of efficacy and confidence which helps to increase students' achievement and performance with positive expectations for student achievement (Alderman, 2004).

In order to overcome all of the barriers mentioned above, which can affect the implementation of online instruction; teachers should develop their skills in online teaching by attending workshops and training courses. Students also need to be aware of the advantages and disadvantages of online instructions and decide if this type of learning is appropriate and effective for them or not.

Teachers concerned about the quality of learning in universities are facing a number of challenges related to information and communication technologies (ICT) and the high on the list of the these challenges is identifying appropriate ways of evaluating the extent of their contribution to quality learning experiences (Ginns and Ellis, 2007). Online learning outcomes are greatly affected by efficiency of the instructor's performance (Serdyukov and Serdyukova, 2011). Geiman (2010) mentioned that adding E-learning opportunities provides benefits both in terms of quality and efficiency for organizational training programs because E-learning offers a blended learning solution that meets the unique needs of the correctional field.

Blended Learning

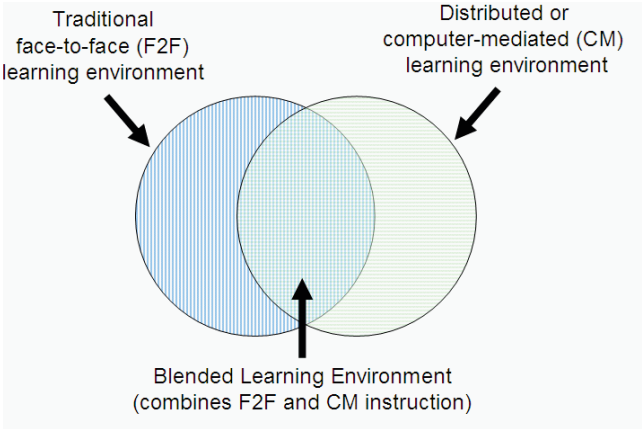
The Definition of Blended Learning

Blended learning has been defined in a variety of ways in the current specialized literature. Blended education can be defined as a design approach whereby both face-to-face and online learning are made better by the presence of the other (Garrison & Vaughan, 2008, p. 5). The *Chronicle of Higher Education* reports that the President of Pennsylvania State University regards the convergence between online and residential instruction as the "single greatest unrecognized trend in higher education today" (Young, 2002, p. A33, Cited in Graham & Dziuban, 2008). Lynch and Dembo (2004) pointed out that blended learning is a distributed education represents an eclectic blend of technologies and modalities to enable both synchronous (real time) and asynchronous (anytime) teacher-learner and learner-learner interactions in a single course or program (p. 1). The use of the term "blended learning" is relatively new in both higher education and corporate settings (Graham, 2009).

Graham (2009) stated that "in higher education, the term "hybrid learning" was often used prior to the emergence of the term "blended learning," and now the two terms are used interchangeably" (p. 375).

Most people recognize that the convergence of the classroom and communications technology has the potential to transform higher education for the better (Garrison & Vaughan, 2008). Graham (2009) defined blended learning as a learning system combining face-to-face instruction with technology-mediated instruction (See Figure 10).

Figure 10. Blended learning combines traditional face-to-face



Source: Adapted from Graham, C. R. (2009). Blended learning models. *Encyclopedia of Information Science and Technology* (Second Edi., pp. 375-382). Idea Group Reference Hershey, PA. Retrieved from http://www.andrea-perego.name/home/pubs/IST3369.pdf

However, Driscoll (2002) reported that blended learning solutions are a great way to initiate an organization into E-learning. She stated that the term blended learning referred to four different concepts, and that because it means different things to different people.

Driscoll four concepts of blended learning are described as follows:

1. To combine or mix modes of web-based technology (e.g., live virtual classroom, self-paced instruction, collaborative learning, streaming video, audio, and text) to accomplish an educational goal.
2. To combine various pedagogical approaches (e.g., constructivism, behaviorism, cognitivism) to produce an optimal learning outcome with or without instructional technology.
3. To combine any form of instructional technology (e.g., videotape, CD-ROM, web-based training, film) with face-to-face instructor-led training.
4. To mix or combine instructional technology with actual job tasks in order to create a harmonious effect of learning and working.

According to Garrison & Vaughan (2008, p. ix), "the past is the future if we examine the ideals of higher education and recognize the need to critically examine current practices in higher education and the potential of communications technology to support intense, varied, and continuous engagement in the learning process."

Using blended learning can benefit the learner, the staff, and the organization because it allows organizations to gradually move learners from traditional classrooms to e-learning in small steps making change easier to accept (Driscoll, 2002).

Dziuban, Moskal & Hartman (2005) sated that in the recent decades, rapid technological innovation has facilitated a convergence between traditional face-to-face and technology-mediated learning environments. Since blended learning combines the two environments, teacher and learner can take advantage of the strengths of both learning environments (Graham, 2005).

Blended Learning Models

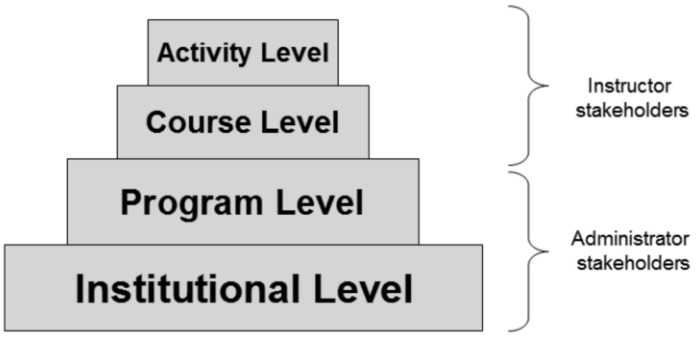
According to Graham (2009), blended learning can be implemented in a wide variety of contexts and depends on the purposes for adopting blended learning whether to increase learning effectiveness or to increase convenience. As shown in Table 4 and Figure 11, blended learning occurs at many different levels including: (1) the institutional level, (2) the program level, (3) the course level, and (4) the activity level. Therefore, "models at the course and activity level have instructor stakeholders who are primarily interested in issues of learning effectiveness and productivity. On the other hand, blended learning that occurs at the program and institutional levels typically has administrator stakeholders who are often driven by issues of cost effectiveness and expanding access of the learning to untapped audiences" (Graham, 2009, p. 376). Table 4 and Figure 11 describe all of these four levels in detail.

Table 4. Description of different levels of blends

Levels of Blends	**Description**
Activity Level Blend	An instructional activity has an online and face-to-face component.
Course Level Blend	A course that involves students in both online and face-to-face activities.
Program Level Blend	A program that allows or requires a mix of both on campus and online courses for program completion.
Institutional Level Blend	Institutional blending requirements or support for blended learning options.

Source: Adapted from Graham, C. R., & Allen, S. (2009). Designing blended learning environments. In P. L. Rogers, G. A. Berg, J. V. Boettecher, C. Howard, L. Justice, & K. Schenk (Eds.), *Encyclopedia of Distance Learning Vol2* (Vol. 2, pp. 562-570). Idea Group Inc. Retrieved from http://www.mendeley.com/research/enhancing-distributed-learning-environments-thorugh-tablet-pc-technology/

Figure 11. Different levels where blended learning can occur



Source: Adapted from Graham, C. R. (2009). Blended learning models. *Encyclopedia of Information Science and Technology* (Second Edi., pp. 375-382). Idea Group Reference Hershey, PA. Retrieved from http://www.andrea-perego.name/home/pubs/IST3369.pdf

There are several ways that faculty can blend their online and face-to-face instruction (Kenney and Newcombe, 2011). In class, face-to-face time allowed for a deeper level of comprehension to be developed through interactions in which the teacher synthesized the material, brought ideas together, generated links to larger issues and topics, and discussed application in the real world (Collopy and Arnold, 2009). Smart and Cappel (2006) stated that:

> Blended learning may involve students completing online units prior to meeting to ensure they share a common foundation of knowledge. This allows class sessions to go into greater depth with application exercises and problem solving. Alternatively, e-learning elements can be used after class meetings to maintain an ongoing dialogue among a community of participants about course-related topics through chats or discussion board postings. Other blended learning options may use a combination of pre-class and post-class e-learning components (p. 204).

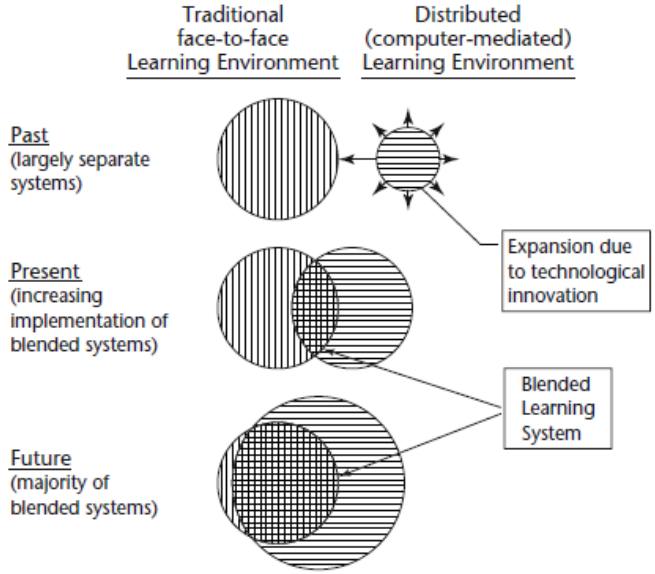
Blended Learning: Past, Present, and Future

Blended learning is widely used nowadays in many higher education institutions, especially those which have embraced distance education and any other form of E-learning as one of their major institutional and teaching efforts (Mortera-Gutierrez, 2006). According to Graham (2006), blended learning is part of the ongoing convergence of two learning environments, the traditional face-to-face environment and the distributed learning environments that have begun to grow and expand as new technologies have expanded the possibilities for distributed communication and interaction (p.5). Blended instruction is one of the various methods being used to deliver meaningful learning experiences and the use of blended instruction is growing rapidly because instructors believe diverse delivery methods may significantly enhance learning outcomes (Lim and Morris, 2009).

Graham (2009) mentioned to the remarkable development in the technology field; he stated that:

> In the past, these two learning environments have remained largely separate because they have used different media/method combinations and have addressed the needs of different audiences. However, the rapid emergence of technological innovations over the last half-century has had a huge impact on the possibilities for learning in the distributed environment. The widespread adoption and availability of digital learning technologies has led to increased levels of integration of computer-mediated instructional elements into the traditional face-to-face learning experience (pp. 5-7) (See Figure 12).

Figure 12. Progressive Convergence of traditional face-to-face and distributed environments allowing development of blended learning systems



Source: Adapted from Graham, C. R. (2006). Blended Learning Systems: Definition, Current Trends, and Future Directions. In C. J. Bonk & C. R. Graham (Eds.), *The Handbook of Blended Learning : Global Perspectives, Local Designs* (pp. 3-21). San Francisco, CA: Pfeiffer- An Imprint of Wiley.

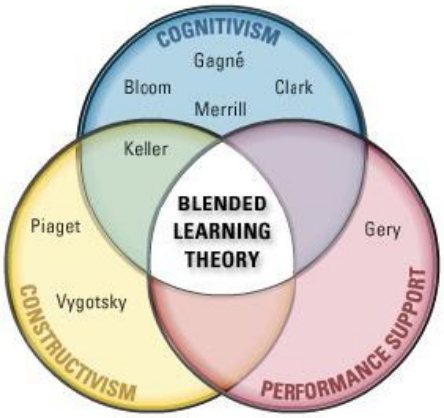
Blended Learning Ingredients

The importance of human behavioral factors (attitudes and motivations) over content and tool selection when implementing a blended learning solution cannot be ignored (Mitchell and Honore, 2007). Carman (2005) provided researchers with five key ingredients that developed by applying learning theories of Keller, Gagné, Bloom, Merrill, Clark and Gery, (See Figure 13). These five key ingredients emerge as important elements of a blended learning process. Blended learning ingredients are described below as follows:

1. ***Live Events:*** Synchronous, instructor-led learning events in which all learners participate at the same time, such as in a live "virtual classroom."

2. ***Online Content or Self-Paced Learning:*** Learning experiences that the learner completes individually, at his own speed and on his own time, such as interactive, Internet-based or CD-ROM training.
3. ***Collaboration:*** Environments in which learners communicate with others, for example, e-mail, threaded discussions and online chat.
4. ***Assessment:*** A measure of learners' knowledge. Pre-assessments can come before live or self-paced events, to determine prior knowledge, and post-assessments can occur following scheduled or online learning events, to measure learning transfer.
5. ***Reference Materials or Performance Support Materials:*** On-the-job reference materials that enhance learning retention and transfer, including PDA downloads, and PDFs.

Figure 13. A blend of learning theories



Source: Adapted from Carman, J. M. (2005). Blended learning design: Five key ingredients. *Learning*, (August), 491-496. Retrieved from http://www.agilantlearning.com/pdf/Blended Learning Design.pdf

How to blend?

Blended learning can be selected for different reasons. Graham (2009) provided three most common reasons for blended learning, although educators often adopt blended learning approach in order to explore tradeoffs between more than one of these goals. These reasons are: (1) to increase learning effectiveness, (2) to increase convenience and access, or (3) to increase cost effectiveness.

On the other hand, based on the primary purpose for using blended learning, educators can implement blended learning effectively using one of the three categories of blended learning as developed by Graham (2006). These categories are described in detail in Table 5.

Table 5. Categories of Blended Learning

Enabling blends	Primarily focus on addressing issues of access and convenience-for example, blends that are intended to provide additional flexibility to the learners or blends that attempt to provide the same opportunities or learning experience but through a different modality.
Enhancing blends	Allow incremental changes to the pedagogy but do not radically change the way teaching and learning occur. This can occur at both ends of spectrum. For example, in a traditional face-to-face learning environment, additional resources and perhaps some supplementary materials may be included online.
Transforming blends	Blends that allow a radical transformation of the pedagogy- for example, a change from a model where learners are just receivers of information to a model where learners actively construct knowledge through dynamic interactions. These types of blends enable intellectual activity that was not practically possible without the technology.

Source: Adapted from Graham, C. R. (2006). Blended Learning Systems: Definition, Current Trends, and Future Directions. In C. J. Bonk & C. R. Graham (Eds.), *The Handbook of Blended Learning : Global Perspectives, Local Designs* (pp. 3-21). San Francisco, CA: Pfeiffer- An Imprint of Wiley.

Blended Learning Pedagogy

The pedagogy of a blended learning environment is based on the assumption that there are inherent benefits in both face-to-face and online environment (Abraham, 2007). Blended learning focuses on student-centered learning instead of teacher-centered learning because blended learning strategies allow student autonomy in self-paced learning and increases the level of active learning strategies and enhances peer-assisted learning (Graham, 2005).

Through blended learning, students are given the power to choose the means of communication most suitable to them such as storybook, PowerPoint, drawing, web pages, and podcasts (Pape, 2010). This helps to engage students more in their learning based on their learning and communication styles.

In the traditional method of learning, face-to-face approach, the teacher has control of everything related to the learning process while student's role is to listen, read, and memorize a huge amount of information. Nowadays, the situation has changed and student-centered-learning has become the focus. However, this type of learning is compatible with constructivism theory which is basically defined as a psychological and philosophical perspective contending that individuals form or construct much of what they learn and understand (Bruning, Schraw, & Ronning, 1999 cited in Schunk, 2004).

A major influence on the rise of constructivism has been theory and research in human development, especially the theories of Piaget and Vygotsky (Schunk, 2004). According to this theory, the role of the learner is to construct new ideas and concepts based upon his or her current or past knowledge. Using constructivist theory requires some procedures that need to be facilitated by instructors. Therefore, instructors need to organize the curriculum in a flexible way

that helps students continually build their knowledge upon what they have already learned. Accordingly, the task of the teachers is to translate information to the students to be learned, not only to transfer information to the students to be memorized.

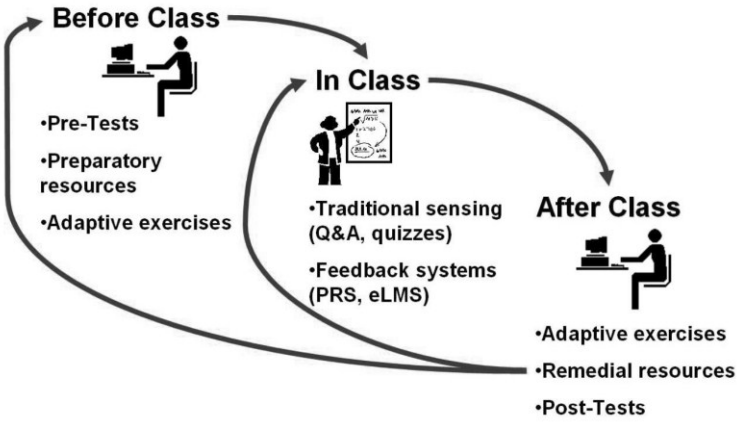
Having a theory of learning like the constructivist theory, which considers the importance of physical and mental aspects of students, can enable students to learn effectively based on their characteristics and needs. A student-centered pedagogy focus on providing increased access to learning and more flexibility in the learning environment because many students who want the advantage of being able to study online with convenient access to learning materials, also want the social interaction of the face-to-face experience (Abraham, 2007).

Howard, Remenyi, and Pap (2006), stated that:

> Blended learning is a phrase introduced by the distance learning community in recognizing the value of synchronous learning activities, like face-to-face interactions with instructors and collaborative work with peers, as complements to activities performed asynchronously by individual learners (p.11).

Instructors need to prepare for both synchronous and asynchronous events. When such a synchronous event yields information about learners, integration means that this information is available to subsequent learning activities, whether performed inside or outside class (Howard, Remenyi & Pap 2006). Figure 14 describes these kinds of information flows.

Figure 14. Information Flows in Blended Learning Environments



Sourse: Adapted from Howard, L., Remenyi, Z., & Pap, G. (2006). Adaptive blended learning environments. *International Conference on Engineering Education, July* (p. 15). Retrieved from http://w3.isis.vanderbilt.edu/Projects/VaNTH/papers/icee_2006_p1.pdf

Also, Figure 14 shows the three stages that are required for any effective blended learning class (Howard, Remenyi & Pap 2006). These three stages are described as follows:

1. ***Before face-to-face session****:* during this stage, an instructor needs to do some procedures relating to the class such as: posting pre-test, preparing class materials and exercises. During this stage, the instructor is trying to design effective course based on students' prior knowledge which can be known from the pre-tests. This process can be done before any face-to-face meeting to help instructor to provide the right materials.
2. ***Face-to-face session:*** during this stage, an instructor spends most of the time explain the difficult information that was provided to the students through the learning management system. Instructor also tries to answer students' inquiries about the course materials or any related subjects.

3. ***After face-to-face session:*** during this stage, an instructor tries to connect both environments, face-to-face and online environments, by providing students with extra materials that help them in the topics that they have difficulties to understand them. Also, more exercises will be provided to support students' understanding to the materials. A test usually follows these exercises to evaluate the level of understanding to the class materials that students have. This test can be taken asynchronously through the online environment.

There is a connection between all three of these stages, which appears through the relationships between all activities being provided in all stages. Also, the time is used ideally whether during in-class activities or through the period between face-to-face sessions. Designing blended learning in order to give students the control to manage their learning is a key element in online learning. According to Catalano and Catalano (1997), active-learning takes place in an environment in which the student is at the center of focus.

Design Procedures for Blended Learning

Huang and Zhou (2006) developed a module of curriculum design based on blended learning. The module has demonstrated its viability in designing blended learning by considering the learner, the learning objectives, the design of learning resources and activities, the delivery methods, and associated assessment techniques. Figure 15 presents the Huang and Zhou module, which consist of three main stages of the design procedures for blended learning.

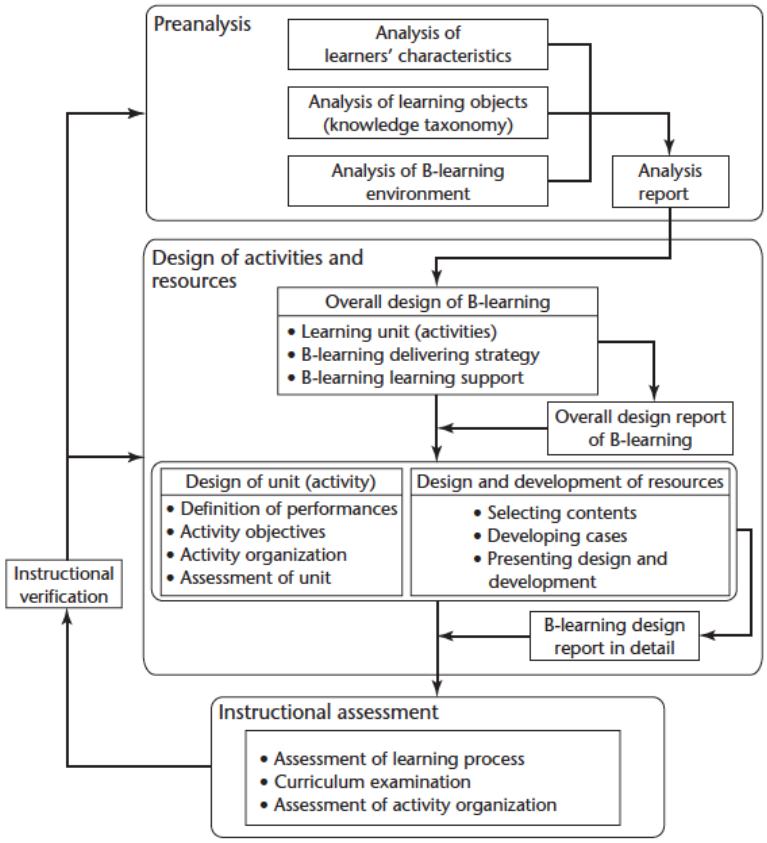
The following is a more detailed explanation of each stage adapted from Huang and Zhou (2006) study:

1. **Pre-analysis:** Several observations and analyses need to be conducted in order to

ascertain whether blended learning could be used or not. These analyses consist of three factors: (1) regular assessment of learners' prior knowledge, learning styles, and strategies; (2) content analysis of the curriculum according (analysis of learning objectives; and (3) environmental features analysis. In order to enabling the creation of an initial analyses report, the learning activities and organizing methods should be defined.

