

**THE RELATIONSHIP OF INSTRUCTIONAL TECHNOLOGY WITH
STUDENTS' MOTIVATION AND INTERACTION IN HIGHER EDUCATION**

A Dissertation by

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Submitted to the Department of Counseling, Educational Leadership,

Educational and School Psychology

and the faculty of the Graduate School of

Wichita State University

in partial fulfillment of

the requirements for the degree of

Doctor of Education

December 2012

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ACKNOWLEDGMENTS

The writing of this dissertation had been one of the most significant academic challenges I have ever faced. Without the support, patience, and guidance of the following people, this study would not have been completed. It is to them that I owe my greatest gratitude.

My committee members: Jean Patterson, Sharon Goodvin, Kimberly McDowell, and Donald Gilstrap. Their knowledge and commitment to the highest standards inspired and motivated me to accomplish my goals.

My advisor, Dr. Linda Bakken: Her excellent guidance, caring, and patience inspired my efforts despite the work pressures we were facing together to complete this dissertation.

All administrative, academic staff, and students in Nizwa College of Technology: Their support, interest, enthusiasm and participation in the study helped me conduct and complete this dissertation.

My friends and colleagues: Their support and encouragement assisted me to complete this work.

My parents: Ayda Abdulhadi and Salah Jaradat. Their understanding and endless love through the duration of my study supported and encouraged me.

My sisters: Wafa', Shorouq, and Nora. Their caring, support, encouragement, and believing in me have taught me so much about motivating other people to accomplish their goals.

My children: Murad and Yara. Without them this effort would have been worth nothing.

My husband: Mohammad Mustafa. His understanding, caring, and supporting cheered me up through the good and bad times

ABSTRACT

The purpose of this study was to research the problem presented in Middle East countries: Students' boredom and lack of motivation to interact in their classrooms in higher education. The focus of the study was to find ways in which technology can be used as a means to motivate students to interact with each other and with the learning activities in classrooms. Keller's motivational theory (2008) and its components (*Attention, Relevance, Satisfaction, Confidence*) provided the theory to address the relationship between technology and student interest in the classroom. The study was conducted in Nizwa College of Technology, Nizwa, Oman. The participants were 600 students and 30 instructors. Four surveys were used in this study; three of them were given to the students and one was given to the instructors. The findings supported Keller's motivational theory and its components regarding using technology to motivate students to interact with their instructors, with the learning activities, and with each other. There was a significant correlation between using technology in classrooms and gaining students' attention. There was a significant correlation between using technology and the relevance of the material presented in classrooms and students' real life. There was a significant correlation between using technology and students' confidence in participating in classrooms using technology. There was a significant correlation between using technology and students' satisfaction with the material presented in classrooms. To address students' motivation in classrooms, Keller (2001, 2008) posited that these four categories (*Attention, Relevance, Confidence, and Satisfaction [ARCS]*) operated together to motivate students to interact in the classroom. *ARCS* was significantly correlated with students' learning experiences, students' learning strategies, and computer use in course.

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CHAPTER ONE

Background to the Study

We live in an information-based society, and technology is everywhere (Oblinger, 2005; Selwyn, 2007; Wilson, 2003). Technology is an integral part of our social and cultural environment: Children grow up using computers and continue the practice throughout college (Goffe & Sosin, 2005; Green, 1999; Hirumi, 2002). Instructional technology can be defined as learning tools that support the learning activities in classrooms (Oblinger, 2005). It facilitates face to face and online discussion within and beyond the classrooms (Davis, 2003; Zhang, Zhao, Zhou, & Nunamaker, 2004). Technology also enables interactions among students working in teams inside and outside classrooms (Davis, 2003; Oblinger, 2005; Zhang, et al., 2004). Bates and Poole (2003) also stated that instructional technologies are tools which support learning activities that enable students to interact in classrooms. Many researchers proposed that instructional technology is the systematic use of technology to achieve instructional objectives through media management, educational program development, implementation, problem analysis, and learning resources to improve learning and performance in education (Beggs, 2000; Whelan, 2005). Examples of instructional technology may include the use of videotapes, Computer-assisted Instruction, or even more complex applications such as hypermedia programs where computers are used to control visual images and sound devices stored on a video disc (Blackhurst & Morse, 1996).