2. **Activity and Resource Design:** This stage consists of three substages: (1) design of blended learning, (2) design of unit (activity), and (3) design and development of resources. Also, a detailed design report should be emphasized because it focuses on teachers' instructional methods for organizing course events, activities, and the basic principles for curriculum assessment.
3. **Instructional Assessment Design:** The assessment design depends on the activity objectives, performance definitions, and the general environment of blended learning. It chiefly uses the assessment of the learning process (for example, using e-portfolios), the examination of curriculum knowledge (for example, online tests), and the organization of learning activities.

Figure 15. Design Procedures for Blended Learning



Source: Adapted from Huang, Zhou (2006). Designing Blended Learning Focused on Knowledge Category and Learning Activities: Case Studies from Beijing Normal University. In C. J. Bonk & C. R. Graham (Eds.), *The Handbook of Blended Learning : Global Perspectives, Local Designs* (pp. 296-310). San Francisco, CA: Pfeiffer- An Imprint of Wiley.

Attitudes toward the Adoption of Blended Learning

The attitude toward the adoption of blended learning is influenced by several factors as described in chapter one. However, a previous study conducted regarding distance learning in Kentucky's higher education system revealed that faculty members were willing to use the technology, but needing more institutional support (Wilson, 2001). In Wilson's study, faculty

had a positive attitude toward distance education as a general concept. Brooks (2003) stated that "while there are several strategies that administrators can use to attract and retain qualified faculty, they must first understand the motivations behind the enthusiasm or lack of enthusiasm toward teaching in an online environment" (p.3). Wilson (2001) stated that faculty having no prior experience with distance education had little interest, while those with prior experience with distance education showed mild interest.

The attitude of administrators and faculty toward blended learning affect each other whether positively or negatively. According to Brooks (2003),

> A course administrator's attitude toward the course designers can either help or hinder implementation of an online learning environment. On the other hand, the attitude of the course designers toward an online learning environment can be compared to the attitude of administrators. Therefore, if the designers do not believe in the value of an online learning environment, the mission of the university will not be realized (p. 4).

Technology Acceptance Model (TAM)

The TAM proposes two specific beliefs, perceived ease of use (PEOU) and perceived usefulness (PU), that determine one's behavioral intention to use a technology (Wahid, 2007). Rao (2002) stated that to understand the user's behavior towards a new innovation, one must learn the technology adoption process. The technology acceptance model (TAM) consists of two beliefs, perceived utilities and perceived ease of application, which together determine attitudes towards adopting new technology (Rao, 2002). In this current research, the innovation is blended learning as a learning approach for delivering knowledge to students in different flexible ways.

Barriers to Blended Learning

The term, "blended learning," is used in such disparate ways among teaching professionals that it has begun to lose its meaning (Hofmann, 2011). Hofmann (2011) listed the

top ten challenges to blended learning which are described as follows:

Technical Challenges

1. Ensuring participants can successfully use the technology:
2. Resisting the urge to use technology simply because it is available

Organizational Challenges

3. Overcoming the idea that blended learning is not as effective as traditional classroom training
4. Redefining the role of the facilitator
5. Managing and monitoring participant progress

Instructional Design Challenges

6. Looking at how to teach, not just what to teach
7. Matching the best delivery medium to the performance objective
8. Keeping online offerings interactive rather than just "talking at" participants
9. Ensuring participant commitment and follow-through with "non-live" elements
10. Ensuring all the elements of the blend are coordinated

Glick (2008) also mentioned to some other challenges that might prevent the best implementation of blended learning. These challenges are categorized as follows:

1. Challenge I: Professional Development
2. Challenge II: Customization
3. Challenges III: Technological Skills
4. Challenge IV: No Access to Technology

The results of research conducted in Korea in 2006 found the most significant barriers or obstacles related to blended learning (Son, Oh, Bonk, & Kim, 2006). The barriers, which can face any instructor who is trying to implement blended learning, are: (1) lack of understanding the potential of blended learning, (2) time to develop blended learning resources, (3) inadequate technical infrastructure and support, and (4) lack of management support.

Rose and Ray (2011) list several limitations of blended learning related to institutions, faculty, and students. These limitations are explained as follows:

> For institutions, the main limitation of blended learning is the complexity of its management. Institutions also must expand the capacity of their learning management systems (LMS) and learning content management systems (LCMS) to accommodate the new load of online learning objects from all the classes that have moved from face-to-face to blended learning. For faculty, a serious limitation of blended learning is the major paradigm shift in understanding that blended learning is not just lecture plus some posted "other stuff," but a completely new strategy for facilitating student growth (rather than simply delivering content). For students, the greatest limitation of blended learning is the need to be (or quickly become) an intrinsically motivated and self-directed learner (pp. 234-235).

Incentives of Blended Learning

According to Rose and Ray (2011), the many variations of blended learning also offer advantages to institutions, faculty, and students. The following is a list of the benefits which can be gained from blended learning (Rose and Ray, 2011, p. 232):

Advantages to Institutions:

1. Blended learning offers institutions a method of controlling costs by reducing face-to-face time where the complete elimination of face-to-face elements would be impractical.
2. Blended learning also assists institutions by giving them a ramp-up path by which to approach online learning in small increments.

Advantages to Faculty and Students:

1. Blended learning allows all the learning channels of the face-to-face experience to be compounded with rich media, as well as facilitating new channels that require or make use of both platforms.
2. Blended learning also makes it possible for the instructor to transfer control of the learning process to the students who may better understand their own best learning methods.
3. A further benefit to students is the way that blended learning can extend the reach of a course.

There are a number of potential advantages to blended learning that are emerging. Some of these revolve around accessibility, pedagogical effectiveness, and course interaction (Dziuban, Moskal, & Hartman, 2005, p. 5). Additionally, Niemiec and Otte (2009) stated that:

> The potential benefits of blended learning are so considerable because blended learning is, at least potentially, the most transformative and pervasive initiative an institution can undertake. Blended learning touches on everything, from students and faculty to administration and infrastructure (p. 94).

Blended Learning and Educational Technology

Technology has played and continues to play an important role in the development and expansion of online education (Kim & Bonk, 2006). There are many educational technologies that are available for using by instructors and students in blended learning environments. However, faculty experience with using educational technology tools is varied. In one institution, we might find instructors with high level of experience with technology and at the same time, we might find instructors with no experience at all.

The effective blended learning faculty should have experience with using educational technology tools that are offered by their educational institution or through the Internet. Peluchette and Rust (2005) examined faculty preferences for various instructional technologies in undergraduate management courses. The educational technologies that Peluchette and Rust (2005) examined were: (1) Blackboard (chalk) or whiteboard, (2) PowerPoint presentations, (3) videos, (4) computer simulations or virtual reality, (5) E-mail and Web pages, (6) chat rooms and electronic bulletin boards, (7) tape recordings, and (8) transparencies.

Course subject may influence the choice of technology used to support the learning experience in the blended learning courses (Peluchette & Rust, 2005).

On the other hand, some instructors complain that blended learning requires a lot of time to design classes, especially when instructors are trying to transfer their material into digital format. Maddox (2009) confirmed this by stating that "the first year for any blended learning instructor, it will take teachers some time to get their materials into an LMS, but they probably have their material in a digital format by now, so it would simply mean copying and pasting to the LMS" (p. 72). Also, students should be prepared to be familiar with the blended learning models and learning management system in order to be successful in blended learning environments.

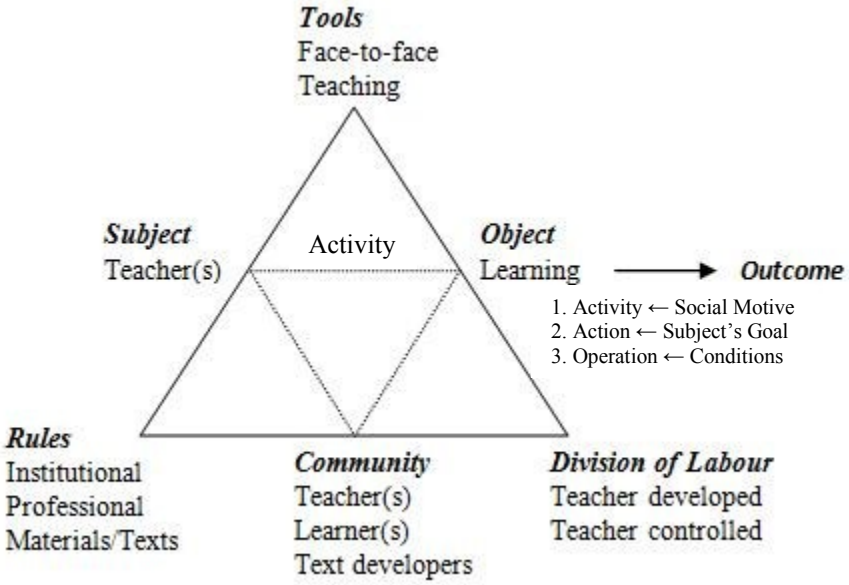
Applying Activity Theory to Blended Learning

Since any Blended learning system combines both Face-to-Face and E-learning, we need to know the relationship between each component and the Activity System.

Face-to-Face Teaching Activity System

In the case of conventional face-to-face classroom-based practice, the teacher is responsible for the development and delivery of the teaching program (Robertson, 2007). In addition to the cultural norms, rules and regulations associated with the institution in which the teacher works, are also influenced by the norms of the cultural discipline in which they operate (John & La Velle, 2004). Figure 16 describes how any instructor can apply activity system for face-to-face teaching.

Figure 16. Activity System for Synchronous face-to-face teaching and learning



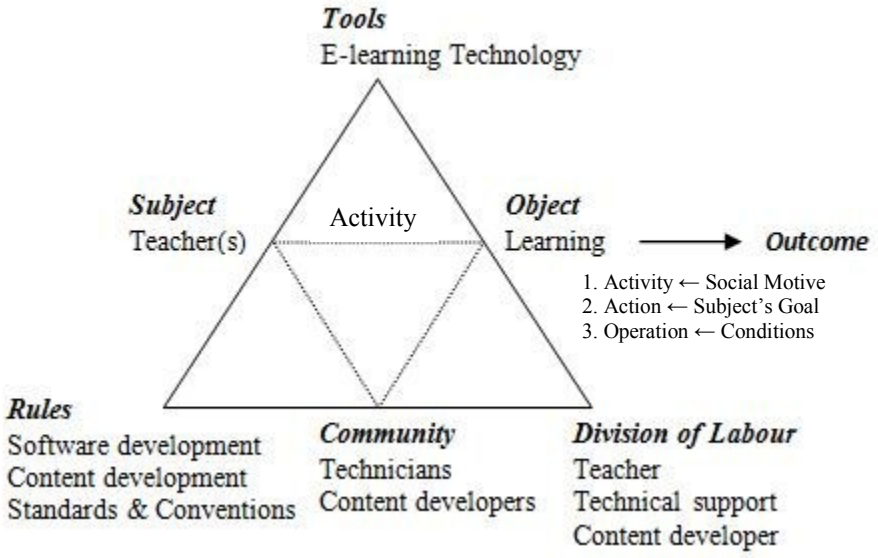
Source: Adapted from Robertson, I. (2007). E-learning practices: exploring the potential of pedagogic space, activity theory and the pedagogic device. *Education*, *1*(February), p. 85.

E-Learning Activity System

Robertson (2007) defined E-learning as the use of digital and networked technologies to support teaching and learning. These technologies support a number of functions including the distribution of resources in a range of forms, communications and assessment (Robertson, 2007).

E-learning includes teaching models that use one or more functionality to support part or all of a teaching program (See Figure 17).

Figure 17. Activity System for E-learning Technology



Source: Adapted from Robertson, I. (2007). E-learning practices: exploring the potential of pedagogic space, activity theory and the pedagogic device. *Education*, *1*(February), p. 86.

Applying Activity Theory to Blended Learning

Based on the elements of generation two of Activity Theory that was described in chapter one, a blended learning instructor can apply Activity Theory to any of his or her classes as follows (Robertson, 2007):

1. **Subjects (Users' Behavior):** the individual consists of the following:

- Administrators
- Teachers
- Students

2. **Object:** educational objectives, online and in class activities. It consists of the following: technology, people, and ideas

- *Technology:* Learning Management System (LMS), educational tools available in class, and computer.
- *People:* information technology team, technology support department, administration staff… etc
- *Ideas:* such ideas come from technology support department, information technology team, or even from individuals who interact with this environment.

Activity: Such activities for a teacher will be as follows:
- Describing all the required tasks in detail
- Clarifying class materials
- Designing online course
- Upload all materials to the online environment
- Monitoring students' activities and participations
- Controlling students' achievements
- Evaluate students' work

Such activities for a student will be as follows:
- Participating in the discussion board topics
- Downloading class materials
- Participating in all activities related to the class
- Working in groups with other classmates
- Completing all assignments and quizzes on time
- Attending all Face-to-Face lectures

3. **Tools:** online environment, educational tools available in class, Internet, and computer.

4. **Community:** behavior settings, collection of behavior settings, unit of analyses.

   The environment consists of the following:
   Synchronous (real time): Face-to-Face lectures
   Asynchronous (anytime): Online environment

5. **Rules and regulations:** course syllabus, documents uploaded by instructor, links to some websites, videos, audios, and so on.

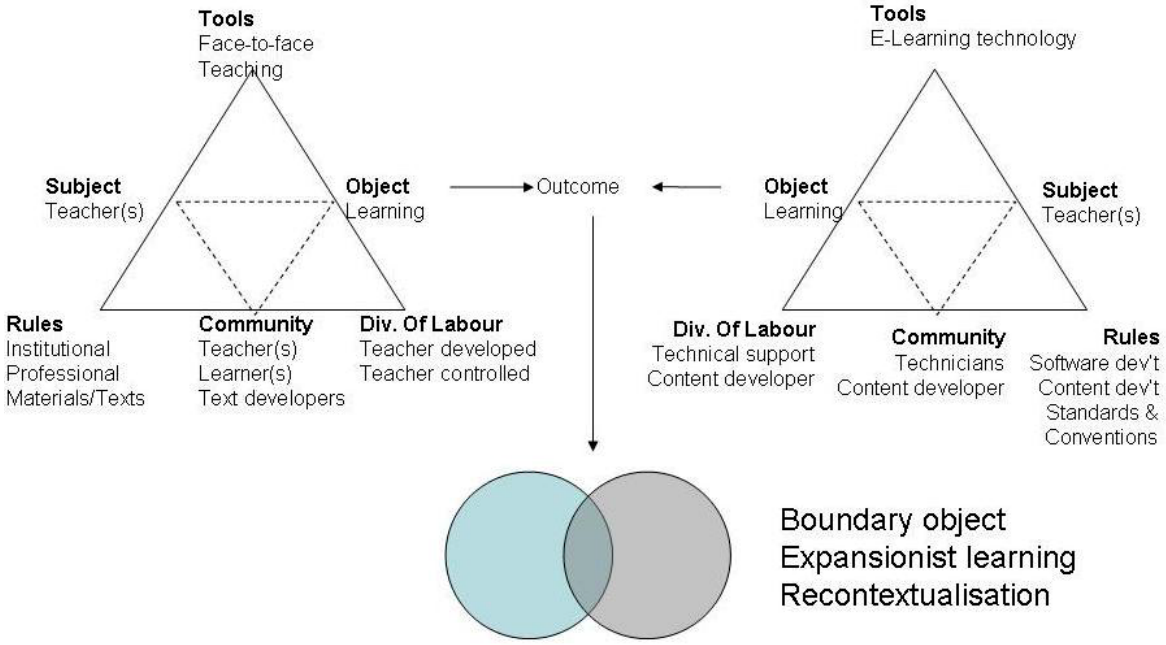
6. **Division of labor:** teachers are responsible for carrying out activity and how are those roles organized. Also, students are responsible for being active during all activities.

7. **Outcomes:** the desired outcome from carrying out this activity is the desired goals that all individuals who interact in this system need to accomplish.

Blended Learning Activity System

Robertson (2007) stated that "Activity theory is shown to be successful in identifying the tensions/contradictions that emerge when the two activity systems of face-to-face teaching and e-learning technologies come into juxtaposition" (p. 77). Figure 18 shows how any instructor can apply activity system for an effective blended learning.

Figure 18. Activity System for Blended Learning



Source: Adapted from Robertson, I. (2007). E-learning practices: exploring the potential of pedagogic space, activity theory and the pedagogic device. *Education*, *1*(February), p.87.

Technology and Gender Differences

Almuqayteeb (2009) reported that in Saudi Arabia, female faculty members play a critical role in making decisions regarding the use and implementation of technology in their classrooms in girls' colleges and these decisions might be influenced by different factors such as extrinsic factors (e.g., training and technical support) or intrinsic factors (e.g., attitudes toward computers and beliefs about teaching and learning).

Alaugab (2007) conducted a study to explore female faculty and student attitudes toward the adopting of online instruction, the benefits of implementing online instruction, and the most important barriers that might prevent effective implementation of online instruction. He found that female faculty members have positive attitudes toward online instruction because online

instruction is designed to accommodate the needs of both genders, male and female.

The widespread adoption of Internet applications in Saudi Arabia started in the late 1990s and universities were among the first adopters of the technology, and years later, the Internet witnessed an unparalleled spread across campuses (Al-Shawi and Al-Wabil, 2012). Another study conducted in 2008 to examine gender differences of Internet adoption and usage in Saudi Arabian higher education institutions as reported by faculty members found that there was no significant gender difference in the overall Internet usage (Al-Shankity and Al-Shawi, 2008).

Chapter Summary

Chapter two provides a review of related literature to the subject matter of blended learning. The researcher connected the previous studies that have previously been done and related them to the current study. All topics and subtopics were organized to be compatible with the purpose of this study and the variables included in the research instrument. Since blended learning is a learning system that combines face-to-face instruction with online instruction, all of these topics were described in detail in order to provide an inclusive understanding of blended learning. Chapter three describes the research procedures that were completed to design a reliable instrument for this study, and the statistical procedures used to analyze the collected data.

CHAPTER III

METHODS

Introduction

The purpose of the current study was to investigate the factors that affect faculty attitudes toward the adoption of technology-rich blended learning at Jazan University, Saudi Arabia. This chapter describes the research procedures that were completed to design a reliable instrument for this study, and the statistical procedures used to analyze the collected data. Informative descriptions of these procedures are explained in the following sections:

1. Research Design
2. Research Questions
3. Research Setting
4. Data Collection Procedures
5. Description of the variables
6. Research Sampling (Target Population, Participants, Human Subjects Issues)
7. Instrumentation (Focus Group, Pilot Study, Reliability, Validity)
8. Group Design
9. Data Analysis
10. Limitations of the Study

Research Design

A mixed methods research design was used to investigate the hypotheses of this study. Creswell (2009) defined mixed methods research as the following:

> It is an approach to inquiry that combines or associates both qualitative and quantitative forms of research. It involves philosophical assumptions, the use of qualitative and

quantitative approaches, and the mixing of both approaches in a study (p. 4).

There is more insight to be gained from the combination of both qualitative and quantitative research than either form by itself (Creswell, 2009). Also, Johnson and Onwuegbuzie (2004) defined mixed methods research as "the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study" (p. 17).

Creswell (2009) provided researchers with four important aspects that influence the design of procedures for a mixed methods study. These aspects are timing, weighting, mixing, and theorizing (See Table 6).

Table 6: Aspects to Consider in Planning a Mixed Methods Design

Timing	Weighting	Mixing	Theorizing
No Sequence concurrent	Equal	Integrating	Explicit
Sequential-Qualitative first	Qualitative	Connecting	Explicit
Sequential-Quantitative first	Quantitative	Embedding	Implicit

Source: Adapted from Creswell et al. (2009)

Creswell (2009) stated that:

> Researchers need to consider the timing of their qualitative and quantitative data collection whether it will be in phases (sequentially) or gathered at the same time (concurrently). The researcher collected data concurrently by collecting both quantitative and qualitative at the same time by using a research instrument that asks for both quantitative and qualitative information. Therefore, the weight or priority in this study is given to both quantitative and qualitative research equally. On the other hand, the researcher mixed both quantitative and qualitative questions by integrating or merging the two databases via transforming the qualitative themes into counts and comparing the counts with descriptive quantitative data. The research instrument is guided by several theories explicitly. This appears clear by looking to the survey's items and the extent of their relationships with the framework of the study (pp. 206-208).

Research Questions

In order to investigate the factors that affect faculty attitudes toward the adoption of technology-rich blended learning at Jazan University in Saudi Arabia. The following research questions were created to identify these factors and how they relate to each other:

1. What are the faculty attitudes toward the adoption of technology-rich blended learning at Jazan University?
2. What are the main barriers that might affect the adoption of technology-rich blended learning at Jazan University?
3. What are the main incentives that might encourage faculty to adopt technology-rich blended learning at Jazan University?
4. Is there a difference between male and female faculty members in:
    a) Their attitudes toward blended learning?
    b) The barriers they encountered?
    c) Their experience with educational technologies?
5. Does experience in using educational technology predict faculty attitudes toward the adoption of technology-rich blended learning at Jazan University?
6. How well do specific demographic variables (gender, age, years of teaching experience, academic major, academic rank, graduation country, years of using computers, years of using Internet, access to computers at school, previous experience with blended learning, number of courses taught in a blended learning environment, and level of computer skills) predict faculty attitudes toward the adoption of technology-rich blended learning at Jazan University?

Research Hypotheses

The following hypotheses were generated by the researcher in order to test the above research questions:

H_1. Faculty members at Jazan University will have positive attitudes toward the adoption of technology-rich blended learning.

H_2. There are some barriers that might affect the adoption of technology-rich blended learning at Jazan University.

H_3. There are some incentives that might affect adoption of technology-rich blended learning at Jazan University.

H_4. There is a significant difference between male and female faculty members at Jazan University in:

a) Their attitudes toward blended learning.

b) The barriers they encountered.

c) Their experience with educational technologies.

H_5. Experience with using educational technology will predict more positive faculty attitudes toward the adoption of technology-rich blended learning at Jazan University.

H_6. The selected demographic variables (gender, age, years of teaching experience, academic major, academic rank, graduation country, years of using computers, years of using Internet, access to computers at school, previous experience with blended learning, number of courses taught in a blended learning environment, and level of computer skills) will predict faculty attitudes toward the adoption of technology-rich blended learning at Jazan University.

Research Setting

Jazan University was selected as the location for conducting this study. Jazan University was established in 2006 and it offers undergraduate programs for male and female students. Jazan University has campuses in several cities in Jizan Province as follows: Jazan, Sabya, Abu Arish, Farasan, Ad-darb, Samtah, Al-Daer, and Al-Ardah.

Jazan University offers bachelor's degree programs in all colleges except the community college awards diplomas only. In 2011, the number of colleges had increased to the following: (1) College of Islamic Law, (2) College of Medicine, (3) College of Dentistry, (4) College of Pharmacy, (5) College of Applied Medical Sciences, (6) College of Science, (7) College of Engineering, (8) College of Computer and Information Systems, (9) College of Health Sciences, (10) College of Arts and Humanities, (11) College of Architecture and Design, (12) Community College, (13) College of Business Administration, (14) College of Education, and (15) College of Public Health and Tropical Medicine.

There are a variety of programs offered through Jazan University for both male and female students. However, students are admitted to the university according to the regulations of acceptance issued by the Ministry of Higher Education in Saudi Arabia.

The survey of study was distributed and administered by the office of Vice President for Graduate Studies and Scientific Research of Jazan University in Saudi Arabia. The mission of this office is to promote the university through the upgrading of scientific research and engaging in research partnerships with sectors outside the university and contribute to finding solutions to the problems facing society, through the establishment of specialized research centers (Office of vice president for graduate and scientific research at the Jazan University, 2011).

The office of Vice President for Graduate Studies and Scientific at Jazan University is also involved in planning and creating research agreements with internal and external institutions. In addition, it oversees the scholarships, which are offered via the university.

According to the statistics provided by the Ministry of Higher Education in Saudi Arabia in April 2012, there were about 45,593 faculty members and about 898,251 students studying in the government universities. Jazan University's statistics among these data are explained in detail in Table 7 as follows: 98 Professors, 112 Associate Professors, 447 Assistant Professors, 546 Lecturers, 277 Teaching Assistants, 76 Teachers, and 22 others. The total number of faculty members is 1,578 and the total number of students is 33,862 (Ministry of Higher Education, 2012).

Table 7. Number of Faculty at Jazan University

Academic Rank	Number
Professor	98
Associate Professor	112
Assistance Professor	447
Lecturer	546
Teacher Assistant	277
Teacher	76
Other	22
Total	**1,578**

Data Collection Procedures

The data for this study were collected using a survey that was developed especially for this purpose. The participants were asked to complete a paper-and- pencil surveys after they read the consent letter which describes the nature of the study and how the collected data will be used. The participants in this study were informed that participation in the study is voluntary and they have the right to withdraw their consent at any time. Additionally, the responses will remain anonymous and the data collected will be used for research purposes only because this will help to make participants more comfortable when he/she responds to the survey items.

Both Arabic and English versions of the survey were distributed because the target population for this study included participants who don't speak Arabic as a first language. The survey was sent to the office of Vice President for Graduate Studies and Scientific Research at Jazan University in Saudi Arabia, then to the colleges selected by the researcher, which included both male and female campuses.

Human Subjects' Committee Approval

A request to conduct this study was submitted to The Human Subjects Committee at the Lawrence campus of the University of Kansas. The project application was reviewed and approval was granted to begin collecting research data (See Appendix C).

Research Field Study Approval

Permission was requested from Jazan University to conduct the study. This required several processes which had to be completed via Saudi Arabian Cultural Mission (SACM). The researcher sent all the required documents to SACM including a copy of the research survey, letter of support from the academic advisor, and other related documents. The SACM then sent

all documents to the Ministry of Higher Education in Riyadh, Saudi Arabia. The documents were reviewed at the Ministry of Higher Education and Jazan University and approval was issued for conducting the research study. Finally, Jazan University sent an approval letter to SACM (See Appendices H, I, & J).

Translation from English to Arabic

After the proposal and the instrument were approved by both The Human Subjects Committee at the Lawrence campus of the University of Kansas and the Ph.D. committee members, the researcher started the translation processes. Because some of the participants in this study were native Arabic speakers, the researcher had to translate the English version of the survey to Arabic language using a panel of experts.

Backward translation was used in order to provide an understandable survey for Arabic participants. The survey questionnaire was translated at the first time by the researcher and a PhD student at the University of Kansas who is specializing in Educational Technology. This PhD student also speaks and writes both Arabic and English. After both the researcher and the graduate student had translated the survey questionnaire into Arabic, the Arabic version of the survey was given to two specialists in both Arabic and English. The first individual specializes in English linguistics and the other individual specializes in English literature. Both of them were asked to translate the survey questionnaire back into English. These two English versions were given to two graduate students at the University of Kansas who are native English speakers to examine for any significant differences between the two versions.

There were no significant differences between the two versions. The two Arabic versions were given to a well-known Arabic teacher to compile the final draft of the Arabic version from

the two previous Arabic versions. This Arabic version of the survey was given to 8 native Arabic speakers who were asked to read the items carefully and to examine the clarity of the survey items. The Arabic speakers had some suggestions to improve the survey and the researcher modified the survey based on their suggestions.

The final draft of the Arabic survey was reviewed by a well-known English teacher specializing in teaching English as a second language in order to confirm the translation. He stated that the survey language was clear and understandable.

Description of the Variables

There were several variables involved in this study and they can be described as independent variables or dependent variables. The following is a description of both types:

- **Dependent Variables (DV):** the dependent variables of the study which are derived from the research questions are described as follows:
    1. Attitudes of faculty members toward the adoption of blended learning at Jazan University.
    2. Barriers that might affect negatively on the adoption of blended learning at Jazan University.
    3. Incentives that might affect positively on the adoption of blended learning at Jazan University.
- **Independent Variables (IV):** the independent variables of the study are derived from the demographic information. These variables represent relevant characteristics of the participants. The independent variables include:
    1. Experience with educational technology.

2. Gender.
3. Age.
4. Years of teaching experience.
5. Academic major.
6. Academic rank.
7. Country of graduation.
8. Years of using computer.
9. Years of using Internet.
10. Access to computer at school office.
11. Access to Internet at school.
12. Experience with blended learning.
13. Experience with teaching blended learning courses.
14. Level of experience in computer usage.

Participants

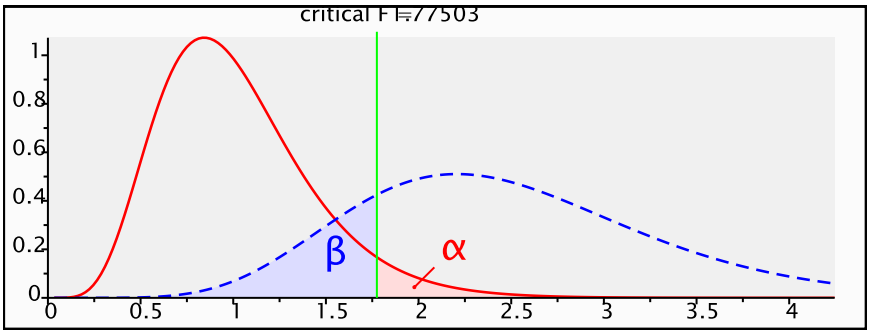
The participants for this study were 303 faculty members from Jazan University, Saudi Arabia. Faculty members from both male and female campuses were selected based on the colleges that showed willingness to participate in the study which was conducted at the beginning of spring 2012.

Power Analysis

The sample should be representative of the population in order to be valid. To ensure that the sample size is sufficient, the researcher conducted a power analysis using linear multiple regression: fixed model, R^2 deviation from zero as a statistical test with .05 as a level of

significance, assuming a medium effect size of .15, and choosing .80 power with 14 predictors. The results estimated a minimum sample size of 135 to be sufficient for this study (See Figure 19).

Figure 19. The distribution-based linear multiple regression for this study



Source: Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*, 1149-1160.

Limitations of the Study

The current study has several limitations which can be described as follows:

1. The current study was conducted only at one university in Saudi Arabia; therefore, the findings of this study might be not generalizable to other related universities.
2. The current study relied on self-evaluations; therefore, the participants may not have responded honestly to the survey questions although; they were notified that their responses will remain anonymous and confidential.
3. The participants were selected based on who was willingness to participate in the study. Therefore, the survey respondents were not randomly selected.

4. There was a communication limitation, since the researcher didn't have a chance to distribute the research surveys personally, especially in female colleges, although there were standardized instructions to be read prior to the administration of the survey.
5. The survey was distributed as a paper-and- pencil survey and the administration procedures were managed by Jazan University.

Instrumentation

The survey employed for the study was designed after reviewing several existing surveys that have been used with related subject matter. The survey structure was developed after examining previous studies that had been conducted related to educational technology.

Most of the survey items were created by the researcher, and some items were compiled from the literature reviews and modified. One source of items was a study conducted in 2008 by Brooks, and titled "An Analysis of Factors that Affect Faculty Attitudes toward a Blended Learning Environment." In order for the researcher to use some items from the Brooks questionnaire, a permission request was sent to the original researcher and creator of the instrument, Lori Brooks, who provided the researcher with a permission to use items from the questionnaire survey (See Appendices A and B).

Brooks's questionnaire was a modified version of a survey instrument developed by Wilson in 2002 for his PhD dissertation. According to Brooks (2009), "Wilson's survey instrument was validated his dissertation by a review of the literature as well as an expert panel "who were familiar with distance education policies and procedures." The name of Wilson's survey instrument was Faculty Attitudes towards Technology-Based Distance Education, and the

Brooks version, which will hereafter be referred to as the Faculty Attitudes Survey (Brooks, 2009). Brooks (2009) stated that:

> The original scope of the Faculty Attitudes Survey was "to identify faculty and administrators' attitudes and perceptions toward distance education and how these attitudes and perceptions affect their support or opposition of distance education delivery systems (p. 40).

There were two types of questions on the survey of this study; close-ended questions and open-ended questions. Likert-type scale responses were used in most items to rate the extent to which participants agree or disagree with each item statement. The questionnaire packet was expected to take approximately 20 minutes to complete. The survey consisted of 57 questions split into in six separate parts, which was done because DeVellis (2003) stated that shorter scales are good because they place less of a burden on respondents (p. 97).

The following are the survey sections:

I. Demographic information.

II. Experience with educational technologies.

III. Faculty attitudes toward blended learning.

IV. Barriers that might affect the adoption of blended learning.

V. Incentives of blended learning.

VI. Open-ended questions.

The items that were employed from Brooks's survey, after a modification process by the researcher, were items 12 and 13 in the demographic information section, items 9, 10, and 11 in attitudes section and items 1, 2, and 3 in the open-ended questions section.

Part I: Demographic information

This section consisted of 13 items and it was designed to collect information about faculty at Jazan University such as: age, years of teaching experience, academic department, academic major, academic rank, graduation country, years of using computers, years of using Internet, access to computers at the school office, personal experience with blended learning, number of courses have been taught in a blended learning environment, and level of experience in computer usage.

Part II: Experience with educational technologies

This section consisted of 10 items and it was designed to identify faculty experiences with using some educational technology tools which might influence the adoption of blended learning at Jazan University. Faculty responses were measured on a five point Likert-type scale of: 1= No Experience; 2= Poor; 3= Average; 4= Somewhat Good; 5= Very good.

The items in this section included statements regarding some educational technology tools which might help faculty to adopt blended learning at Jazan University. These items measured faculty members' experience with some educational technology tools such as: learning management systems, some software packages (e.g., Microsoft Office Package -MS Word, MS Outlook, and MS PowerPoint), and also web search engines (e.g., Google, Yahoo, etc.), electronic bulletin boards, and web page editors (e.g., HTML editor, Dreamweaver, etc.). There were also some items asked about the level of experience with some hardware that can help instructors to adopt blended learning (e.g., Smart Board, Digital Video Camera, and Scanner devices).

Part III: Faculty attitudes toward blended learning

This section consisted of 11 items and was designed to identify the main attitudes that faculty members at Jazan University have toward the adoption of blended learning. Faculty and administrators responses were measured using a five point Likert-type scale of: 5= SA (Strongly Agree), 4= A (Agree), 3= N (Neutral), 2= D (Disagree) and 1= SD (Strongly Disagree). According to DeVellis (2003), the Likert scale is one of the most common item formats and it is widely used in instruments measuring opinions, beliefs, and attitudes (p. 79).

The items in this section included statements regarding specific aspects of blended learning and measured faculty beliefs toward blended learning based on these factors which might influence their attitudes. Item content included: how interested faculty members at Jazan University were in implementing blended learning, the technological infrastructure that blended learning requires, how blended learning takes into consideration the different learning styles of students, and how blended learning supports collaborative learning.

Part IV: Barriers that affect the adoption of blended learning

This section consisted of 12 items and was designed to identify the main barriers that might affect faculty members in the adoption of blended learning at Jazan University. Faculty responses were measured using a five point Likert-type scale of: 5= SA (Strongly Agree), 4= A (Agree), 3= N (Neutral), 2= D (Disagree) and 1= SD (Strongly Disagree).

The items in this section included statements regarding some barriers that might affect the adoption of blended learning at Jazan University. These items measure factors that negatively impact the implementation of blended learning. Item content included: faculty experience with technology, the technical support and training available at Jazan University and at home, access

to computers and Internet at Jazan University, students' experience with technology, if blended learning would increase the work load for faculty members, and how the stereotypes associated with blended learning might affect the adoption of blended learning.

Part V: Incentives of blended learning

This section consisted of 8 items and was designed to identify the main benefits that might encourage faculty members to adopt blended learning at Jazan University. Faculty responses were measured using a five point Likert-type scale of: 5= SA (Strongly Agree), 4= A (Agree), 3= N (Neutral), 2= D (Disagree) and 1= SD (Strongly Disagree).

The items in this section included statements regarding some of the benefits that might encourage faculty members at Jazan University to adopt blended learning. These items included factors that positively impact the implementation of blended learning. Item content included: the ease of monitoring student performance and evaluating their achievements under blended learning, how can blended learning help to use the class time optimally, the benefit of giving students access to class materials and a variety of media resources (audio files, videos, etc.) at any time, the ability of blended learning to facilitate communication between the students and instructors, and how can blended learning help to improve the technological skills of students and instructors.

Part VI: Open-ended questions

This section consisted of 3 open-ended questions. The first question asked about factors that might encourage faculty members at Jazan University to adopt blended learning. The second question asked about the type of support that faculty members at Jazan University need to adopt

blended learning. The last question asked about the challenges that might occur before and/or during the implementation of blended learning.

Reliability and Validity

Reliability

According to Creswell (2009), the term reliability refers to whether scores for items on an instrument are internally consistent, whether they are stable over time, and whether there is consistency in test administration and scoring (p. 233). Frey (2006) stated that tests and other measurement instruments are expected to behave consistently, both internally (measuring the same construct behaving in similar ways) and externally (providing similar results if they administered again and again over time) (p. 132).

The questionnaire used in this study was administered to a pilot sample of 15 faculty members selected randomly from the real target population at Jazan University in Saudi Arabia. This pilot study consisted of three dimensions: attitudes, barriers, and incentives. Therefore, the researcher calculated the Cronbach's Alphas for each dimension separately in order to measure the consistency of scores across items. Using SPSS, the Cronbach's Alpha coefficient for the attitudes section was .84, for the barriers section was .75, and for the incentives section was .95. There was a possibility of increasing the values of the Cronbach's Alpha coefficient for each section by removing some specific items, but the researcher decided to leave all items included in the survey since the overall values of the Cronbach's Alpha coefficients were high. This indicates that there is adequate consistency among the questionnaire items.

A five point Likert-type scale was used for multiple sections of the instrument and it ranged from SA = Strongly Agree = 5 to SD = Strongly Disagree = 1. The higher the score, the more positive the attitude that the participant holds toward the adoption of blended learning, while the lower scores indicate less positive attitudes toward the adoption of blended learning. The response options ranged from 1 to 5, allowing for adequate variability to produce reliable results. Descriptive statistics are usually used to analyze this type of data by calculating the means of the items, the standard deviations, and the percentage of participants responding in each response category.

Validity

According to Creswell (2009), the term validity refers to whether one can draw meaningful and useful inferences from scores on particular instruments (p. 235). Validity is the extent to which the instrument measures what it is intended to measure (Frey, 2006, p. 136).

DeVellis (2003) stated that many people use the term of face validity to describe a set of items that assess what they appear to measure (p. 57). An instrument can have face validity if it appears that it measures what it is intended to measure, and this should be done by experts in the field in which the study is being conducted. The survey items contained in the instrument for this study were developed based on content validity. DeVellis (2003) defined content validity as the extent to which a specific set of items reflects a content domain (p. 49). A scale has content validity when its items are a randomly chosen subset of the universe of appropriate items. However, measuring beliefs or attitudes can be examined for content validity by having items reviewed by experts for relevance to the domain of interest (DeVellis, 2003).

The survey structure was reviewed by an expert in research and survey design. The expert provided the researcher with some valuable feedback and suggestions about each section in the survey in order to improve the quality of the items. The survey actually passed through several revisions from an expert who specializes in educational leadership and technology. This expert reviewed a pool of survey items to determine if they were relevant to the purpose of the study or not.

Based on that, he modified some items, removed some, and kept some items as they were. He also removed an entire section because it was irrelevant to the subject matter. The impact dropping bad items can either increases or decrease alpha depending on just how poor the items are to be dropped, and on the total number of items remaining in the scale (DeVellis, 2003).

The items were also reviewed by 3 Saudi graduate students from The University of Kansas specializing in educational technology. The researcher received some feedback and revised some survey items based on their suggestions.

A focus group consisting of 10 graduate students from The University of Kansas then reviewed the survey items and provided the researcher with feedback. They mentioned that most of the survey items were consistent with the purpose of the study. They stated that the items were precise in measuring the researcher's intent, and indicated that the survey length was appropriate. On the other hand, the feedback that the researcher collected from the focus group led to adding some items, modifying ambiguous wording in some items, and deleting some irrelevant items from the survey. The focus group mentioned that the survey needed to be translated into Arabic since it will be given to some faculty members who speak Arabic as a first language.

According to that, the researcher translated the survey from English into Arabic using backward translated strategy. Also, this survey was conducted as a paper-and- pencil survey in order to meet the purpose of the study which the lack of technology experience is one of the items that included in the survey.

Group Design

A single large group of 600 or more participants were provided with the survey questionnaire. For examination of gender differences, group was divided into male and female faculty members. Other groups were designed based on the country of graduation, highest academic degree that faculty members have, and participants' age. These groups were designed to do comparisons between variables.

Data Analysis

The research questions will be examined and hypotheses will be analyzed using various statistical methods depending on the type of data being analyzed. The Statistical Package for Social Science (SPSS) software version 20 will be used to analyze all data in the study and all analyses will be conducted using $p < .05$ as a level of statistical significance.

Descriptive statistics will be computed to analyze demographic data and give an overview regarding the distribution of sample. This type of analysis provides information about the frequencies, variance, and percentage of respondents per category.

However, the research questions will be analyzed using different types of data analysis methods. The following explains how the researcher will analyze each question based on the variables being investigated.

Questions 1-3: These questions attempt to identify the attitudes of faculty members at Jazan University toward the adoption of blended learning, the main barriers that might affect the adoption of blended learning at Jazan University, and the main incentives that might encourage faculty members at Jazan University to implement blended learning. All three questions will be analyzed by computing descriptive statistics which provides information about the mean, standard deviation, frequencies, variance, range, and percentage of participants responding for each category.

Question 4: An independent-samples *t*-test will be conducted to examine the differences between male and female faculty members at Jazan University in their attitudes toward the adoption of blended learning at Jazan University, the barriers that they have encountered, and their experience with educational technologies. According to Howell (2008), one of the most common uses of the *t*-test involves the difference between the means of two independent groups, or the independent-samples *t*-test (p. 326).

Question 5: Simple linear regression analysis will be conducted to investigate how well the overall experience with some specific educational technologies (e.g. Ms. Word, Emails, LMS, etc…) can predict the overall attitudes of faculty members toward the adoption of blended learning at Jazan University.

Question 6: Multiple linear regression analysis will be conducted to examine how well some demographic variables (e.g. age, gender, and years of teaching experience, content area, and academic rank, year of graduation, graduation country, and computer skills) predict the overall attitudes of faculty members toward the adoption of blended learning at Jazan University. Multiple linear regression analysis is a method for estimating the predictive effects of several factors concurrently (Schroeder, Sjoquist, Stephan, 1986, p. 29).

Pearson correlation coefficients will also be computed to examine the relationships between some specific variables selected from the demographic data and other variables such as the overall attitudes of faculty members toward the adoption of blended learning at Jazan University, the overall barriers that might affect the adoption of blended learning, and the overall incentives of blended learning.

Chapter Summary

In this chapter, the research methodology was explained in detail. It provides information about the design of the study, which aimed to investigate the factors that might affect faculty members' attitudes toward the adoption of blended learning at Jazan University. It includes several topics and subtopics related to the research such as: research design, research questions, research hypotheses, research setting, data collection procedures, description of the variables, participants, power analysis, limitations of the study, instrumentation, reliability and validity, group design, and data analysis. Chapter four provides the results of the statistical analyses conducted surrounding each research questions.

CHAPTER IV

RESULTS

Introduction

The purpose of this study was to investigate factors that affect faculty attitudes toward the adoption of technology-rich blended learning at Jazan University in Saudi Arabia. This chapter discusses the statistical analyses of the data collected in the study. This chapter consists of a description of population and sampling, descriptive statistics of the data, reliability analyses, results presented by research questions, results of the open-ended survey questions, and chapter summary.

Description of Population and Sampling

The participants in this study were both male and female faculty members at Jazan University, Saudi Arabia. The study was conducted at the beginning of spring 2012. The questionnaire was sent directly from the office of the Vice President for Graduate Studies and Scientific Research of Jazan University to 16 separate colleges of Jazan University, which were selected by the researcher. A total of 324 questionnaires were returned, and 21 incomplete questionnaires were excluded (See Table 8).

The actual size of the sample was three hundred and three participants (N=303) from the selected campuses in Jazan University whether male or female, as shown in Table 8. There were 234 male participants and 69 female participants in the sample as shown in Table 9.

Table 8. Numbers and Percentage of the valid and excluded cases

Cases	N	Percent
Valid	303	93.52
Excluded[a]	21	6.48
Total	**324**	**100**

a. Listwise deletion based on all variables in the procedure.

Table 9. Numbers of participants based gender

Gender	Frequency	Percent
Male	234	77.2
Female	69	22.8
Total	**303**	**100.0**

Research Questions

The data for this study were collected using a survey that was developed especially for exploring participants' attitudes toward the adoption of technology-rich blended learning at Jazan University. The main barriers that might affect the adoption of technology-rich blended learning at Jazan University, as well as the main incentives that might encourage faculty to adopt blended learning at Jazan University were investigated.