Technology has become an image of the 21st century in developed and developing countries alike (Lee, Cheung, & Chen, 2005; Oblinger, 2004, 2005). Technology is forcing rapid changes in higher education that cannot be ignored (Rogers, 2000), and college students today clearly expect technology to be an important learning tool in their classrooms (Goffe & Sosin,

2005; Metz, 2003). Decision makers at colleges and universities notice how technology has provided faculty with huge educational resources and learning opportunities (Hirumi, 2002; Selwyn, 2007). Most Students have been raised in the presence of technology, and often students in their twenties may have more years of experience and interaction with games and computer technology use than with reading (Zinn, W. and J. Zinn, 2009; Oblinger, 2004, 2005; Oblinger & Oblinger, 2005). Their attitudes and aptitudes have been shaped by information technology and media-rich surroundings. Students interact with what they already know (i.e., using technology in their daily lives) and participate in learning new things by themselves in classrooms. These new experiences and knowledge are related to their personal interests and can be easily mastered because of their everyday use and interaction with technology (Keller, 2008; Oblinger, 2005).

Goffe and Sosin (2005) suggest the presence of computer technology is so accepted that students would like to interact with it in their classrooms because it enables professors and students to do new and exciting things (Falvo & Solloway, 2004; Lee, et al., 2005; Selwyn, 2007). Examples of instructional technology would be using projectors to present class material and students' presentations, Microsoft applications, and the internet media for research purposes.

Although decision makers in higher education institutions have been trying to blend instructional technology into students' classrooms to meet their academic needs for the past 20 years (Selwyn, 2007), students indicate they need more connection between their everyday use of instructional and internet technology in classrooms (Zinn, W. and J. Zinn, 2009; Oblinger, 2005; Taylor, 2006). Since technology is part of our social and cultural environment, students are usually confident when they interact with technology in most aspects of their lives (Oblinger,

2004), and students are generally satisfied with the outcomes even if these outcomes are not related to academic achievement (Hirumi, 2002; Keller, 2008).

As a result of this, decision makers in higher education have noticed how students interact with technology outside their classes (Oblinger, 2004; Oblinger & Oblinger, 2005); and some universities have begun to blend instructional technology in their classes (Goffe & Sosin, 2005).

Jones (2002) reported that 85% of university students own or have access to computers. Almost two-thirds of students reported that they spend no more than 7 hours per week studying, whereas three-quarters of college students reported they use the web four or more hours per week and 19% of college students said they use the web 12 or more hours per week. 73% of students surveyed said that they use the web over the library for information searching. This level of interaction with computer and the Internet indicates that students perceive technology as an integral aspect of their daily lives. It also indicates students' fluency with computer use and their readiness to interact with computer technology in their classrooms (Oblinger, 2005).

Decision makers at universities would like to take advantage of students' interest in technology to improve their interaction with class activities (Lee, et al., 2005; Oblinger & Oblinger, 2005) with the hope that instructional technology will help students in higher education become motivated to interact with learning activities (Keller, 2008).

Research Problem

While technology abounds in the world that youth live in, classrooms do not seem to be taking advantage of this technology. Researchers (Anthony, 1996; Mitsoni, 2006; Wiggins & McTighe, 2008; Yazzie-Mintz, 2007) found that many students report being bored in classrooms.

Students report that instructors do not show an understanding of students' needs to connect the outside world (the actual world they live in and interact with) to the learning environment.

Yazzie- Mintz(2007)found that students' engagement in classrooms is heavily dependent on their interaction and collaboration. He found that *boredom* is one sign of a lack of engagement in the classroom and college environment. Students were asked, "*Have you ever been bored in class?*" A great majority responded that they are bored at least every day, if not in every class. Yazzie-Mintz reported that two out of three students are bored in class at least every day; almost 20% of the students are bored in every day class, while only 2% of the students surveyed have never been bored. Then, the researcher asked students "*if you have been bored in class, Why?*" Three out of four students stated that the reason they are bored in class is that "*Material wasn't interesting,*" and almost 40% stated that '*Material wasn't relevant to me.*' It appears that academic content was an issue for students in their engagement within the classroom. Quite important as well is the level of interaction between students and instructors. Nearly 31% of the students indicated that they are bored in class because they have "*No interaction with their instructors.*"

According to Mitsoni (2006), educational policy has not addressed any significant interest in what students have to say about the way they are taught. Their voices are not heard in the matters of classroom activities and their interaction. There are no provisions to take account of students' experiences and views. In order to find out '*What causes students to be bored*' and *what motivates them to interact*, Mitsoni (2006) adopted an interview-based approach with students. He talked with students in groups of four, two girls and two boys. The interviews with students focused on encouraging them to talk freely about their views and experiences in classrooms. One of the students said that *students get bored when they do not have the*

opportunity to interact or say their opinion in their classrooms. Adding to this point, Mitsoni's (2006) research on students' voices highlighted three things: (a) the importance of connecting the content of classroom activities with students' everyday lives; (b) give students opportunities for active interaction; and (c) capture and sustain students' interest in responding to the activities in classrooms.