Both the Arabic and English versions of the survey were distributed because the target population for this study included faculty who don't speak Arabic as their first language. 185 Arabic surveys and 139 English surveys were returned, but 12 Arabic surveys and 9 English surveys were excluded because they were incomplete. Therefore, 173 Arabic surveys and 130 English surveys were used to collect the data for this study.

All analyses conducted using $p < .05$ as a level of statistical significance. Research questions and hypotheses were analyzed using different statistical methods depending on the

type of data being analyzed. The Statistical Package for Social Science (SPSS) software version 20 was used to analyze all data in the study.

Descriptive statistics were computed to analyze demographic data and give an overview of their distribution. This type of analyses provides information about the frequencies, variance, range, and percentage.

There were six research questions included in this study, and the analysis of the data regarding those questions depended on the variables represented. The research questions are as follows:

1. What are the faculty attitudes toward adoption of technology-rich blended learning at Jazan University?
2. What are the main barriers that might affect the adoption of technology-rich blended learning at Jazan University?
3. What are the main incentives that might encourage faculty to adopt technology-rich blended learning at Jazan University?
4. Is there a difference between male and female faculty in:
    a. Their attitudes toward blended learning?
    b. The barriers they have encountered?
    c. Their experience with educational technologies?
5. Does experience in using educational technology predict faculty attitudes toward adoption of technology-rich blended learning at Jazan University?
6. How well do specific demographic variables (gender, age, years of teaching experience, academic major, academic rank, graduation country, years of using computer, years of using Internet, access to computer at school, previous

experience with blended learning, number of courses taught in a blended learning environment, and level of computer skills) predict faculty attitudes toward adoption of technology-rich blended learning at Jazan University?

Reliability Analysis

The reliability of the survey instrument used in this study was evaluated by calculating the internal consistency coefficient (Cronbach's Alpha). Since there were three main sections of the survey, the researcher calculated the Cronbach's Alphas separately for each dimension in order to measure the consistency of scores across items. As shown in Table 10, the calculation of the Cronbach's Alpha coefficient for the attitudes section was .84 and for the barriers section was .82 and for the incentives section was .86. The values of the Cronbach's Alpha coefficients for each section were high which indicated that there is adequate consistency among the survey items in each section.

Table 10. Current Reliability Coefficients

Scales	N of Questionnaires Items	Cronbach's Alpha
Attitudes toward Blended Learning	11	α=.84
Barriers to Adopt Blended Learning	12	α=.82
Incentives of Blended Learning	8	α=.86

A five point Likert-type scale was used for this instrument and it can be described in detail as follows: 1= SD (Strongly Disagree), 2= D (Disagree), 3= N (Neutral), 4= A (Agree), and 5= SA (Strongly Agree). Participants' responses were coded based on this scale for the three domains: attitudes, barriers, and incentives. However, two items, item numbers 10 and 11, from the attitude section were reverse coded. A five point Likert-type scale was used also to code

participants' responses on the fourth section of the survey; the experience with educational technology. The response options for this section can be described as follows: 1= No Experience, 2= Poor, 3= Average, 4= Somewhat Good and 5= Very Good.

Demographic Description

Participants' demographic characteristics are described in detail in this section. This information includes participants' gender, age, years of teaching experience, academic department, academic major, academic rank, graduation country, years of computer use, years of Internet use, access to computer in the school, experience with blended learning, number of blended learning courses that have been taught and level of experience in computer usage.

Participants' Gender

The participants in this study were male and female faculty members at Jazan University in Saudi Arabia as it was described in chapter three. As shown in Table 11, the number of participants was 234 male and 69 female, which make a total of 303 participants. 77.2% of participants were male faculty members and 22.8% were female faculty members.

Table 11. Frequencies of Participants' Gender

Gender	Frequency	Percent
Male	234	77.2%
Female	69	22.8%
Total	**303**	**100%**

Participants' Ages

The results showed that the participants' age ranged from 23 to 63 years old. The statistical analyses also showed that the age mean was 37.42 (SD = 7.75). Due to the large variance in participants' age, the researcher re-coded ages into 5 groups in order to detect the most common age group and the least common age group. As shown in Table 12, the most common age group was 30-39 years old with 47.2% of faculty fallen in this group and the least common age groups were 60 or above years old with 0.7% of faculty falling in this group.

Table 12. Participants' Ages by Groups

Age Groups	Frequency	Percent
29 or below	48	15.8%
30-39	143	47.2%
40-49	87	28.7%
50-59	23	7.6%
60 or above	2	0.7%
Total	**303**	**100%**

Participants' Years of Teaching Experience

As shown in Table 13, 97 participants had 1-5 years of teaching experience, which represents 32% of the total number of participants in the study. The lowest group has only 1 participant with 41-45 years of teaching experience, which represents 0.3% of the total number of the study participants.

Table 13. Participants' Teaching Experience by Groups

Years of Experience	Frequency	Percent
1-5	97	32.0%
6-10	89	29.4%
11-15	59	19.5%
16-20	30	9.9%
21-25	14	4.6%
26-30	9	3.0%
31-35	4	1.3%
36-40	0	0.0%
41-45	1	0.3%
Total	**303**	**100%**

Participants' Academic Departments and Majors

The participants in this study were from 36 departments and 84 majors. Due to the big variance in the departments and majors, the researcher categorized participants in 7 main groups based on teaching content area. As shown in Table 14, the greatest number of participants (137) majored in arts at 45.2%, and the lowest number of participants (8) majored in engineering at 2.6%.

Table 14. Participants' Majors based on Teaching Content Areas

Majors	Frequency	Percent
Education	59	19.5%
Arts	137	45.2%
Science	15	5.0%
Engineering	8	2.6%
Medical Science	27	8.9%
Business	17	5.6%
Computer Science	40	13.2%
Total	**303**	**100%**

Participants' Academic Rank

As shown in Table 15, 42.6% of participants were lecturers, 29.7% were assistant professors, 12.9% were teachers, 5.9% were associate professors and teaching assistants and 3% were full professors.

Table 15. Participants' Academic Rank

Academic Rank	Frequency	Percent
Full Professor	9	3.0%
Associate Professor	18	5.9%
Assistant Professor	90	29.7%
Lecturer	129	42.6%
Teaching Assistant	18	5.9%
Teacher	39	12.9%
Total	**303**	**100%**

Participants' Graduation Countries

As shown in Table 16, 54.5% of participants (N=165) graduated from Asian countries, 1.0% of participants (N=3) graduated from Australia. Participants' graduation countries were categorized in 5 groups based on continent.

Table 16. Participants' Graduation Country by Continent

Continent	Frequency	Percent
Africa	**107**	**35.3%**
Egypt	86	28.4%
Senegal	1	0.3%
Sudan	16	5.3%
Tunisia	4	1.3%
Asia	**165**	**54.5%**
Bangladesh	18	5.9%
India	87	28.7%
Iraq	2	0.7%
Japan	1	0.3%
Jordan	5	1.7%
Pakistan	23	7.6%
Philippines	2	0.7%
Russia	1	0.3%
Saudi Arabia	25	8.3%
Yemen	1	0.3%
Australia	**3**	**1.0%**
Europe	**19**	**6.3%**
Austria	2	0.7%
Germany	5	1.7%
Hungary	1	0.3%
United Kingdom	11	3.6%
North America	**9**	**3.0%**
Canada	3	1.0%
United States	6	2.0%

Participants' Years of Computer Use

As shown in Table 17, the majority 39.3% of participants (N=119) have had experience using computers for 11-15 years, and 2.0% of participants (N=6) have had experience using computers for 26-30 years.

Table 17. Participants' Years of Computer Use

Years of Computer Use	Frequency	Percent
1-5	40	13.2%
6-10	97	32.0%
11-15	119	39.3%
16-20	34	11.2%
21-25	7	2.3%
26-30	6	2.0%
Total	**303**	**100%**

Participants' Years of Internet Use

As shown in Table 18, 46.2% of participants (N=140) have had experience using the Internet for 6-10 years. The number of participants that have had experience using the Internet for 21-25 years (N=2) or for 26-30 years (N=2), which both represent 1.4% of the total participants.

Table 18. Participants' Years of Internet use

Years of Internet Use	Frequency	Percent
1-5	59	19.5%
6-10	140	46.2%
11-15	88	29.0%
16-20	12	4.0%
21-25	2	.7%
26-30	2	.7%
Total	**303**	**100%**

Participants' Access to the Computers in the School Offices

As shown in Table 19, an overwhelming majority of participants, 80.9% (N=245) have a computer in their offices at the university, and 19.1% of participants (N=58) didn't have a computer in their offices at the university.

Table 19. Participants' Access to the Computer at School Office

Do you have a computer in your school office?	Frequency	Percent
Yes	245	80.9%
No	58	19.1%
Total	**303**	**100%**

Participants' Previous Experience with Blended Learning

As shown in Table 20, 35.0% of participants (N=106) have had previous experience with blended learning as instructors, and 16.2% participants (N=49) have had experience with blended learning as a student.

Table 20. Participants' previous Experience with Blended Learning

Previous Experience with Blended Learning	Frequency	Percent
No previous experience	96	31.7%
Experience as a student	49	16.2%
Experience as an instructor	106	35.0%
Experience as a student and instructor	52	17.2%
Total	**303**	**100%**

Number of Blended Learning Courses Taught by Participants

As shown in Table 21, 44.6% of participants (N=135) have not taught a blended course, and 3.3% of participants (N=10) who have taught 4 blended courses.

Table 21. Number of Blended Learning Courses Taught by Participants

	Frequency	Percent
Have not taught a blended courses	135	44.6%
Taught 1 blended course	68	22.4%
Taught 2 blended courses	47	15.5%
Taught 3 blended courses	20	6.6%
Taught 4 blended courses	10	3.3%
Taught 5 or more blended courses	23	7.6%
Total	**303**	**100%**

Participants' Level of Experience in Computer Usage

Participants were asked to rate their level of experience in computer usage on a scale from 1 to 10. As shown in Table 22, 27.7% of the participants (N=84) have had excellent experiences with using computers, and only 0.3% of participants (N=1) have had poor experiences with using computers.

Table 22. Participants' Level of Experience in Computer Usage

Level of Experience in computer usage	Frequency	Percent
2	1	0.3%
3	7	2.3%
4	7	2.3%
5	28	9.2%
6	26	8.6%
7	36	11.9%
8	70	23.1%
9	44	14.5%
10	84	27.7%
Total	**303**	**100%**

Experience with Educational Technologies

Participants were asked to rate their experiences with the ten most common technologies used by online instructors. The scale was as follows: 1= No Experience; 2= Poor; 3= Average; 4= Somewhat Good; and 5= Very good. As shown in Table 23, the most frequently mentioned experience that participants had was item number 5, "Web search engines (e.g. Google, Yahoo, etc.)" (M= 4.54, SD= 0.80). The lowest frequently mentioned experience that participants had was item number 7, "Web page editors (e.g. HTML editor, Dreamweaver, etc.)." (M= 3.03, SD= 1.33). Table 23 displays the means and standard deviations for faculty experience with educational technology.

Table 23. Descriptive Statistics for Faculty Experience in Using Educational Technology

Statement	Mean[1]	Std. Deviation
1. Learning Management Systems (e.g. Blackboard, Moodle, Jusur, etc.).	3.60	1.23
2. Microsoft Office PowerPoint.	4.23	0.97
3. Microsoft office Word.	4.40	0.87
4. E-mail programs (e.g. Microsoft Office Outlook, Gmail, Hotmail, Yahoo, etc.).	4.47	0.81
5. Web search engines (e.g. Google, Yahoo, etc.).	4.54	0.80
6. Electronic bulletin boards.	3.60	1.24
7. Web page editors (e.g. HTML editor, Dreamweaver, etc.).	3.03	1.33
8. Smart Board.	3.42	1.30
9. Digital Video Camera.	3.55	1.26
10. Scanner device.	3.76	1.28
Average	**3.86**	**1.11**

[1] The scale was (1=No Experience 2= Poor; 3= Average; 4= Somewhat Good; 5=Very Good Experience).

Findings of Research Questions

Research questions were analyzed by using different types of data analysis methods. The following explains how the researcher analyzed each question based on the variables being analyzed.

Research Question One

What are the faculty attitudes toward adoption of technology-rich blended learning at Jazan University?

The first research question discussed the main attitudes that faculty at Jazan University believe toward adoption of technology-rich blended learning. Participants were asked to rate their degree of agreement by responding to 11 items to determine their attitudes.

Participants responses were measured using a five point Likert-type scale: 1= SD (Strongly Disagree), 2= D (Disagree), 3= N (Neutral), 4= A (Agree), and 5= SA (Strongly

Agree). The highest score indicates the more positive attitudes that the participant holds toward adoption of technology-rich blended learning at Jazan University; while the lowest score indicates the least positive attitudes that the participant holds toward adoption of technology-rich blended learning at Jazan University. However, for negative statements, the reverse ratings were used.

Descriptive statistics were conducted to analyze the data in this question by calculating the means of the items and standard deviations to report participants' responses. The overall attitude of faculty members toward the adoption of technology-rich blended learning was positive (M=3.94, SD= 0.91). As shown in Table 24, the most frequently mentioned attitudes were items number 3,9, and 11. Item 3, "Blended Learning helps students to learn in a convenient way" (M= 4.14, SD= 0.80), item 9, "In the last three years, my attitude toward blended learning has become more positive" (M= 4.14, SD= 0.86), and item 11, "Your campus should increase the number of blended offerings" (M= 4.14, SD= 0.87).

The lowest frequently mentioned attitude was item number 6, "Technological infrastructure on my campus is ready to implement blended learning" (M= 3.45, SD= 1.07). Table 24 displays the means and standard deviations for faculty attitudes toward the adoption of blended learning at Jazan University.

Table 24. Descriptive Statistics for Faculty Attitudes toward the Adoption of Blended Learning

Statement	Mean[1]	Std. Deviation
1. Blended learning approach supports collaborative learning	4.10	0.85
2. Administrators believe that blended learning is important	3.76	0.80
3. Blended Learning helps students to learn in a convenient way	4.14	0.80
4. I am interested in implementing blended learning for my courses	4.04	0.92
5. Blended learning enables administrators to manage the education on my campus	3.72	0.80
6. Technological infrastructure on my campus is ready to implement blended learning	3.45	1.07
7. Blended learning increases student achievement	4.06	.92
8. Blended learning considers the differences in learning styles of students	3.79	.90
9. In the last three years, my attitude toward blended learning has become more positive	4.14	.86
10. I prefer teaching a class through blended learning means	3.95	1.22
11. Your campus should increase the number of blended offerings	4.14	.87
Average	**3.94**	**0.91**

[1] The scale was: (1=SD, 2=D, 3=N, 4=A, 5=SA).

Research Question Two

What are the main barriers that might affect the adoption of technology-rich blended learning at Jazan University?

The second research question concerned the main barriers that might affect the adoption of technology-rich blended learning at Jazan University. Participants were asked to rate their degree of agreement with 12 statements. Participants responses were measured using a five point Likert-type scale: 1= SD (Strongly Disagree), 2= D (Disagree), 3= N (Neutral), 4= A (Agree), and 5= SA (Strongly Agree).

The highest score indicates the factor is a major barrier that faculty members at Jazan University see to adopting technology-rich blended learning; while the lowest score indicates the

factor is not considered a barrier for faculty members at Jazan University to adopting technology-rich blended learning. Descriptive statistics were computed to analyze the data for this question by calculating the means of the items and standard deviations to report participants' responses. The overall barriers that faculty have had to face in adopting technology-rich blended learning at Jazan University was positive and moderate (M=2.58, SD=1.33).

As shown in Table 25, the most frequently mentioned barrier was items number 3, "I don't have enough technical training" (M= 3.22, SD= 1.06). The lowest frequently mentioned barrier was item number 5, "Computers are not available on my campus" (M= 2.00, SD= 1.23). Table 25 displays the means and standard deviations for the barriers that affect the adoption of blended learning at Jazan University.

Table 25. Descriptive Statistics for Barriers that Affect the Adoption of Blended Learning

Statement	Mean[1]	Std. Deviation
1. I don't have enough technology experience	2.09	1.12
2. I don't have enough technical support	3.01	1.27
3. I don't have enough technical training	3.22	1.06
4. Internet is not available on my campus	2.08	1.30
5. Computers are not available on my campus	2.00	1.23
6. Blended learning increases my workload	2.64	1.20
7. My colleagues don't like blended learning	2.61	0.95
8. Blended learning reduces my contact with students	2.46	1.07
9. My campus uses a poor learning management system (LMS)	2.48	1.04
10. My students don't have enough technology experience	2.87	1.26
11. My students don't have computers at home	2.73	1.03
12. My students don't have internet at home	2.81	1.07
Average	**2.58**	**1.33**

[1] The scale was: (1=SD, 2=D, 3=N, 4=A, 5=SA).

Research Question Three

What are the main incentives that might encourage faculty to adopt technology-rich blended learning at Jazan University?

The third research question pertained to the main incentives that might encourage the adoption of technology-rich blended learning at Jazan University. Participants were asked to rate their degree of agreement with 8 statements. Participants' responses were measured using a five point Likert-type scale: 1= SD (Strongly Disagree), 2= D (Disagree), 3= N (Neutral), 4= A (Agree) and 5= SA (Strongly Agree).

The highest score indicates the factor is a major incentive that encourages participants to adopt technology-rich blended learning at Jazan University; while the lowest score indicates the factor is not seen by participants as an incentive to adopt technology-rich blended learning at Jazan University.

Descriptive statistics were conducted to analyze the data in this question by calculating the means of the items and standard deviations to report participants' responses. The overall incentive of the adoption of technology-rich blended learning at Jazan University was positive (M=3.96, SD=0.84).

As shown in Table 26, the most frequently mentioned barrier was items number 8, "Blended learning improves students and instructors technological skills" (M= 4.33, SD= 0.71). The lowest frequently mentioned barrier was item number 5, "Blended learning accommodates different types of students" (M= 3.44, SD= 0.99). Table 26 displays the means and standard deviations for the incentives of blended learning.

Table 26. Descriptive Statistics for Incentives of Blended Learning

Statement	Mean[1]	Std. Deviation
1. Blended learning facilitates the tracking of student performance.	3.79	0.92
2. Blended learning makes better use of class time	3.97	0.89
3. Blended learning gives students access to class materials at any time	4.18	0.77
4. Blended learning gives students more media resources (e.g. audios, videos, etc.)	4.24	0.75
5. Blended learning accommodates different types of students	3.44	0.99
6. Blended learning helps in evaluating student achievement	3.73	0.85
7. Blended learning provides better communication for students and instructors	3.98	0.85
8. Blended learning improves students and instructors technological skills	4.33	0.71
Average	**3.96**	**0.84**

[1] The scale was: (1=SD, 2=D, 3=N, 4=A, 5=SA).

Research Question Four

Are there any differences between male and female faculty in:

a. *Their attitudes toward blended learning?*
b. *The barriers they have encountered?*
c. *Their experience with educational technologies?*

A series of independent samples *t*-tests were conducted to examine the gender differences regarding the three survey subscales. As shown in Table 27 and Figure 20, the difference in male and female faculty members' attitudes towards the adoption of technology-rich blended learning was not statistically significant, with t (301) =. 21, p= 0.83. The mean of attitudes for male faculty members was 3.94 with SD= 0.59; while the mean of attitudes for female faculty members was 3.92 with SD= 0.49.

As shown in Table 27 and Figure 21, the differences in the barriers that faculty, male and female, have encountered was statistically significant, with t (301) = -4.43, $p < .05$. The mean of barriers that male faculty members have encountered was 2.49 with SD= 0.65; while the mean of barriers that female faculty members have encountered was 2.88 with SD= 0.57.

As shown in Table 27 and Figure 22, the difference in the male and female faculty members' experience in using educational technologies was statistically significant, as well, with t (301) = 3.76, $p < .05$. The mean of male faculty experience in using educational technology was 3.95 with SD= 0.77; while the mean of female faculty experience in using educational technologies was 3.54 with SD= 0.87.

Table 27. Differences in Faculty Gender by Subscales: Attitudes, Barriers, and Experience in Using Educational Technology

Subscales	N	Mean	Std. Deviation	t	df	Sig.
Faculty Attitudes Toward Blended Learning				0.21	301	.835
Male	234	3.94	0.59			
Female	69	3.92	0.49			
Barriers to the Adoption of Blended Learning				-4.43	301	.000
Male	234	2.49	0.65			
Female	69	2.88	0.57			
Experience in Using Educational Technologies				3.76	301	.000
Male	234	3.95	0.77			
Female	69	3.54	0.87			

Figure 20. Box Plot for Attitudes toward Blended Learning Scores Separately by Gender

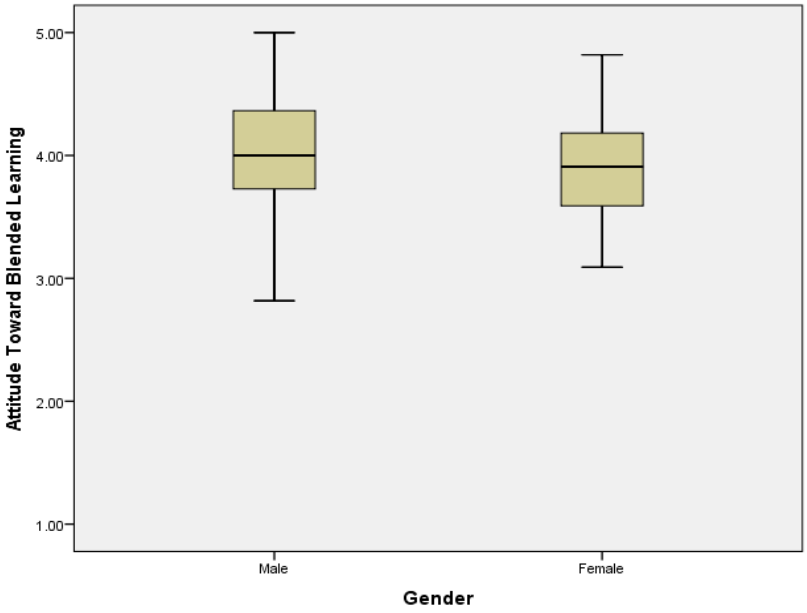


Figure 21. Box Plot for Barriers to Adopt Blended Learning Scores Separately by Gender

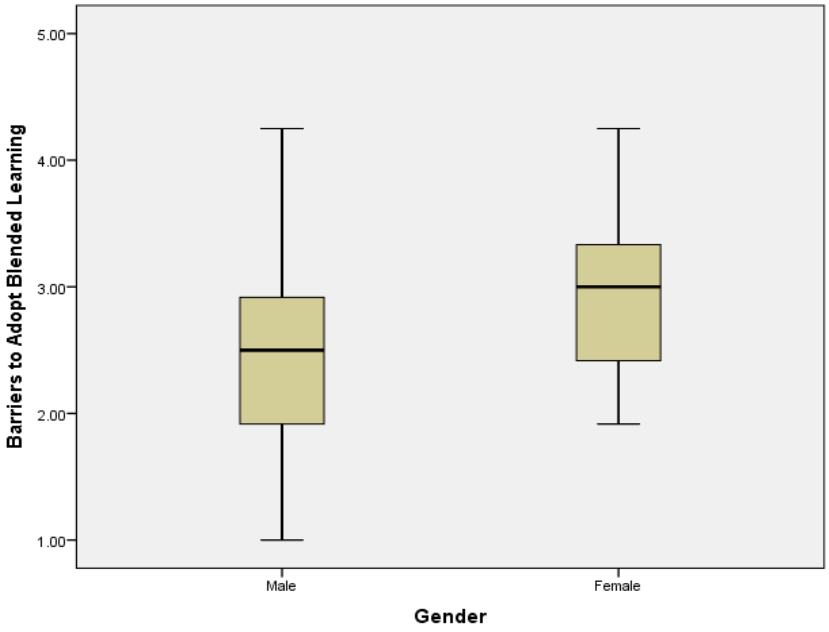
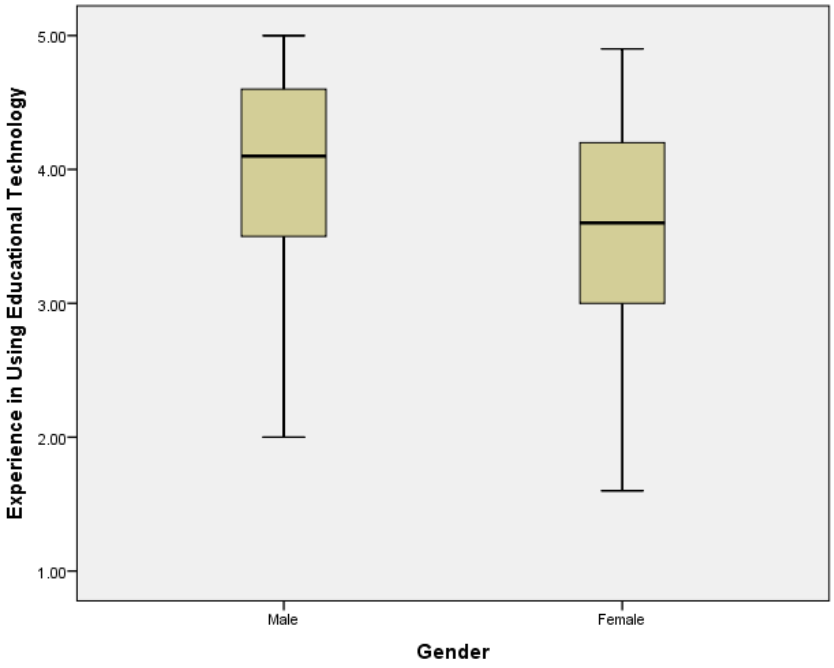


Figure 22. Box Plot for Experience in Using Educational Technologies Scores Separately by Gender



Research Question Five

Does experience with using educational technology predict faculty attitudes toward the adoption of technology-rich blended learning at Jazan University?

A simple linear regression analysis was conducted to evaluate the overall faculty level of experience using educational technology as a predictor of overall faculty attitudes toward the adoption of technology- rich blended learning at Jazan University. The regression assumptions were checked and histogram showed an approximately normal distribution of the data and scatterplot indicates no issues with heteroskedasticity. Table 28 and Table 29 show that the overall regression equation was statistically significant, with F (1,301) = 32.55, $p < .05$. The single predictor in the model, level of experience with using educational technology, was

significant with a standardized beta coefficient of .31 ($p < .05$). The regression equation for predicting overall attitude toward adopting blended learning is:

$$\hat{Y} = B_{\text{Experience in Using Educational Technology}} \text{ x} + B_{Constant}$$

$$\textit{Predicted Overall Faculty's Attitude} = .22_{\text{Overall Faculty Experience in Using Educational Technology}} + 3.08$$

Table 28. Analysis of Variance and Regression Results of Faculty Attitude toward the Adoption of Technology-Rich Blended Learning and Faculty Experience in Using Educational Technology

Source of Variation	df	MS	F	Sig.	R	R^2	Adjusted R^2	Std. Error of the Estimate
Regression	1	9.64	32.55	.000	.31	.10	.09	.54
Residual	301	.30						
Total	**302**							

Dependent Variable (DV): Faculty Attitudes toward the Adoption of Technology-Rich Blended Learning

The effect size or R^2 for the overall analysis was .10, which indicates that approximately 10% of the variance in the faculty's attitudes toward the adopting of technology-rich blended learning was explained by their level of experience using educational technology. The histogram (Figure 23) and scatterplot (Figure 24) give a visual display for the regression results of faculty experience in using educational technology predicting faculty attitudes toward the adoption of technology-rich blended learning at Jazan University.

Table 29. *Regression Coefficients: Relationship between Faculty Experience in Using Educational Technology and Faculty Attitudes toward the Adoption of Technology-Rich Blended Learning*

Predictors	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta (β)		
(Constant)	3.08	0.15		20.20	.000
Faculty Experience in Using Educational Technology	.22*	0.04	0.31	5.71	.000

*** P<.001, ** P<.01, * P<.05

Dependent Variable (DV): Faculty Attitudes toward the Adoption of Technology-Rich Blended Learning

Figure 23. Histogram of Faculty Experience in Using Educational Technology and Faculty Attitudes toward the Adoption of Technology-Rich Blended Learning

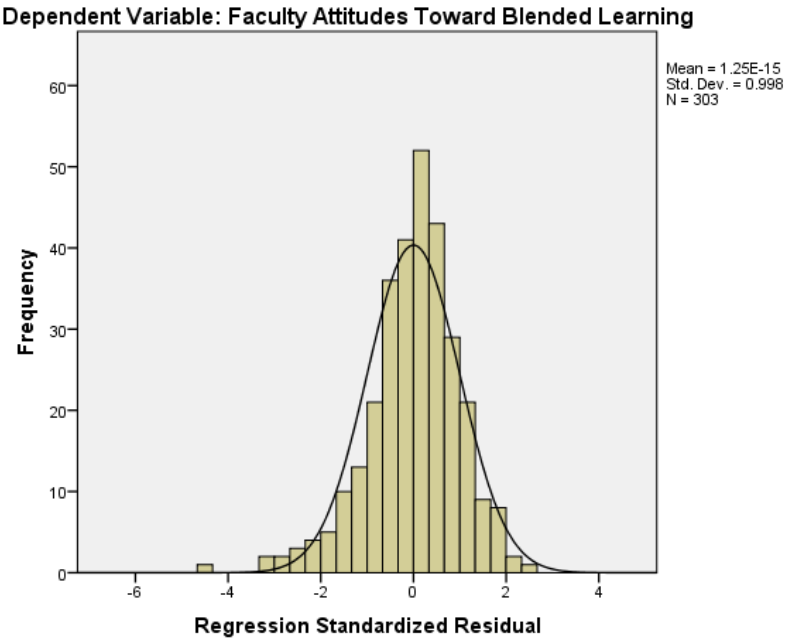
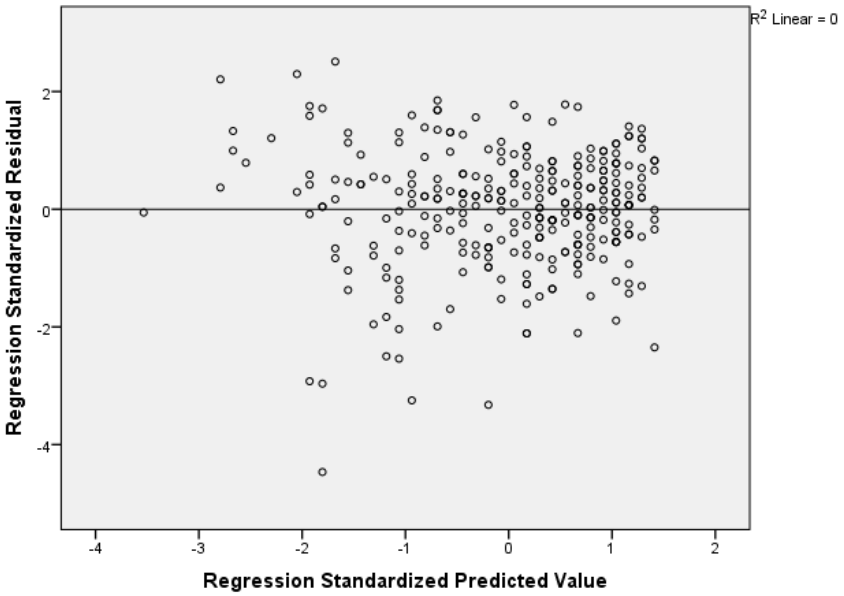


Figure 24. Scatterplot depicting the relationship between standardized predicted faculty attitudes toward blended learning and residual faculty experience in using educational technology



Research Question Six

How well do specific demographic variables (gender, age, years of teaching experience, academic major, academic rank, graduation country, years of using computer, years of using Internet, access to computer at school, previous experience with blended learning, number of courses taught in a blended learning environment, and level of computer skills) predict faculty attitudes toward adoption of technology-rich blended learning at Jazan University?

A multiple regression analysis was conducted to evaluate how well 12 demographic variables (gender, age, years of teaching experience, academic major, academic rank, graduation country, years of using computer, years of using Internet, access to computer at school, previous experience with blended learning, number of courses taught in a blended learning environment, and level of computer skills) predict the overall faculty attitudes toward the adoption of

technology-rich blended learning at Jazan University. The regression assumptions were checked and histogram showed an approximately normal distribution of the data and scatterplot indicates no issues with heteroskedasticity. The multicollinearity was checked to test if two or more predictor variables in a multiple regression model were highly correlated. The results showed no problems with multicollinearity.

As shown in Table 30, the linear combination of the 12 demographic variables was significantly predictive of the overall faculty attitudes toward adoption of technology-rich blended learning at Jazan University, with F (12, 290) = 3.12, $p < .05$.

The adjusted R^2 for the overall multiple regression analysis was .08, indicating that approximately 8% of the variance in faculty attitudes toward the adoption of technology-rich blended learning at Jazan University in the sample can be accounted for by the linear combination of the 12 demographic variables entered in the model.

Table 30. Analysis of Variance and Regression Results of Faculty Attitude toward the Adoption of Technology-Rich Blended Learning and Faculty Demographic Information

Source of Variation	df	MS	F	Sig.	R	R^2	Adjusted R^2	Std. Error of the Estimate
Regression	12	.94	3.12	.000	.34	.11	.08	.55
Residual	290	.30						
Total	**302**							

Dependent Variable (DV): Faculty Attitudes toward the Adoption of Technology-Rich Blended Learning

As shown in Table 31, only two of the twelve predictors, rank with a standardized beta coefficient of .15 (p= .03) and having an office computer with beta= -.13 (p= .02), were significant predictors in the model. A histogram (Figure 25) and scatterplot (Figure 26) give a visual display for the results of predictability of the 12 demographic information and faculty attitudes toward the adoption of technology-rich blended learning at Jazan University.

Table 31. Regression Coefficients: Relationship between Faculty Demographic Information and Faculty Attitudes toward the Adoption of Technology-Rich Blended Learning

Predictors	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta (β)		
(Constant)	3.45	.40		8.66	.000
Gender	-.04	.08	-.03	-.51	.61
Age	.00	.01	-.04	-.38	.71
Teaching Experience	.01	.01	.08	.89	.38
Major	.00	.02	-.01	-.20	.84
Rank	.07*	.03	.15	2.18	.03
Graduation Country by Continent	.03	.04	.05	.79	.43
Years of Using Computer	.01	.01	.07	.70	.49
Years of Using Internet	-.02	.01	-.12	-1.29	.20
Office Computer	-.20*	.08	-.13	-2.31	.02
Blended Learning Experience	.07	.04	.14	1.87	.06
Blended Learning Teaching	.03	.03	.08	1.04	.30
Computer Experience	.03	.02	.10	1.43	.15

*** P<.001, ** P<.01, * P<.05

Dependent Variable (DV): Faculty Attitudes toward the Adoption of Technology-Rich Blended Learning

Figure 25. Histogram of Faculty Attitudes toward the Adoption of Technology-Rich Blended Learning and Demographic Information

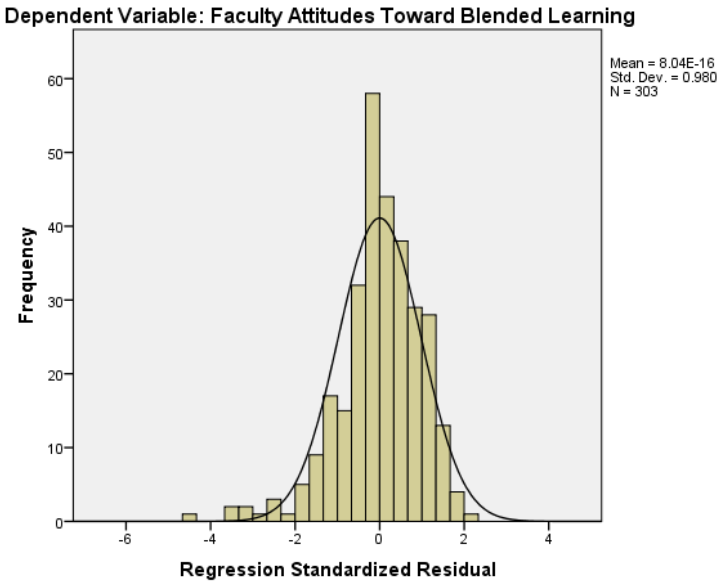
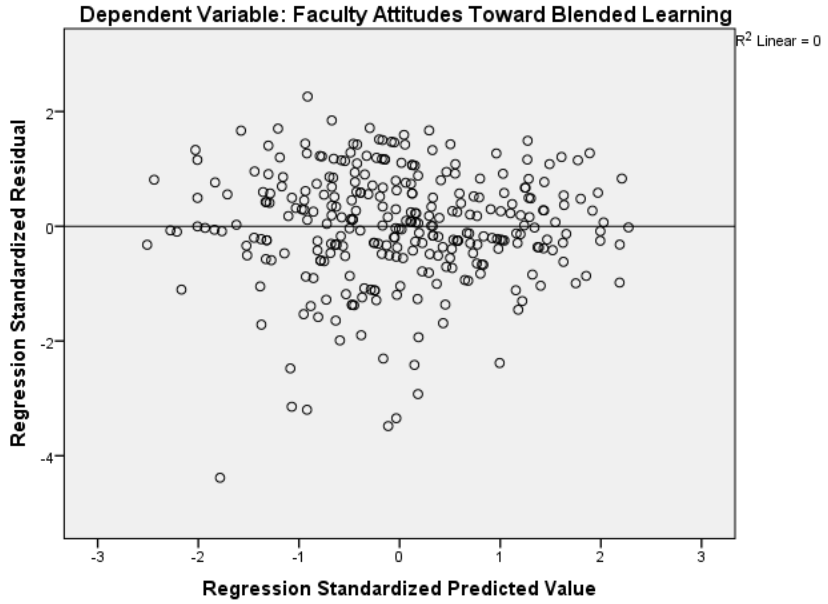


Figure 26. Scatterplot depicting the relationship between standardized predicted faculty attitudes toward blended learning and demographic information



Additional Findings

In addition to the analysis conducted pertaining to each research question, analyses were also conducted regarding the relationship between faculty attitudes toward the adoption of technology-rich blended learning at Jazan University and the following factors:

- Barriers to the adoption of blended learning that they have encountered.
- Incentives for the adoption of blended learning.

To test the relationship between faculty attitudes toward the adoption of technology-rich blended learning at Jazan University and the two factors listed above, correlation coefficients were used. Pearson correlations were computed to investigate the relationship between the overall faculty attitudes toward the adoption of technology-rich blended learning at Jazan University and the overall barriers that they have encountered in the adoption of technology-rich

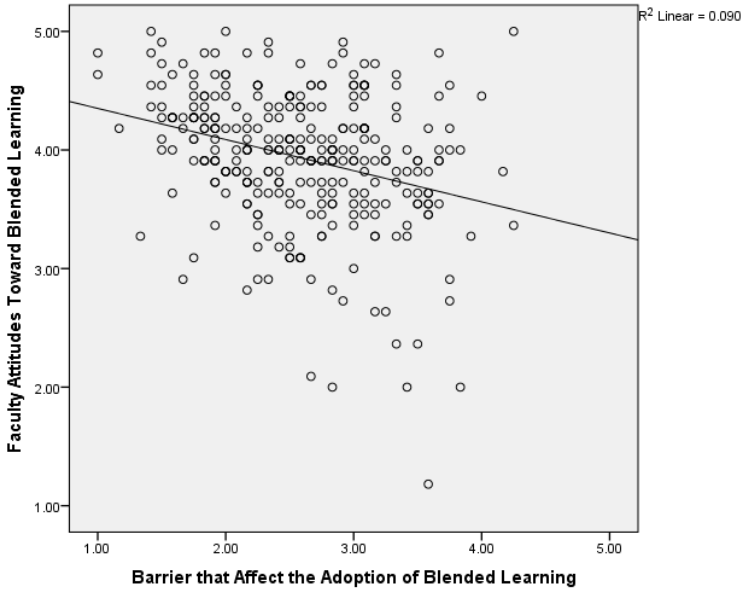
blended learning. The correlation between these two variables was r = -.30, which is significant at $p < .05$. The results presented in Table 32, and Figure 27.

Table 32. Pearson Correlations of Faculty Attitudes toward Blended Learning and Barriers to the Adoption of Blended Learning at Jazan University

		Faculty Attitudes Toward Blended Learning	Barrier that Affect the Adoption of Blended Learning
Faculty Attitudes Toward Blended Learning	Pearson Correlation	1	-.30*
	Sig. (2-tailed)		.000
	N	303	303
Barrier that Affect the Adoption of Blended Learning	Pearson Correlation	-.30*	1
	Sig. (2-tailed)	.000	
	N	303	303

*. Correlation is significant at the .05 level (2-tailed).

Figure 27. Scatterplot of Faculty Attitudes toward Blended Learning and Barriers to the Adoption of Blended Learning at Jazan University



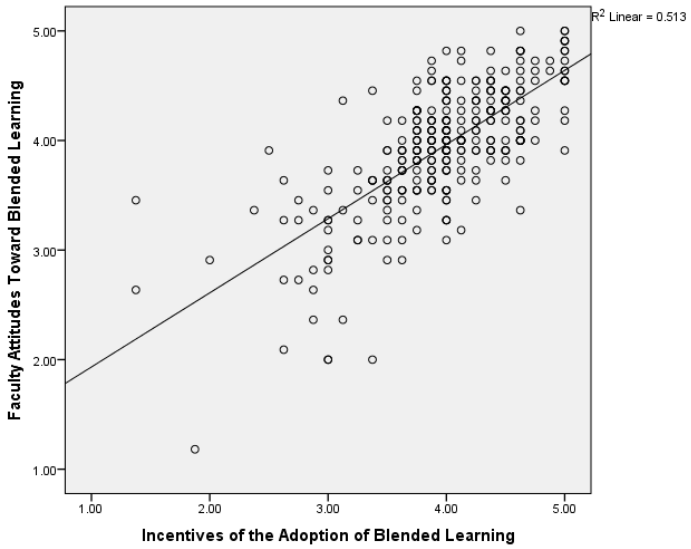
Pearson correlations were also computed to examine the relationship between the overall faculty attitudes toward the adoption of technology-rich blended learning at Jazan University and the overall incentives for the adoption of blended learning. The correlation between these two variables was r= .72, which is significant at $p < .05$. The results presented in Table 33, and Figure 28.

Table 33. Pearson Correlations of Faculty Attitudes toward Blended Learning and Incentives of the Adoption of Blended Learning at Jazan University

		Faculty Attitudes Toward Blended Learning	Incentives of the Adoption of Blended Learning
Faculty Attitudes Toward Blended Learning	Pearson Correlation	1	.72*
	Sig. (2-tailed)		.000
	N	303	303
Incentives of the Adoption of Blended Learning	Pearson Correlation	.72*	1
	Sig. (2-tailed)	.000	
	N	303	303

*. Correlation is significant at the .05 level (2-tailed).

Figure 28. Scatterplot of Faculty Attitudes toward Blended Learning and Incentives of the Adoption of Blended Learning at Jazan University



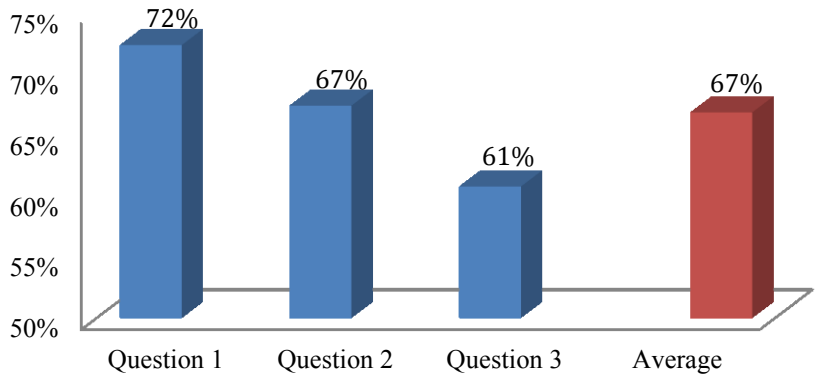
Qualitative Results from Open-Ended Questions

Participants were asked to respond to three open-ended questions in the final section of the survey. Most of the participants (219) who represents 72% of the total number of participants responded to these questions, and 28% (84) of participants didn't respond at all to these three questions. The total number of participants' responses for each question is shown in Table 34 and Figure 29. The qualitative data were analyzed and coded using content analysis. Through the process of this analysis, themes, patterns, and categories emerged and were identified.