Yazzie- Mintz (2007) also reported that students used the word *boring* to rank their learning environment. Students' responses to what is going on in their classrooms were: "*why do we need this stuff?*" and "*when are we ever going to use this?*" The authors added that students can recite key passages by heart, but they cannot answer the question "*Why.*" They perform adequately on items requiring recall and basic skills but do poorly on items requiring application or careful analysis and explanation.

Wiggins and McTighe (2008) reported students being bored due to insufficient opportunities they have to make meaning of their learning and apply their skills in various contexts outside classrooms. They added that instructors need to help students link the activities in the classrooms to new situations in their daily lives in order for students to make sense of the content. Students reported that they need to interact with each other and with the activities presented in their classrooms in order to foster learning. Students added that when they explain concepts they read, and share their understanding of the topic with each other, this helps them overcome their boredom in their classrooms and highly interact with each other, with instructors, and with learning activities.

In addition, Oblinger (2005) reported that students feel they do not interact in some of their classrooms with class activities the way they prefer (i.e., using computer technology and the internet media). They look through their books and read their notes taken from professors

(Anthony, 1996). This type of interaction in which students gain knowledge from the professor or text causes them to feel a disconnect between what is going on in their classrooms and in their daily lives (Coye, 1997; Oblinger, 2004; Oblinger & Oblinger, 2005). Students report they would like their classrooms to use technology (things they find exciting to use for interaction). Wiggins and McTighe (2008) and Mitsoni (2006) also found that students are neither satisfied nor interested with what is going on in their classrooms because students did not see the relevance of lecture that takes thirty minutes to gain specific information when they can search for it using the internet and find it quickly (Oblinger, 2004).

There was no reason to suggest that findings from the United States were related to what is happening in Middle Eastern universities and colleges. Because the study addressed the phenomenon of student boredom and lack of motivation to interact in their classrooms in the Middle East (i.e., Jordan, Lebanon, Egypt, United Arab Emirates, and Oman), it was necessary to ascertain the extent of the problem in these countries.

Although some of the Ministries of Education in several Middle East countries have invested in integrating technology with all areas of learning in colleges and universities in public and private sectors, many studies found that instructors, in general, struggle to encourage and motivate students to interact with their lectures and seminars (Abouchdid & Eid, 2004; Al Musawi & Abdelraheem, 2004; Al-Senaidi, Lin, & Poirot, 2009; Sadik, 2008; Tubaishat, El-Qawasmeh, & Bhatti, 2006). These researchers found that instructors were still lecturing students, and their way of teaching was instructor-centered, which did not give students opportunities to interact or to be encouraged to share new information with each other.

The traditional knowledge delivery system for higher education in the Arab world is indoctrination and instructor-based (Abouchdid & Eid, 2004; Abu-Melhim, 2009; Al Musawi &

Abdelraheem, 2004; Al-Senaidi, et al., 2009; Sadik, 2008). Instructors introduce a topic by lecturing on general concepts and then introduce the entire. Students take notes and write down word for word without understanding the *why*. The instructor's job is to transmit his/her knowledge to students, and lecturing is the natural method for doing so. The students' role is to (a) absorb the knowledge they are introduced to, and (b) be tested on the notes written down from their instructors.

Abouchedid and Eid (2004) found that a higher percentage of students tend to drop out before courses were completed in classes where instructors used lecture-based teaching compared with students in student-centered lectures that encouraged them to interact with each other, with instructors, and with learning activities in classrooms. Sadik (2008) added that students in lectured based classes remain silent and wait for instructors to lecture to them about ideas from books without having the opportunity to foster active learning and engagement. He added that, when learners explain concepts they read at home and share their understanding of the topic with others, this helps them overcome their boredom in classrooms and highly interact with each other, with the instructors, and with the learning activities.