Table 34. Total Numbers of participants' Respondents for Open-Ended-Questions (N=303)

	Respondents	Percent
Question 1	219	72%
Question 2	204	67%
Question 3	184	61%
Average		**67%**

Figure 29. Percentages of Respondents for Open-Ended-Questions (N=303)



Question one: *What encourages you to use blended learning?*

This open-ended question asked about the factors that might encourage faculty to use blended learning. Participants' responses to this question were divided into 3 categories and 28 units. The three categories of responses to this question were:

1. External Encouragement.
2. Attitudes toward Blended Learning.
3. Benefits of Blended Learning.

As shown in Table 35, the highest frequency for the first category, external encouragement, was that faculty members were encouraged by their administrators to use blended learning (n=27); and the lowest frequency for the first category was that faculty's previous experience as a student positively affected their attitudes toward blended learning (n=12).

The highest frequency for the second category, attitudes toward blended learning, was that blended learning supports collaborative learning (n=33); and the lowest frequency for the second category was that faculty members encouraged to use blended learning because it is a new trend in education (n=4).

Finally, the highest frequency for the third category, benefits of blended learning, was that blended learning helps instructors to easily deliver the information to the students (n=26); and the lowest frequency for the third category was that blended learning helps to overcome place restrictions (n=3).

Table 35. Frequency of Faculty Responses to Factors that Encourage Faculty to Use Blended Learning (N=219)

Categories	Units	Frequency	Percent
External Encouragement	My administrator at the university.	27	12.33
	My colleagues at the university.	23	10.50
	Tremendous revolution in communication technology.	17	7.76
	Students' experience with modern technologies.	13	5.94
	My previous experience as a blended learning student.	12	5.48
Attitudes toward Blended Learning	BL supports collaborative learning.	33	15.07
	BL takes into account the renewal and innovation in the materials provided to students.	26	11.87
	Enhances the communication between instructors and students.	24	10.96
	BL makes teaching and learning processes more effective.	22	10.05
	BL relies on modern technologies to deliver the knowledge.	21	9.59
	The ability to access educational content at any time.	19	8.68
	BL takes into account the differences in learning styles.	18	8.22
	BL develops the skills of students and instructors in the use of technology.	17	7.76
	BL takes into account individual differences among students.	15	6.85
	Diversity in the educational material provided to students.	14	6.39
	Using the latest educational technology tools.	14	6.39
	BL helps to increase students' self-efficacy in learning.	14	6.39
	BL helps to increase self-motivation of the instructors.	13	5.94
	BL increases self-regulation of the students.	11	5.02
	BL provides good learning environments.	10	4.57
	It is a new trend in education.	4	1.83
Benefits of Blended Learning	It helps instructors to easily deliver the information to the students.	26	11.87
	It helps to increase the academic achievement of students.	22	10.05
	It helps to achieve better outcomes.	20	9.13
	It helps instructors to optimal use of lecture time.	17	7.76
	It helps instructors and learners to gain new experience and skills.	9	4.11
	It helps to overcome the disadvantages of traditional learning and E-learning.	5	2.28
	It helps to overcome place restrictions.	3	1.37

BL: blended learning.

Question Two: *What support would you like to have had before and during your blended teaching experiences?*

Participants were asked to report the required support that faculty members need to use blended learning. Participants' responses to this question were divided into 4 categories and 19 units. The four categories of participant responses to this question were:

1. Professional Development for Faculty.
2. Technological Requirements.
3. Required Support.
4. Students Needs.

As shown in Table 36, the highest frequency for the first category, professional development for faculty, was that university needs to provide faculty members with workshops on blended learning (n=75); and the lowest frequency for the first category was that university should design demo blended learning courses and present them to the faculty members (n=6).

The highest frequency for the second category, technical requirements, was that university needs to use an appropriate learning management system (n=66); and the lowest frequency for the second category was that faculty offices should be equipping with computers (n=19).

The highest frequency for the third category, required support, was that faculty need technical support in order to use blended learning (n=46); and the lowest frequency for the third category was that faculty achievements in using blended learning should be recognized by the university (n=11).

Finally, the highest frequency for the fourth category, student needs, was that university should provide free training courses for students about computer and its applications in order for them to be active in blended learning environment (n=56); and the lowest frequency for the third category was that university should provide enough computers in campus for students to use (n=27).

Table 36. Frequency of Faculty Responses to Required Support that Faculty Need to Use Blended Learning (N=204)

Categories	**Units**	**Frequency**	**Percent**
Professional Development for Faculty	Provide workshops on blended learning for faculty.	75	36.76
	Provide training courses about technology tools.	64	31.37
	Provide training sessions on the modern teaching methods.	56	27.45
	Continuous performance assessment.	18	8.82
	Distribution of brochures about blended learning.	9	4.41
	Design demo courses of blended learning.	6	2.94
Technological Requirements	Provide an appropriate learning management system (LMS).	66	32.35
	Enhance the technological infrastructure in classrooms.	58	28.43
	Provide high-speed Internet in campus and classrooms.	57	27.94
	Assisting faculty members to design their online materials.	47	23.04
	Equipping computer labs with the latest technological tools.	36	17.65
	Equipping faculty offices with computers.	19	9.31
Required Support	Technical support.	46	22.55
	Financial support.	29	14.22
	Administrative support.	21	10.29
	Work recognition.	11	5.39
Students Needs	Provide free training courses for students about computer and its applications.	56	27.45
	Provide workshops on blended learning for students.	46	22.55
	Provide enough computers in campus for students to use.	27	13.24

Question Three: *What are some of the challenges that you encountered before and during your blended teaching experience?*

This question asked about the challenges that encountered faculty before and during their blended learning experience. Participants' responses to this question were divided into 2 categories and 25 units.

The two categories of participants' responses to this question were:

1. Teaching Challenges.
2. Technical Challenges.

As shown in Table 37, the highest frequency for the first category, teaching challenges, was that designing online materials in blended learning courses was difficult (n=32); and the lowest frequency for the first category was that taking student attendance was difficult in blended learning courses (n=2).

The highest frequency for the second category, technical challenges, was that there was a lack of the technical support provided to faculty members (n=41); and the lowest frequency for the second category was that computers crash during face-to-face lectures frequently (n=3).

Table 37. Frequency of Faculty Responses to Challenges that Encountered Faculty before and during their Blended Learning Experience (N=184)

Categories	Units	Frequency	Percent
Teaching Challenges	Difficulty in the preparation of the online materials.	32	17.39
	Difficulty in persuading students to communicate through participation in online discussion thread.	21	11.41
	The difficulty of encouraging students to stay active through online activities.	18	9.78
	Increase the teaching load for instructors.	17	9.24
	Lack of experience with modern educational technologies.	13	7.07
	Lack of students' experience in the use of computer.	11	5.98
	Increase students' awareness about blended learning.	7	3.80
	Ensure the interactions between students during online activities.	6	3.26
	Ensure the students' attention during face-to-face lectures.	5	2.72
	Keeping up with the tremendous development in new technologies.	4	2.17
	Difficulty in evaluating student performance.	3	1.63
	Lack of students' motivation to the use of blended learning.	3	1.63
	The difficulty of taking student attendance.	2	1.09
Technical Challenges	Lack of the technical support.	41	22.28
	Frequent breakdowns of the learning management system.	39	21.20
	Internet is not available to all students and teachers at home.	34	18.48
	Computer is not available to all students and teachers at home.	33	17.93
	Lack of the assistance to design online materials.	28	15.22
	Lack of the periodic maintenance for equipments.	18	9.78
	Low-speed Internet provided in campus.	16	8.70
	Lack of the technological infrastructure in the classrooms.	7	3.80
	Lack of the number of computer labs throughout the campus.	5	2.72
	Technical problems in the classroom such as lost of Internet connection.	4	2.17
	Frequent computers crashes during face-to-face lectures.	3	1.63

Chapter Summary

The purpose of this study was to investigate the factors that affect faculty attitudes toward the adoption of technology-rich blended learning at Jazan University in Saudi Arabia. This chapter presents the results of the statistical analyses of the data collected in the study from 303

male and female faculty members at Jazan University. This chapter covered descriptive statistics of the data, description of population and sampling, reliability analyses, research questions, results of open-ended questions, and chapter summary. Chapter Five discusses the findings obtained from the research questions results. The limitations and implications of the current research study, and recommendations for future research are provided.

CHAPTER V

DISCUSSION

Introduction

This chapter presents the purpose of study, description of participants, review of the research hypotheses, and discussion of the findings obtained from the research questions. The chapter also presents the limitations of the study, implications of the major findings, conclusions, and recommendations for future research.

Purpose of the Study

The main purpose of the current study was to investigate the factors that affect faculty attitudes toward the adoption of technology-rich blended learning at Jazan University, in Saudi Arabia. This study also examined some barriers that might negatively affect the adoption of blended learning at Jazan University, and some incentives of blended learning as factors that positively affect in the adoption. Several related educational technologies were examined in this study to test the level of experience that faculty at Jazan University have had with the most current popular technologies in the educational field. The research was conducted to answer the following research questions:

1. What are the faculty attitudes toward adoption of technology-rich blended learning at Jazan University?
2. What are the main barriers that might affect the adoption of technology-rich blended learning at Jazan University?
3. What are the main incentives that might encourage faculty to adopt technology-rich blended learning at Jazan University?

4. Is there a difference between faculty male and female in:
    a) Their attitudes toward blended learning?
    b) The barriers they encountered?
    c) Their experience with educational technologies?
5. Does experience in using educational technology predict faculty attitudes toward adoption of technology-rich blended learning at Jazan University?
6. How well do specific demographic variables (gender, age, years of teaching experience, academic major, academic rank, graduation country, years of using computers, years of using Internet, access to computers at school, previous experience with blended learning, number of courses taught in a blended learning environment, and level of computer skills) predict faculty attitudes toward adoption of technology-rich blended learning at Jazan University?

Research Hypotheses

The following hypotheses were generated in order to test the above research questions:

H_1. Faculty members at Jazan University will have positive attitudes toward the adoption of technology-rich blended learning.

H_2. There are some barriers that might affect the adoption of technology-rich blended learning at Jazan University.

H_3. There are some incentives that might affect adoption of technology-rich blended learning at Jazan University.

H_4. There is a significant difference between male and female faculty at Jazan University in:

a. Their attitudes toward blended learning.

b. The barriers they have encountered.

c. Their experience with educational technologies.

H_5. The experience of using educational technology will predict more positive faculty attitudes toward the adoption of technology-rich blended learning at Jazan University.

H_6. The selected demographic variables (gender, age, years of teaching experience, academic major, academic rank, graduation country, years of using computers, years of using Internet, access to computers at school, previous experience with blended learning, number of courses taught in a blended learning environment, and level of computer skills) will predict faculty attitudes toward the adoption of technology-rich blended learning at Jazan University.

Participants

The participants in this study were faculty members at Jazan University, in Saudi Arabia. Both male and female faculty members participated in this study. The total sample size for the study was 303 participants from 16 colleges that selected by the researcher. In this study, there were 234 male participants who represented 77.2% of the total participants, and 69 female participants who represented 22.8% of the total participants.

The data collected consisted of participants' responses to a survey that was specifically designed for this study (See Appendices E and G). There were two types of questions on the survey; close-ended questions and open-ended questions. The questionnaire packet was expected

to take approximately 20 minutes to complete. The survey consisted of 57 items distributed in six parts. The following are the survey sections and includes the number of survey items for each section:

I. Demographic information. (13 items)

II. Experience with educational technologies. (10 items)

III. Faculty attitudes toward blended learning. (11 items)

IV. Barriers that might affect the adoption of blended learning. (12 items)

V. Incentives of blended learning. (8 items)

VI. Open-ended questions. (3 items)

Discussion of Research Questions Findings

Research Question One

What are the faculty attitudes toward adoption of technology-rich blended learning at Jazan University?

Participants were asked, in the third part of the survey, to rate their degree of agreement with 11 statements to determine their attitudes toward the adoption of technology-rich blended learning. Table 24 in Chapter 4 presented the descriptive statistics for these 11 attitudes items in this third section of the survey.

As seen from the responses of the participants, the overall attitudes of faculty members toward the adoption of technology-rich blended learning at Jazan University was positive with a mean of 3.94 (SD= 0.91). This is consistent with the findings from Oh and Park (2009) who found that faculty in the higher education generally have positive attitudes toward blended

instruction, and that they perceive that blended instruction improves the quality of their instruction.

Faculty responses in this scale ranged from 3.45 to 4.14, which indicated positive attitudes based on the Likert scale. The items that demonstrated the highest ratings on the scale were items number 3, 9, and 11 each with a mean of 4.14 for all three items; while the means from the other 8 attitudes items ranged from 3.45 to 4.10.

Item 3, "Blended learning helps students to learn in a convenient way," rendered a mean of 4.14 (SD= 0.80). This reflects that faculty members at Jazan University believe that blended learning helps students to learn in a convenient way. Moreover, faculty members at Jazan University have positive attitudes toward adoption of technology-rich blended learning as reported for item 9, "In the last three years, my attitude toward blended learning has become more positive" (M= 4.14, SD= 0.86). Accordingly, faculty members at Jazan University were willing to adopt blended learning in their courses and they asked to increase the numbers of blended learning courses offering by Jazan University as reported for item 11, "Your campus should increase the number of blended offerings," rendered a mean of 4.14 (SD= 0.87).

The findings also showed that faculty members at Jazan University want to teach a class through blended learning means as reported for item 4, "I am interested in implementing blended learning for my courses" (M=3.95, SD=1.22). However, some faculty members believe that the technological infrastructure at Jazan University was ready to implement blended learning as reported for item 6, " Technological infrastructure on my campus is ready to implement blended learning" (M= 3.45, SD= 1.07).

Research Question Two

What are the main barriers that might affect the adoption of technology-rich blended learning at Jazan University?

Participants were asked to rate their degree of agreement with 12 statements, which represented the major barriers that might affect the adoption of technology-rich blended learning. Table 25 in Chapter 4 presented the descriptive statistics for the 12 barrier items in this fourth section of the survey.

Faculty responses in this scale ranged from 2.00 to 3.22. The responses of the participants regarding the overall barriers that faculty at Jazan University have had to adopt technology-rich blended learning were positive and moderate (M=2.58, SD=1.33). The item that demonstrated the highest rating on the scale was item number 3 with a mean of 3.22; while the means from the other 11 barriers items ranged from 2.00 to 3.01.

The results show that faculty members at Jazan University haven't had enough technical training as reported for item 3, "I don't have enough technical training" (M=3.22, SD=1.06), and this seems to be perceived as the main barrier that affects the adoption of blended learning at Jazan University. This reflects that faculty members at Jazan University need more training about the integration of technology into the classrooms. They need training regarding computer literacy, as well as the best ways to adopt blended learning.

This result was also supported by participants' responses to open-ended-questions. Many of the participants asked to have more training programs provided by the university in order to keep current with the modern technologies and teaching methods. This is also consistent with the findings from Al-Sarrani (2010) who concluded that 86% of the participants, faculty members, either agreed or strongly agreed that they needed more training in teaching strategies that

integrated technology, and they are willing to improve their technology skills if they receive proper professional development and technical support.

Moreover, some faculty members haven't had enough technical support as reported for item 2, "I don't have enough technical support" (M= 3.01, SD= 1.27), and seems to be perceived as the second largest barrier. The findings also showed that many students at Jazan University don't have enough experience with computer as reported for item 10, "My students don't have enough technology experience" (M= 2.87, SD=1.26).

Research Question Three

What are the main incentives that might encourage faculty to adopt technology-rich blended learning at Jazan University?

Participants were asked to rate their degree of agreement with 8 statements, which represented the major incentives that might encourage the adoption of technology-rich blended learning at Jazan University. Table 26 in Chapter 4 presented the descriptive statistics for these 8 incentives items from this fifth section of the survey.

Participants' responses indicated that the overall incentives of the adoption of technology-rich blended learning at Jazan University were positive (M=3.96, SD= 0.84). The item that demonstrated the highest rating on the scale was item number 8 with mean of 4.33, while the means from the other 7 incentives items ranged from 3.44 to 4.24.

Faculty members at Jazan University believe that blended learning will help them to improve their skills with computers and other technologies, as well as the skills of their students as reported for item 8, "Blended learning improves students and instructors technological skills" (M=4.33, SD= 0.71), and this seems to be perceived as the largest incentive.

Item 4, “Blended learning gives students more media resources (e.g. audios, videos, etc.),” rendered a mean of 4.24 (SD= 0.75), and seems to be the second largest incentive. This reflects that faculty members at Jazan University believe in the importance of blended learning and the advantages that students can gain from it. Rose and Ray (2011) mentioned, “Blended learning allows all the learning channels of the face-to-face experience to be compounded with rich media, as well as facilitating new channels that require or make use of both platforms” (p. 233).

Moreover, faculty members at Jazan University believe that blended learning accommodates different types of students as reported for item 5, “Blended learning accommodates different types of students “ (M=3.44, SD= 0.99). Singh and Reed (2001) mentioned that blended learning focuses on optimizing achievement of learning objectives by applying the “right” learning technologies to match the “right” personal learning style to transfer the “right” skills to the “right” person at the “right” time.

Research Question Four

Is there a difference between male and female faculty in:

a. Their attitudes toward blended learning?
b. The barriers they have encountered?
c. Their experience with educational technologies?

An independent samples *t*-test was conducted to examine the gender differences regarding the three subscales of attitudes, barriers, and experience with educational technology. The statistical results for these results were displayed in Table 27 in Chapter 4.

The difference in male and female faculty attitudes towards the adoption of technology-rich blended learning was not statistically significant, with t (301) =. 21, p= 0.835. The mean of the overall attitudes for male faculty members was 3.94 with SD= 0.59; while the mean of the overall attitudes for female faculty members was 3.92 with SD= 0.49. This indicates that both male and female faculty members at Jazan University have positive attitudes the adoption of technology-rich blended learning. This is not consistent with the finding from a study conducted in the United States by Brooks (2009) that concluded that female faculty had more positive attitudes toward blended online learning than did male faculty. This is might due to cultural differences or the amount of support provided to male and female faculty members.

The difference in the barriers that male and female faculty have encountered was statistically significant, with t (301) = -4, 43, $p < .05$. The mean of the overall barriers that male faculty members have encountered was 2.49 with SD= 0.65; while the mean of the overall barriers that female faculty members have encountered was 2.88 with SD= 0.57. This means that female faculty members at Jazan University have encountered more barriers than male faculty members in their adoption of blended learning. This is might due to less technical support provided to female faculty members. They might receive inadequate technical support because of the difficulties of contacting technical support teams since most of them are male.

The difference in male and female faculty experience with using educational technologies was statistically significant, with t (301) = 3.76, $p < .05$. The mean of the overall male faculty experience in using educational technology was 3.95 with SD= 0.77; while the mean of the overall female faculty experience in using educational technology was 3.54 with SD= 0.87. This means that male faculty members at Jazan University have had more experience with educational technologies than have female faculty members. This is consistent with the finding from Spotts,

Bowman, & Mertz (1997) who concluded that male faculty members rated their knowledge and experience with some innovative technologies higher than did female faculty members.

Research Question Five

Does experience in using educational technology predict faculty attitudes toward adoption of technology-rich blended learning at Jazan University?

Research question five examined whether faculty attitudes toward the adoption of technology-rich blended learning at Jazan University could be predicted by the faculty level of experience with using educational technologies. A simple linear regression analysis was conducted to evaluate the prediction of the overall faculty attitudes toward the adoption of technology- rich blended learning at Jazan University from the overall faculty's experience with using educational technologies. The overall mean for the 10 items regarding experience with educational technologies was 3.86 with SD=1.11, while the overall mean for the 11 items regarding faculty attitudes toward the adoption of technology-rich blended learning at Jazan University was 3.94 with SD= 0.91.

The results showed that the overall regression model was statistically significant, with $F(1,301) = 32.55$, $p < .05$. The single predictor in the model, level of experience using technology, produced a standardized beta coefficient of 0.31. The effect size or R^2 was 0.10, which indicates that approximately 10% of the variance in faculty's attitudes toward the adoption of technology-rich blended learning at Jazan University is explained by their overall experience with using educational technologies. This is consistent with the finding from Brooks (2009) who concluded that faculty members with more positive perceptions of educational technology also tended to have positive attitudes toward blended learning environments.

The standardized beta coefficient was 0.31, which means that as the mean for the 10 items of experience with educational technologies items increases by one unit, the mean of the 11 faculty attitudes items increases by 0.31.

Research Question Six

How well do specific demographic variables (gender, age, years of teaching experience, academic major, academic rank, graduation country, years of using computers, years of using Internet, access to computers at school, previous experience with blended learning, number of courses taught in a blended learning environment, and level of computer skills) predict faculty attitudes toward the adoption of technology-rich blended learning at Jazan University?

A multiple regression analysis was conducted to evaluate how well 12 demographic variables (gender, age, years of teaching experience, academic major, academic rank, graduation country, years of using computer, years of using Internet, access to computer at school, previous experience with blended learning, number of courses taught in a blended learning environment, and level of computer skills) could predict the overall faculty attitudes toward the adoption of technology-rich blended learning at Jazan University.

The linear combination of the 12 demographic variables was significantly related to the overall faculty attitudes toward adoption of technology-rich blended learning at Jazan University, with F (12, 290) = 3.12, $p < .05$.

The sample multiple correlation coefficient was R= .34, and the effect size for the overall regression analysis was R^2= 0.11 indicating that approximately 11% of the variance of faculty attitudes toward the adoption of technology-rich blended learning can be accounted for by the linear combination of the 12 demographic variables.

The results showed that only two of the twelve predictors, academic rank with a standardized beta coefficient of .15 (p= .03) and having an office computer with beta= -.13 (p= .02), were significant predictors in the model. Accordingly, the *p*-values for other independent variables (demographic predictors) were larger than .05, which means that the rest selected demographic variables were not significant predictors of faculty attitudes toward the adoption of technology-rich blended learning at Jazan University. This finding supports Brooks (2009) who found that demographic characteristics were not related to faculty attitudes toward blended learning, except for faculty gender with females having significantly more positive attitudes than males. However, faculty gender, in the current study, did not predict attitudes toward the adoption of technology-rich blended learning.