Abu-Malhim and Abdel-Rahman (2009) suggested that most instructors realize that their students' interaction increases when they are positively motivated to interact with each other, with the instructors, and with the learning activities in their classrooms. For example, students' interaction through classroom activities can be influenced by their attitudes toward the target goals they hope to gain from these classes. In their study, students indicated that they favor activities that facilitate student-to-student interaction, as well as student-to-instructor interaction. They reported the instructors' job is not to dictate to students what they have learned; it needs to

be more than instructors talk and students write. Instructors' job has to be sharing knowledge and information, discussion based, and students interacting with activities.

Tubaishat and Qauasmeh (2006) reported that the teaching system remains very traditional with instructor-led classes where memorizing is emphasized. Students know how to answer questions they come across in their text books. However, they are not taught to think creatively or to analyze the information they are provided; they just memorize to pass exams.

Theoretical Framework

Keller's Motivational Theory (2008), the ARCS model (*Attention, Relevance, Confidence, and Satisfaction*), represents a model of motivation for interaction that addresses the problems of student boredom in classrooms. Keller's primary assumption is based on the interaction between instructional materials and students. With its components, this theory discusses the importance of preparing the surrounding environment, the instruction, and students' readiness for interaction in classrooms. According to Keller (2008),

In order to have motivated students, their curiosity must be aroused and sustained; the material must be perceived to be relevant to personal value or instrumental to accomplishing desired goals; they must have the personal conviction that they will be able to succeed; and the consequences of learning experience must consistent with the personal incentives of the learner. (p. 176)

The ARCS Model

The ARCS model (Keller, 1987, 2001, 2008; 2006) provides a definition of motivation, a motivational design process, and recommendations for motivational strategies. It is a method for investigating the motivational appeal of instructional materials. First, there are four conceptual categories (*[A]ttention, [R]elevance, [C]onfidence, [S]atisfaction*) that include many of the

specific concepts and variables that characterize human motivation. Second, it includes sets of strategies to enhance the motivational appeal of instruction; process that is called motivational design (Keller, 1987) which can be used effectively in classrooms to motivate students to interact (Keller, 2001, 2008).

([A]ttention strategies arouse and sustain curiosity and interest, [R]elevance strategies link students' needs, interests, and motives; [C]onfidence strategies help students develop a positive expectation for successful achievement; and [S]atisfaction strategies provide intrinsic and extrinsic reinforcement for effort) that have to be met for people to become and remain motivated. Following is a brief description of each of the four major (See Figure 1) dimensions.