Additional Findings

In addition to the research questions of this study, the researcher added two additional questions based on the preliminary findings of the study. These questions are as follows:

1. Is there a significant relationship between faculty attitudes toward the adoption of technology-rich blended learning at Jazan University and the barriers to the adoption of technology-rich blended learning that they have encountered?
2. Is there a significant relationship between faculty attitudes toward the adoption of technology-rich blended learning at Jazan University and the incentives of the adoption of blended learning?

To test the relationship between faculty attitudes toward the adoption of technology-rich blended learning at Jazan University and the two factors listed above, correlation coefficients were used.

Pearson correlation coefficients were computed to reveal the relationship between the overall faculty attitudes toward the adoption of technology-rich blended learning at Jazan University and the overall barriers to the adoption of blended learning that they have encountered. The results showed that faculty attitudes toward the adoption of technology-rich blended learning at Jazan University were significantly correlated to the overall barriers to the adoption of blended learning that faculty members at Jazan University have encountered with $r = -.30$, $p < .05$. This means that the correlation between the independent and dependent variables was negative. Therefore, if faculty members at Jazan University had no barriers to the adoption of technology-rich blended learning, their attitudes toward the adoption of technology-rich blended learning will be more positive and vice versa.

Pearson correlation coefficients were also computed to reveal the relationship between the overall faculty attitudes toward the adoption of technology-rich blended learning at Jazan University and the overall incentives of the adoption of technology-rich blended learning. The results showed that faculty attitudes toward the adoption of technology-rich blended learning at Jazan University were significantly correlated to the overall incentives of the adoption of technology-rich blended learning with $r = .72$, $p < .05$. This means that the correlation between the independent and dependent variables was positive. Therefore, if faculty members at Jazan University had no incentives to adopt technology-rich blended learning, their attitudes toward the adoption of technology-rich blended learning would be more negative and if they had more incentives, their attitudes would be more positive.

Qualitative Measures

Participants were asked to respond to three open-ended questions in the last part of the survey. Most of the participants (219) who represented 72% of total participants responded to these questions, and 84 participants who represented 28% of total participants didn't respond at all to these three questions. The qualitative data were analyzed and coded by using content analysis. Through the analysis process themes, patterns, and categories were identified to bring meaning to participants' responses.

First Open-Ended Question

What encourages you to use blended learning?

This question asked about the factors that might encourage faculty to use blended learning. Participants' responses to this question were divided into 3 categories and 28 units. The three categories are as follows:

1. External Encouragement.
2. Attitudes toward Blended Learning.
3. Benefits of Blended Learning.

The results showed that the highest frequency (n=27) for the first category, external encouragement, was that faculty members were encouraged by their administrators to use blended learning; and the lowest frequency (n=12) for the first category was that faculty's previous experiences as a student using blended learning positively affect their attitudes toward blended learning.

The highest frequency (n=33) for the second category, attitudes toward blended learning, was that blended learning supports collaborative learning; and the lowest frequency (n=4) for the

second category was that faculty members were encouraged to use blended learning because it is a new trend in education.

The highest frequency (n=26) for the third category, benefits of blended learning, was that blended learning helps instructors to easily deliver the information to the students; and the lowest frequency (n=3) for the third category was that blended learning helps to overcome place restrictions.

Second Open-Ended Question

What support would you like to have had before and during your blended teaching experience?

Participants were asked to report the required support that faculty need to use blended learning. Participants' responses to this question were divided into 4 categories and 19 units. The four categories are as follows:

1. Professional Development for Faculty.
2. Technological Requirements.
3. Required Support.
4. Students Needs.

The results showed that the highest frequency (n=75) for the first category, professional development, was that university needs to provide faculty members with workshops on blended learning; and the lowest frequency (n=6) for the first category was that university should design demo blended learning classes and present them to the faculty members.

The highest frequency (n=66) for the second category, technical requirements, was that university needs to use an appropriate learning management system (LMS); and the lowest

frequency (n=19) for the second category was that faculty offices should be equipping with computers.

The highest frequency (n=46) for the third category, required support, was that faculty need technical support in order to use blended learning; and the lowest frequency (n=11) for the third category was that faculty achievements in using blended learning should be recognized by the university.

The highest frequency (n=56) for the fourth category, student needs, was that the university should provide free training courses for students about computers and their applications in order for them to be active in blended learning environment; and the lowest frequency (n=27) for the third category was that university should provide enough computers in campus for students to use.

Third Open-Ended Question

What are some of the challenges that you encountered before and after your blended teaching experience?

This question asked about the challenges that encountered faculty before and during their blended learning experience. Participants' responses to this question were divided into 2 categories and 25 units. The two categories are as follows:

1. Teaching Challenges.
2. Technical Challenges.

The results showed that the highest frequency (n=32) for the first category, teaching challenges, was that designing online materials in blended learning courses was difficult; and the

lowest frequency (n=2) for the first category was that taking student attendance was difficult in blended learning courses.

The highest frequency (n=41) for the second category, technical challenges, was that there was a lack of the technical support provided to faculty members; and the lowest frequency (n=3) for the second category was that computers crashes during face-to-face lectures frequently.

Limitations of the Study

The current study has a number of limitations that should be considered in future related studies. These limitations either relate to threats of internal validity of the conclusions from this study or to threats of external validity of the findings from this study. The following is a description of these limitations:

1. The current study was conducted only at one university in Saudi Arabia; therefore, the findings of this study might be not generalizable to other related universities.
2. The current study relied on self- evaluations; therefore, the participants may not have responded honestly to the survey questions. Although, they were notified that the responses will remain anonymous and confidential.
3. The participants were selected based on who was willing to participate in the study. Therefore, the sample was not randomly selected.
4. There was a limitation in communication, since the researcher didn't have a chance to distribute the research surveys personally, especially in female colleges, although there were standardized instructions to be read prior to the administration of the survey.

5. The survey was distributed as a pencil- paper- survey and the administration procedures were managed by Jazan University.

Implications of the Major Findings

The main purpose of the current study was to investigate the factors that affect faculty attitudes toward the adoption of technology-rich blended learning at Jazan University, in Saudi Arabia. This study discovered some barriers that might negatively affect the adoption of blended learning, as well as some incentives or benefits of blended learning that positively affect the adoption of blended learning. In addition, several related educational technologies were examined to measure the level of experience that faculty at Jazan University have had with the most popular technologies in the educational field.

The findings of this study have implications for educational policy makers to choose an appropriate mechanism to adopt this type of learning at the college level by providing a clear vision about the feasibility of the implementation of blended learning and its effectiveness in higher education; particularly in the emerging universities such as Jazan University.

The results of this study will be of practical benefit for both educational administrators and faculty. These results indicated that faculty members at Jazan University have positive attitudes toward the adoption of technology-rich blended learning. However, providing more incentives to faculty members at Jazan University would reinforce faculty attitudes to remain positive. Administrators should encourage faculty to implement blended learning in their courses by developing the necessary technological infrastructure in the classrooms, such as providing high speed Internet and computers.

Also, faculty experience with using educational technologies was a significant predictor of faculty attitudes toward blended learning. Therefore, faculty members should be trained in order for them to keep current with the emerging educational technologies. This can be accomplished by providing training courses about technology tools such as training programs about some important software and/or hardware. In addition, providing workshops on blended learning for faculty members is much needed to encourage them to be familiar with the modern teaching methods. Administrators should also consider the needs of students when implementing blended learning in any educational institution. For instance, they will need training programs on computers and blended learning.

Moreover, faculty and students need to have a technical support while they interact in the blended learning environment. Taking into account the negative impact of all the barriers that might affect the adoption of technology-rich blended learning can help to enable the implementation process to be more effective at Jazan University.

Recommendations

Based on the results of this study, several recommendations are offered by the researcher:

1. Encourage faculty members to improve their technological skills by attending relevant conferences and workshops, which will help them to develop their teaching proficiency.
2. Establish a center for E-learning in each college so that it is linked to the Deanship of Distance Learning. These centers will be responsible for assisting faculty members to design their blended learning courses and to transfer their materials to the online environment.

3. Develop the technological infrastructure in the classrooms to prepare them for blended learning courses.
4. Equipping faculty offices with computers, high-speed Internet, printers, and scanners.
5. Increase the number of blended learning courses that offered by the university gradually.
6. Attract students' attention to be interactive in the blended learning environments by encouraging the collaborative learning so that students can interact positively whether in the classroom or online activities.
7. Upgrade study plans in all colleges to include several blended learning courses so that the awareness about blended learning and its benefits will evolve gradually.
8. Provide an appropriate Learning Management System (LMS) with adequate technical support.
9. Provide free workshops and training programs for faculty on blended learning and the modern teaching methods.
10. Equipping computer labs in all colleges with the latest technological tools such as computers, smart or interactive boards, data show, document cameras, big LED screens, and video conferencing cameras.
11. Encourage students to improve their technological skills by providing free training sessions about computers and their applications.
12. Provide enough computers on campus for students to use whether in the libraries or in computer labs.
13. Distribute brochures about blended learning and other learning approaches along with the academic admissions to attract the attention of the students toward blended learning from the first day of their classes at the university.

14. Educate students, during orientation week, about the teaching methods used at Jazan University, which include blended learning as an effective learning approach.
15. Design demo courses of blended learning to give faculty members and students a clear picture about blended learning in general, and its advantages in particular.

Suggestions for Future Research

Based on the results of this study, several suggestions are offered by the researcher for future research:

1. It is recommended that this study should be replicated at other Saudi universities to investigate the factors that might affect faculty attitudes toward the adoption of technology-rich blended learning comprehensively and to examine the relationships between faculty attitudes toward blended learning and their demographic information.
2. It is recommended that this study should be conducted to include other parties in the educational process (i.e., students and administrators). This study was conducted to investigate the factors that might affect faculty attitudes regarding the adoption of technology-rich blended learning at Jazan University. However, other studies might include students and administrators in order to conduct a comparative study to investigate any differences between administrators, faculty, and students in their attitudes toward blended learning.
3. It is recommended that this study should be replicated to include a large number of female faculty members to get a clear vision about the attitudes toward blended learning of female faculty members.

4. It is recommended that this study should be conducted as a comparative study to find out if there are any differences between faculty attitudes toward blended learning at Jazan University and the attitudes of faculty at any other university in Saudi Arabia.
5. It is recommended that future studies should combine a large qualitative component with the quantitative component. Although, the current study was conducted as a mixed method research study, the use of qualitative analysis was to support the quantitative results. The qualitative analysis depended on participants' responses to only three open-ended questions about their attitudes toward blended learning, the support that they need, and the challenges that they encountered when they implemented blended learning in their courses.
6. It is recommended for future studies to be conducted as longitudinal research to detect changes in the characteristics of the participants by collecting data from the same subjects over time. Although the current study was conducted as a cross-sectional study to compare many different variables at a single point in time, conducting a longitudinal study would enable researchers to track changes in faculty attitudes toward blended learning over time.
7. It is recommended for future studies to look at the best methods to implement Cultural-Historical Activity Theory (CHAT) in Saudi Universities along with the diffusion of innovations model. This will enable for not only the designers' innovations, which basically relies on linear innovations, but also for users' innovations as well.

Conclusions

The main purpose of this study was to investigate factors that affect faculty attitudes toward the adoption of technology-rich blended learning at Jazan University, in Saudi Arabia. In addition, the study also discovered some barriers that might prevent the adoption of blended learning, and some incentives of blended learning that could encourage the adoption of blended learning. Several related educational technologies were examined in this study to measure the level of experience that faculty at Jazan University have had with the most popular technologies in the educational field.

The current study was conducted at Jazan University, in Saudi Arabia in the spring of 2012. The participants in this study were male and female faculty members at Jazan University. The sample size of this study was 303 participants. There were 234 male participants who represented 77.2% of the total participants, and 69 female participants who represented 22.8% of the total participants.

Based on the results of this study, the conclusions can be stated as follows:

1- Faculty members at Jazan University have positive attitudes toward blended learning (M=3.94, SD=0.91). The three major findings derived from participants' responses were that faculty members at Jazan University believe that blended learning helps students to learn in a convenient way (M=4.14, SD=0.80), the positive attitudes that faculty members at Jazan University have had in the last three years (M= 4.14, SD= 0.86), and the need of increasing the number of blended offerings by Jazan University (M=4.14, SD=0.87).

2- Faculty did perceive that there were some barriers that prevent the adoption of blended learning at Jazan University (M=2.58, SD=1.33). The two major barriers

derived from participants' responses were the lack of technical training programs provided to faculty members by the university (M=3.22, SD=1.06) and the lack of technical support offered by the university (M=3.01, SD=1.27).

3- The incentives of blended learning were very important for adopting blended learning at Jazan University (M=3.96, SD= 0.84). The two major incentives derived from participants' responses were that faculty members at Jazan University believe that blended learning will help them to improve their skills with computers and other technologies, as well as the skills of their students (M=4.33, SD= 0.71) and that faculty members at Jazan University believe in the importance of blended learning and the advantages that students can gain from it because it gives students more media resources such as audios, videos, etc. (M=4.24, SD= 0.75).

4- There were no statistically significant differences between male and female faculty members at Jazan University in their attitudes toward blended learning, with t (301) = 0.21, p= 0.83. Both male and female faculty members have positive attitudes toward blended learning. The mean of attitudes for male faculty was 3.94 with SD= 0.59; while the mean of attitudes for female faculty was 3.92 with SD= 0.49.

5- There was a significant difference between male and female faculty members at Jazan University in the barriers that they have encountered when implementing blended learning, with t (301) = -4.43, p<.05. Female faculty members encountered more barriers to adopting blended learning than have male faculty members. The mean of barriers that male faculty members have encountered was 2.49 with SD= 0.65; while the mean of barriers that female faculty members have encountered was 2.88 with SD= 0.57.

6- The difference between male and female faculty members at Jazan University in their experience with educational technologies was significant, with t (301) = 3.76, $p<.05$. Male faculty members have more experience in using popular educational technologies than do female faculty members. The mean of male faculty experience in using educational technologies was 3.95 with SD= 0.77; while the mean of female faculty experience in using educational technology was 3.54 with SD= 0.87.

7- Faculty experience with educational technologies was a significant predictor of their attitudes toward the adoption of technology-rich blended learning at Jazan University, with F (1,301) = 32.55, p <.05 and a standardized beta coefficient of 0.31. The effect size of the overall regression analysis was $R^2 = 0.10$, which indicates that approximately 10% of the variance in faculty's attitudes toward blended learning can be explained by their overall experience with educational technologies.

8- Only two of the twelve selected faculty demographic variables, academic rank with a standardized beta coefficient of .15 (p= .03) and having an office computer with beta coefficient of = -.13 (p= .02), were significant predictors of faculty attitudes toward the adoption of technology-rich blended learning at Jazan University.

9- There was a significant correlation between the overall faculty attitudes toward the adoption of technology-rich blended learning at Jazan University and the overall barriers that they have encountered, with r = -.30, $p<.05$. This correlation was negative. Therefore, if faculty members at Jazan University had no barriers to the adoption of technology-rich blended learning, their attitudes toward the adoption of technology-rich blended learning will be more positive and vice versa.

10- There was a significant correlation between the overall faculty attitudes toward the adoption of technology-rich blended learning at Jazan University and the overall incentives of blended learning, with $r = .72$, $p<.05$. This correlation was positive. Therefore, if faculty members at Jazan University had no incentives to adopt blended learning, their attitudes toward the adoption of technology-rich blended learning would be more negative, and if they had more incentives, their attitudes will be more positive.

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APPENDICES

Appendix (A) – Requesting a Permission to Use Brooks Survey Instrument

-----Original Message-----
From: Moukali, Khalid Hussain Khalawi [mailto:moukali@ku.edu]
Sent: Friday, October 07, 2011 1:44 AM
To: Lori Brooks [[redacted]]
Subject: Asking for your permission to use survey

Dear Dr. Lori Brooks,

My name is Khalid Moukali, a PhD candidate at The University of Kansas, College of Education. I would like to take your permission to use your dissertation survey that titled "An Analysis of Factors that Affect Faculty Attitudes Toward a Blended Learning Environment" for my dissertation survey. I might use the entire survey or part of it. Also, I might modify it or combine it with other surveys to meet my research objectives.

Thank you in advance.

Best Regards,

Khalid Moukali
Department of Educational Leadership and Policy Studies
College of Education
University of Kansas
moukali@ku.edu

Appendix (B) – Approval on Using Survey Instrument

-----Original Message-----
From: Lori Brooks [redacted]
Sent: Friday, October 07, 2011 9:50 AM
To: 'Moukali, Khalid Hussain Khalawi'
Subject: RE: Asking for your permission to use survey

Mr. Moukali,

You have my permission to the survey instrument in my published dissertation. Good luck to you.

Lori Brooks, PhD
Strayer University

-----Original Message-----
From: Moukali, Khalid Hussain Khalawi [mailto:moukali@ku.edu]
Sent: Friday, October 07, 2011 1:44 AM
To: Lori Brooks [redacted]
Subject: Asking for your permission to use survey

Dear Dr. Lori Brooks,

My name is Khalid Moukali, a PhD candidate at The University of Kansas, College of Education. I would like to take your permission to use your dissertation survey that titled "An Analysis of Factors that Affect Faculty Attitudes Toward a Blended Learning Environment" for my dissertation survey. I might use the entire survey or part of it. Also, I might modify it or combine it with other surveys to meet my research objectives.

Thank you in advance.

Best Regards,

Khalid Moukali
Department of Educational Leadership and Policy Studies
College of Education
University of Kansas
moukali@ku.edu

Appendix (C) – Human Subjects Committee Approval

KU RESEARCH & GRADUATE STUDIES
The University of Kansas

11/23/2011
HSCL #19748

Khalid Moukali
2756 Grand Cir
Lawrence, KS 66047

The Human Subjects Committee Lawrence reviewed your research update application for project

19748 Moukali / Aust (C & T) Factors that Affect Saudi Faculty and Administrator's Attitudes Toward Adoption of Technology-Rich Blended Learning

and approved this project under the expedited procedure provided in 45 CFR 46.110 (f) (7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factorsevaluation, or quality assurance methodologies. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

Since your research presents no risk to participants and involves no procedures for which written consent is normally required outside of the research context HSCL may waive the requirement for a signed consent form (45 CFR 46.117 (c) (2). Your information statement meets HSCL requirements. The Office for Human Research Protections requires that your information statement must include the note of HSCL approval and expiration date, which has been entered on the form sent back to you with this approval.

1. At designated intervals until the project is completed, a Project Status Report must be returned to the HSCL office.
2. Any significant change in the experimental procedure as described should be reviewed by this Committee prior to altering the project.
3. Notify HSCL about any new investigators not named in original application. Note that new investigators must take the online tutorial at http://www.rcr.ku.edu/hscl/hsp_tutorial/000.shtml.
4. Any injury to a subject because of the research procedure must be reported to the Committee immediately.
5. When signed consent documents are required, the primary investigator must retain the signed consent documents for at least three years past completion of the research activity. If you use a signed consent form, provide a copy of the consent form to subjects at the time of consent.
6. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.

Please inform HSCL when this project is terminated. You must also provide HSCL with an annual status report to maintain HSCL approval. Unless renewed, approval lapses one year after approval date. If your project receives funding which requests an annual update approval, you must request this from HSCL one month prior to the annual update. Thanks for your cooperation. If you have any questions, please contact me.

Sincerely,

Jan Butin
HSCL Interim Coordinator

cc: Ronald Aust

Human Subjects Committee Lawrence
Youngberg Hall | 2385 Irving Hill Road | Lawrence, KS 66045 | (785) 864-7429 | Fax (785) 864-5049 | www.rcr.ku.edu/hscl

Appendix (D) – Consent Form in English

Factors that Affect Faculty Attitudes Toward Adoption of Technology-Rich Blended Learning

Approved by the Human Subjects Committee University of Kansas, Lawrence Campus (HSCL). Approval expires one year from 11/23/2011. HSCL #19748

CONSENT STATEMENT

Dear Colleague,

The Department of Educational Leadership and Policy Studies at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time without penalty.

This study is conducted to investigate the factors that affect faculty attitudes toward adoption of technology-rich Blended Learning at Jazan University in the Kingdom of Saudi Arabia. This study will help me to complete the requirements of my doctoral dissertation research. This will entail your completion of a questionnaire. The questionnaire packet is expected to take approximately 20 minutes to complete.

The content of the questionnaires should cause no more discomfort than you would experience in your everyday life. Although participation may not benefit you directly, we believe that the information obtained from this study will help us gain a better understanding of Factors that Affect Faculty Attitudes toward Adoption of Technology-Rich Blended Learning at Jazan University. Your participation is solicited, although strictly voluntary. Your name will not be associated in any way with the research findings. Completion of the survey indicates your willingness to participate in this study and that you are a faculty member at Jazan University.

If you would like additional information concerning this study or your participation, please feel free to contact the principal investigator or the faculty Supervisor. Thank you for your precious time that you spent to complete this survey and we appreciate your participation in this study.

Sincerely,

Khalid Moukali
Principal Investigator
College of Education
University of Kansas
moukali@ku.edu
kmoukali@jazanu.edu.sa

Ronald Aust, Ph.D.
Faculty Supervisor
College of Education
University of Kansas
aust@ku.edu

Appendix (E) – English Survey

The term blended learning is the key element of this research. For the purpose of the study, blended learning is defined as a learning system combining face-to-face instruction with technology-mediated instruction.

Part I: Demographic Information

Please fill out or place a check mark beside the appropriate entry of each of the following items:

1- What is your gender? □ Male □ Female

2- What is your age? _____ Years.

3- How many years have you been in teaching? _____ years

4- In which department do you teach? _____

5- What is your major? _____

6- My academic rank is:

□ Professor. □ Associate Professor.

□ Assistant Professor. □ Lecturer.

□ Teaching Assistant. □ Other, Please specify: _____

7- I have recieved my highest acadmic degree from:

□ United States. □ Canada.

□ United Kingdom. □ Australia.

□ Arab country, Please specify: _____ □ Other, Please specify: _____

8- For how many years have you used a computer? _____ years

9- For how many years have you used the Internet? _____ years

10- Do you have a computer in your school office? □ Yes □ No

11- What is your previous personal experience with blended learning?

- □ No previous experience with blended learning.
- □ Previous experience as a student.
- □ Previous experience as an instructor.
- □ Indicated both experience as a student and instructor.

12- How many courses have you taught in a blended learning environment?

- □ Have not taught a blended course yet.
- □ One blended course.
- □ Two blended courses.
- □ Three blended courses.
- □ Four blended courses.
- □ Five or more blended courses.

13- In a scale from 1 to 10, rate your level of experience in computer usage:

Poor 1 2 3 4 5 6 7 8 9 10 Excellent

<u>Part II:</u> Experience with Educational Technologies

How good are you at using these educational technologies? Rate these statements with the following scale:

1= No Experience; **2**= Poor; **3**= Average; **4**= Somewhat Good; **5**= Very good

Item	1	2	3	4	5
1. Learning Management Systems (e.g. Blackboard, Moodle, Jusur, etc.).					
2. Microsoft Office PowerPoint.					
3. Microsoft Office Word.					
4. E-mail programs (e.g. Microsoft Office Outlook, Gmail, Hotmail, Yahoo, etc.).					
5. Web search engines (e.g. Google, Yahoo, etc.).					
6. Electronic bulletin boards.					
7. Web page editors (e.g. HTML editor, Dreamweaver, etc.).					
8. Smart Board.					
9. Digital Video Camera.					
10. Scanner device.					

Part III: Attitudes toward Blended Learning

For each statement, please place a check mark (√) that indicates the extent to which you agree or disagree with the statement using the following rating scale:

SD= **S**trongly **D**isagree; **D**= **D**isagree; **N**= **N**eutral; **A**= **A**gree; **SA**= **S**trongly **A**gree

Item	SD	D	N	A	SA
1. Blended learning approach supports collaborative learning.					
2. Administrators believe that blended learning is important.					
3. Blended learning helps students to learn in a convenient way.					
4. I am interested in implementing blended learning for my courses.					
5. Blended learning enables administrators to manage the education on my campus.					
6. Technological infrastructure on my campus is ready to implement blended learning.					
7. Blended learning increases student achievement.					
8. Blended learning considers the differences in learning styles of students.					

9. In the last three years, my attitude toward blended learning has:

□ Become significantly more negative.
□ Become slightly more negative.
□ Remained about the same.
□ Become slightly more positive.
□ Become significantly more positive.

10. Would you prefer teaching a class through blended or traditional means?

□ I strongly prefer teaching via blended.
□ I slightly prefer teaching via blended.
□ I have no preference.
□ I slightly prefer teaching via traditional means.
□ I strongly prefer teaching via traditional means.

11. Your campus should:

- □ Significantly increase the number of blended offerings.
- □ Slightly increase the number of blended offerings.
- □ Maintain the current level of blended offerings.
- □ Slightly decrease the number of blended offerings.
- □ Significantly decrease the number of blended offerings.

Part IV: Barriers that Affect the Adoption of Blended Learning

For each statement, please place a check mark (√) that indicates the extent to which you agree or disagree with the statement using the following rating scale:

SD= **S**trongly **D**isagree; **D**= **D**isagree; **N**= **N**eutral; **A**= **A**gree; **SA**= **S**trongly **A**gree

Item	SD	D	N	A	SA
1. I don't have enough technology experience.					
2. I don't have enough technical support.					
3. I don't have enough technical training.					
4. Internet is not available on my campus					
5. Computers are not available on my campus.					
6. Blended learning increases my workload.					
7. My colleagues don't like blended learning.					
8. Blended learning reduces my contact with students.					
9. My campus uses a poor learning management system (LMS).					
10. My students don’t have enough technology experience.					
11. My students don’t have computers at home.					
12. My students don’t have internet at home.					

Part V: Incentives of Blended Learning

For each statement, please place a check mark (√) that indicates the extent to which you agree or disagree with the statement using the following rating scale:

SD= **S**trongly **D**isagree; **D**= **D**isagree; **N**= **N**eutral; **A**= **A**gree; **SA**= **S**trongly **A**gree

Item	SD	D	N	A	SA
1. Blended learning facilitates the tracking of student performance.					
2. Blended learning makes better use of class time.					
3. Blended learning gives students access to class materials at any time.					
4. Blended learning gives students more media resources (e.g. audios, videos, etc.).					
5. Blended learning accommodates different types of students.					
6. Blended learning helps in evaluating student achievement.					
7. Blended learning provides better communication for students and instructors.					
8. Blended learning improves students and instructors technological skills.					

Part VI: Open-Ended Questions

1- What encourages you to use blended learning?

……
……
……

2- What support would like to have had before and during your blended teaching experiences?

……
……
……

3- What are some of the challenges that you encountered before and during your blended teaching experience?

……
……
……

Thank You

Appendix (F) – Consent Form in Arabic

بسم الله الرحمن الرحيم

الموافقة على الإشتراك في الدراسة

العوامل المؤثرة على إتجاهات أعضاء هيئة التدريس نحو تبني التعليم المدمج في جامعة جازان

Approved by the Human Subjects Committee University of Kansas, Lawrence Campus (HSCL). Approval expires one year from 11/23/2011. HSCL #19748

عزيزي عضو هئية التدريس بجامعة جازان

السلام عليكم ورحمة الله وبركاته.... وبعد

أشكرك مقدماً على حسن تعاونك في إتمام هذه الدراسة والتي تهدف إلى معرفة أهم **العوامل المؤثرة على إتجاهات أعضاء هيئة التدريس نحو تبني التعليم المدمج في جامعة جازان،** حيث يُعرّف التعليم المدمج بأنه التعليم القائم على دمج التعليم الالكتروني مع التعليم التقليدي القائم على حضور المحاضرات في الجامعة وجهاً لوجه مما يتيح الفرصة للمعلم والمتعلم من الاستفادة من مميزات كلتا الطريقتين. بإستخدام التعليم المدمج كطريقة للتعليم، يصبح الطالب قادراً على التواصل مع أستاذ المادة إلكترونياً عن طريق نظام إدارة التعلم المُقدم من قبل الجامعة أو عن طريق موقع المادة. بالإضافة إلى ذلك يستطيع الطالب التفاعل مع باقي الطلاب في المادة عن طريق النقاشات الحوارية الداعمة لموضوع التعلم والتي تُقدم أيضاً عن طريق نظام إدارة التعلم. أيضاً يستطيع الطالب أداء بعض الأنشطة ذات الصلة و حل الواجبات و إرسالها بشكل إليكتروني لأستاذ المقرر.

آمل منكم المساعدة في جمع البيانات المتعلقة بالدراسة وذلك من خلال التكرم بتعبئة الإستبانة المرفقة. كما أحب أن أحيطكم علماً بأن جميع المعلومات المتحصلة سوف تعامل بسرية تامة ولن تُستخدم إلا لأغراض البحث العلمي فقط وأن المشاركة في هذه الدراسة اختيارية وتطوعية، حيث يحق للمشارك التراجع عن المشاركة في أي وقت يشاء.

عزيزي عضو هيئة التدريس بجامعة جازان، أشكرك جزيل الشكر على إعطائي هذا الجزء من وقتك الثمين للمشاركة في هذا الإستبيان ويسعدني الإجابة على أي سؤال يتعلق بالدراسة أو المشاركة فيها وذلك عبر وسائل الاتصال الموضحة في الأسفل.

هذا وتقبلوا خالص تحياتي وتقديري،،،

الباحث

خالد بن حسين موكلي
جامعة كانساس بمدينة لورنس
كلية التربية
الولايات المتحدة الأمريكية
بريد إليكتروني:moukali@ku.edu
kmoukali@jazanu.edu.sa

المشرف على البحث

د. رونالد أوست
جامعة كانساس بمدينة لورنس
كلية التربية
الولايات المتحدة الأمريكية
بريد إليكتروني:aust@ku.edu

Appendix (G) – Arabic Survey

<u>الجزء الأول:</u> البيانات الشخصية

الرجاء الإجابة على الأسئلة التالية وذلك إما بملأ الفراغات أو بوضع علامة (√) في المربع الخاص بالخيار المناسب:

1. الجنس:

□ ذكر □ أنثى

2. العمر: _____ سنة

3. كم عدد سنوات الخبرة التدريسية؟ _____ سنة

4. في أي قسم أكاديمي تعمل؟ _____

5. ماهو تخصصك؟ _____

6. الرتبة الأكاديمية الحالية:

□ أستاذ. □ أستاذ مشارك.

□ أستاذ مساعد. □ محاضر.

□ معيد. □ أخرى (حدد): _____

7. آخر مؤهل علمي تم الحصول عليه من:

□ الولايات المتحدة الأمريكية. □ كندا.

□ بريطانيا. □ أستراليا.

□ دولة عربية (حدد): _____ □ أخرى (حدد): _____

8. عدد سنوات إستخدام الحاسب الآلي؟ _____

9. عدد سنوات إستخدام الإنترنت؟ _____

10. هل لديك جهاز كمبيوتر في مكتبك بالجامعة؟

□ نعم □ لا

11. ماهي خبرتك الشخصية السابقة مع التعليم المدمج؟

□ لا يوجد خبرة سابقة. □ يوجد خبرة سابقة كطالب.

□ يوجد خبرة سابقة كأستاذ مقرر. □ يوجد خبرة سابقة كطالب و كأستاذ مقرر.

12. كم عدد المواد التي قمت بتدريسها بإستخدام التعليم المدمج؟

□ لا يوجد. □ مادة واحدة.

□ مادتين. □ ثلاث مواد.

□ أربع مواد. □ خمس مواد أو أكثر

13. بإستخدام مقياس من 1 إلى 10، قم بتقييم مستوى خبرتك في إستخدام الكمبيوتر وذلك بوضع دائرة حول الخيار المناسب:

خبرة ضعيفة 1 2 3 4 5 6 7 8 9 10 خبرة كبيرة

<u>الجزء الثاني:</u> الخبرة في استخدام تكنولوجيا التعليم

الرجاء تحديد مدى خبرتك في استخدام تكنولوجيا التعليم عن طريق الإجابة على العبارات التالية وذلك بإستخدام المقياس التالي:

1 = لا توجد خبرة ، **2**= خبرة قليلة ، **3**= خبرة متوسطة، **4**= خبرة جيدة، **5**= خبرة كبيرة

العبـــــــــارة	1	2	3	4	5
1.أنظمة إدارة التعلم مثل (البلاك بورد، موودل، جسور..إلخ). (Blackboard, Moodle, Jusur)					
2.برنامج عرض الشرائح (مايكروسوفت بور بوينت). (Microsoft Office PowerPoint)					
3. برنامج معالج النصوص (مايكروسوفت وورد) (Microsoft Office Word)					
4. برامج الإيميل الإلكتروني مثل (مايكروسوفت أوفيس أوتلوك ، جي ميل، الهوتميل، الياهو). (Microsoft Office Outlook, Gmail, Hotmail, Yahoo)					
5. محركات البحث مثل (قوقل، ياهو). (Google, Yahoo)					
6. منتديات النقاش التعليمية الإلكترونية. (Electronic bulletin boards)					
7. برامج تصميم و تحرير الصفحات على الإنترنت مثل (محرر إتش تي إم إل، الدريم ويفر). (HTML editor, Dreamweaver)					
8. السبورة الذكية (سمارت بورد). (Smart Board)					
9. كاميرا الفيديو الرقمية. (Digital video camera)					
10. جهاز الماسح الضوئي. (Scanner Device)					

<u>الجزء الثالث:</u> إتجاهات أعضاء هيئة التدريس نحو التعليم المدمج

الرجاء تحديد درجة موافقتك أو عدم موافقتك على العبارات التالية وذلك بإستخدام المقياس التالي:

1 = غير موافق بشدة ، **2**= غير موافق، **3**= محايد ، **4**= موافق، **5**= موافق بشدة

العبـــــــــارة	1	2	3	4	5
1. التعليم المدمج يدعم التعلم التعاوني.					
2. يرى الإداريون بأن التعليم المدمج مهم.					
3. يساعد التعليم المدمج الطلاب على التعلم بطريقة مناسبة.					
4. أنا مهتم بتطبيق التعليم المدمج في تدريسي.					
5. يدعم التعليم المدمج الإداريين في إدارة التعليم في الجامعة.					
6. البنية التحتية التكنولوجية في الجامعة جاهزة لتطبيق التعليم المدمج.					
7. التعليم المدمج يؤدي إلى زيادة التحصيل الدراسي للطلاب.					
8. يراعي التعليم المدمج الإختلافات في أساليب التعلم بالنسبة للطلاب.					

9. في آخر ثلاث سنوات، نظرتي نحو التعليم المدمج:

□ أصبحت أكثر سلبية.

□ أصبحت سلبية بعض الشيء.

□ استمرت كما هي عليه.

□ أصبحت إيجابية بعض الشيء.

□ أصبحت أكثر إيجابية.

10. هل تفضل تدريس المواد من خلال طريقة التعليم المدمج أو من خلال طريقة التدريس التقليدية؟

□ أفضل وبشدة التدريس من خلال التعليم المدمج.

□ أفضل بعض الشيء التدريس من خلال التعليم المدمج.

□ لايوجد لدي أية تفضيلات.

□ أفضل بعض الشيء التدريس من خلال وسائل التعليم التقليدية.

□ أفضل وبشدة التدريس من خلال وسائل التعليم التقليدية.

11. الجامعة ينبغي أن:

□ تزيد وبشكل كبير عدد المواد المقدمة بطريقة التعليم المدمج.

□ تزيد وبشكل بسيط عدد المواد المقدمة بطريقة التعليم المدمج.

□ تبقي المواد المقدمة بطريقة التعليم المدمج كما هي عليه.

□ تقلل وبشكل بسيط عدد المواد المقدمة بطريقة التعليم المدمج.

□ تقلل وبشكل كبير عدد المواد المقدمة بطريقة التعليم المدمج.

الجزء الرابع: المعوقات المؤثرة على تبني التعليم المدمج

الرجاء تحديد درجة موافقتك أو عدم موافقتك على العبارات التالية وذلك بإستخدام المقياس التالي:

1 = غيرموافق بشدة ، **2**=غير موافق ، **3**= محايد ، **4**= موافق، **5**= موافق بشدة

العبـــــــــارة	1	2	3	4	5
1. لا يوجد لدي الخبرة الكافية في التكنولوجيا.					
2. الدعم التقني في الجامعة غير كافي.					
3. الدورات التدريبية المقدمة غير كافية.					
4. الإنترنت غير متوفر في الجامعة.					
5. أجهزة الكمبيوتر غير متوفرة في الجامعة.					
6. التعليم المدمج يزيد من العبء التدريسي لأستاذ المقرر.					
7. زملائي لا يفضلون إستخدام التعليم المدمج.					
8. التعليم المدمج يقلل التواصل بين الطالب وأستاذ المقرر.					
9. نظام إدارة التعلم المستخدم في الجامعة (جسور) غير مناسب.					
10. لايوجد لدى طلابي الخبرة الكافية في استخدام التكنولوجيا.					
11. لايوجد لدى طلابي أجهزة كمبيوتر في منازلهم.					
12. لايوجد لدى طلابي إنترنت في منازلهم.					

<u>الجزء الخامس:</u> الحوافز المشجعة على تبني التعليم المدمج

الرجاء تحديد درجة موافقتك أو عدم موافقتك على العبارات التالية وذلك بإستخدام المقياس التالي:

1 = غيرموافق بشدة ، **2**=غير موافق ، **3**= محايد ، **4**= موافق، **5**= موافق بشدة

العبـــــــــارة	1	2	3	4	5
1. يسهل التعليم المدمج تتبع أداء الطالب.					
2. يساعد التعليم المدمج على الإستخدام الأمثل لوقت المحاضرة.					
3. يسهل التعليم المدمج إمكانية الوصول إلى المحتوى التعليمي للمقرر من قبل الطلاب في أي وقت.					
4. يزود التعليم المدمج الطلاب بمصادر تعليمية متنوعة (تسجيلات صوت، مقاطع فيديو).					
5. يلائم التعليم المدمج جميع الطلاب.					
6. يساعد التعليم المدمج على تقويم أداء الطلاب.					
7. يوفر التعليم المدمج وسائل تواصل أفضل للمعلم والطالب.					
8. يُطوّر التعليم المدمج مهارات الطلاب و أستاذ المقرر في إستخدام التكنولوجيا.					

<u>الجزء السادس:</u> الأسئلة المفتوحة

الرجاء الإجابة على الأسئلة التالية:

1. برأيك ما الذي يشجعك على إستخدام التعليم المدمج؟

.....

.....

.....

2. برأيك ماهو الدعم الذي تود أن تحصل عليه قبل وأثناء إستخدامك للتعليم المدمج في التدريس؟

.....

.....

.....

3. برأيك ماهي بعض التحديات التي قد تواجهها قبل وأثناء إستخدامك للتعليم المدمج في التدريس؟

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.....

شكراً على المشاركة

Appendix (H) – Approval Letter from the Academic Advisor

KU THE UNIVERSITY OF KANSAS
School of Education

December 5, 2011

Jazan University, Saudi Arabia

To Whom It May Concern:

Khalid Hussain Moukali is a doctoral student in the Educational Technology program at The University of Kansas in Lawrence, Kansas, USA. He has developed a survey in conjunction with his doctoral dissertation research on *Factors that Affect Faculty Attitudes toward Adoption of Technology-Rich Blended Learning.*

We are requesting your support that will involve the voluntary participation of faculty members at Jazan University. We anticipate that this survey will take only about 20 minutes to complete. Mr. Moukali will require visits to Jazan University to collect data for the research study.

Mr. Moukali would be glad to share the results of this research with Jazan University and other educational institutions that are considering the implementation of blended learning.

Thank you for considering this request. Please contact me if you have questions.

Sincerely,

Ronald Aust
Associate Professor
Educational Leadership and Policy Studies
The University of Kansas | aust@ku.edu | 785-864-3466

Educational Leadership & Policy Studies
Joseph R. Pearson Hall | 1122 W Campus Road, Room 421 | Lawrence, KS 66045-3101 | (785) 864-4458 | Fax (785) 864-4697 | www.soe.ku.edu/elps

Appendix (I) – Approval Letter from the Dean of College of Education at Jazan University

Kingdom of Saudi Arabia
Ministry of Higher Education
Jazan University

المملكة العربية السعودية
وزارة التعليم العالي
جامعة جازان
كلية التربية

الموضوع : بشأن قيام المبتعث / خالد موكلي برحلة علمية .

سعادة الأستاذ الدكتور وكيل الجامعة للدراسات العليا والبحث العلمي حفظه الله

السلام عليكم ورحمة الله وبركاته وبعد :

أرفق لسعادتكم الطلب المقدم من المبتعث/ خالد حسين موكلي المحاضر في قسم تقنيات التعليم بالكلية بشأن تطبيق استبانة بعنوان (العوامل المؤثرة على اتجاهات أعضاء هيئة التدريس والإداريين نحو تبني التعليم المدمج) على كليات الجامعة والعمادات المساندة ، علماً بأنه في رحلة علمية للمملكة بناءاً على توصيتي مجلس القسم رقم (٢) وتاريخ ١٤٣٢/١١/٢٥هـ ومجلس الكلية رقم (٢) وتاريخ ١٤٣٢/١٢/٢هـ .

آمل التكرم بالاطلاع والتوجية .

وتقبلوا تحياتي وتقديري ،،

عميد كلية التربية

د. محمد بن حسن أبوراسين

الرقم: ٥٥/٤٥٣ التاريخ: ١٤٣٢/١٢/٢ المرفقات: ٤٦

المملكة العربية السعودية - جازان - ص.ب: ١١٤ - هاتف: ٠٧٣٢٣٠٠٢٨ - ٣٢٣٣٨٠٠ - ٠٧٣٢٣٠٠٢٩

K. S. A - Jazan - P.o. Box :114 - Tel: 073230028 - 3233800 - 073230029 - www.jazan.edu.sa

Appendix (J) – Approval Letter from the Vice President for Graduate Studies and Scientific Research at Jazan University

Kingdom of Saudi Arabia
Ministry of Higher Education
Jazan University
Vice - President's Office
for Gradute studies and Research

المملكة العربية السعودية
وزارة التعليم العالي
جامعة جازان
مكتب وكيل الجامعة
للدراسات العليا والبحث العلمي

تعميم

سعادة عميد كلية الطب و عميد كلية العلوم الطبية التطبيقية	حفظه الله
سعادة عميد كلية الصيدلة	حفظه الله
سعادة عميد كلية طب الأسنان	حفظه الله
سعادة عميد كلية العلوم	حفظه الله
سعادة عميد كلية الهندسة	حفظه الله
سعادة عميد كلية الحاسب الآلي	حفظه الله
سعادة عميد كلية إدارة الأعمال	حفظه الله
سعادة عميد التعليم الالكتروني والتعليم عن بعد	حفظه الله
سعادة عميد كلية التربية	حفظه الله
سعادة عميد كلية الآداب والعلوم الإنسانية	حفظه الله
سعادة عميد كلية المجتمع	حفظه الله
سعادة عميد السنة التحضيرية	حفظه الله
سعادة المشرف على مركز اللغة الانجليزية	حفظه الله
سعادة عميدة المجمع الأكاديمي للطالبات	حفظها الله
سعادة عميدة كلية التربية للبنات الأقسام العلمية	حفظها الله
سعادة عميدة كلية التربية للبنات الأقسام الأدبية	حفظها الله

السلام عليكم ورحمة الله وبركاته وبعد،،،

إشارة إلى خطاب عميد كلية التربية رقم ٥٥/٤٥٢ وتاريخ ١٤٣٣/٣/٣٠ هـ بشأن استبانه لأحد طلاب الدراسات العليا ، مرحلة الدكتوراه ، بعنوان (العوامل المؤثرة على اتجاهات أعضاء هيئة التدريس والإداريين نحو تبني التعليم المدمج).

آمل من سعادتكم التعميم على منسوبيكم من الوكلاء ورؤساء الأقسام وأعضاء هيئة التدريس لتعبئة الاستبانة المرفقة وإعادتها لنا في أقرب فرصة ممكنة .

وتقبلوا أطيب تحياتي وتقديري،،،،

وكيل الجامعة

للدراسات العليا والبحث العلمي

أ.د. محمد بن علي ربيع عبد الله

- صورة مع التحية والتقدير لمعالي مدير الجامعة
- صورة مع التحية لعميد البحث العلمي
- صورة للملف الصادر
- الأصل للملف الاستبانات

الرقم : ٢٠٥٥٠٠ التاريخ : ١٤٣٣/٤/٢٢ المرفقات : استبانة

المملكة العربية السعودية - جازان ص.ب : ١١٤ هاتف : ٠٧٣٢١٧٦٦٧ فاكس : ٠٧٣٢١٧٦٦٩
K.S.A Jazan P.O.Box 114 Tel : 073217667 Fax : 073217669 www.jazan.edu.sa