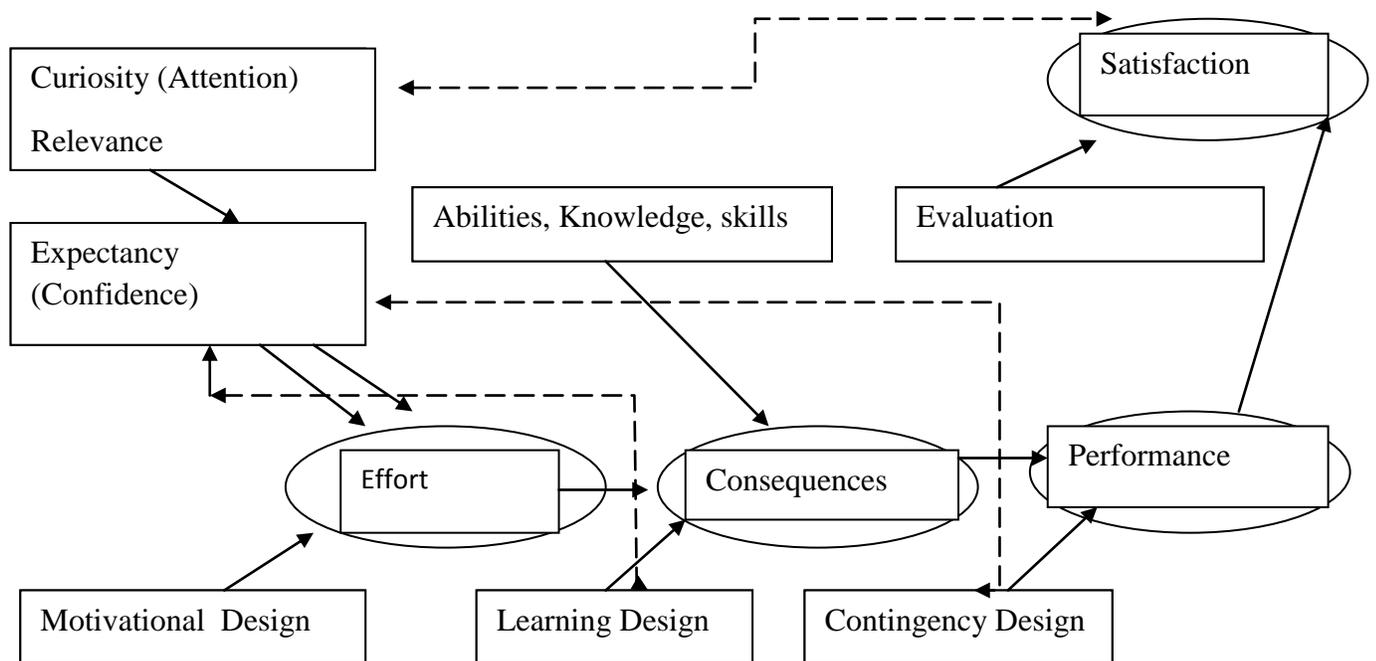


Figure 1

Figure 1 The ARCS Model (Keller, 2008)

Attention gaining. The first element of motivation is attention and it is also a prerequisite for learners' interaction with learning activities (Keller, 1987, 2001, 2010, 2008;

Taylor, 2006). The motivational concern is for getting and sustaining attention. At one level, it is easy to gain attention; however, getting attention is not enough. The real challenge is to sustain it. To do so, it is necessary to respond to students' passions (e.g., seek new knowledge) and arouse their curiosity to acquire new skills to interact with the learning activities, but without over stimulating students with these activities (Keller, 2001).

Most students in universities are at least 19 years old or older. Some of the students will be returning to the university. As such, students are adults, often with adult responsibilities. With so many responsibilities outside of class, it might be challenging to capture students' attention in classrooms on a regular basis (Zinn & Zinn, 2009). Some of these distractions might be working, family obligations and other responsibilities in addition to studying.

Keller (2008) suggested learners' motivation is promoted when their curiosity is aroused due to a perceived gap in current knowledge. He added that students' curiosity and attention are also aroused when they feel the activities in classrooms require them to learn new knowledge in order to accomplish these activities. This principle refers to capturing learners' attention, building their curiosity, and keeping up their active engagement in a learning activity (Blumenfeld, Kempler, & Krajcik, 2006; Keller, 2008; Ryan & Deci, 2000).

Oblinger (2005), Surry and Land (2000), and West (1999) indicated that it is important to use different computer technologies in classrooms to keep students' attention to interact with classroom learning activities in order to gain new knowledge and skills. Many researchers on curiosity (Draper & Brown, 2004; Keller, 2008; Lashinsky, 2005; Strauss & Frost, 1999) point out that it is important to use a variety of approaches to gain students' attention by using instructional computer technology (i.e., Microsoft Office Applications, projectors presenting

PowerPoint related material, and Internet research applications) in order to capture students' interest over time (Goffe & Sosin, 2005; Keller, 2008).

Relevance. Biggs (2006) defines students' feelings of relevance as the connection between their out-of-college experiences with their in-college experiences. Students report lack of relevance if they do not get much opportunity to interact with one another, exchange information related to their actual experience and engage in collaboration as they would have preferred. When learners believe that the knowledge they receive will be meaningfully related to their goals whatever they are, their motivation to interact with learning activities will increase. This principle includes concepts and strategies that establish connections between teaching strategies and learners' goals, learning experience, and past experience (Cope & Ward, 2002; Hirumi, 2002; Keller, 2008; Rogers, 2000).

Yazzie- Mintz (2007) and Mitsoni (2006) suggest that relevance is very important to attract students' attention in classrooms or they will be busy in something that has meaning to them over interacting with learning activities. When students perceive knowledge in classrooms related to their personal goals and actual lives, this will increase the opportunities to increase their interaction with learning activities (Keller, 2008). Wiggins and McTighe (2008) added that when students realize that the learning activities are not relating to their goals, they will not be motivated to interact with classroom activities. Thus, there is no relevance of the learning activities to students' learning goals.

Confidence building. Keller (2008) and Meece et al. (2006) posit that, when learners feel that they can succeed in learning a task, their motivation to interact and learn is promoted. It has variables related to the feelings that students can personally control the task and can succeed, which then motivates them to have a continuous interaction with classrooms activities.

Confidence is achieved by giving students opportunities to build positive experiences with success. Let them feel their successes and accomplishments contribute to their abilities and efforts rather than to external factors such as luck or task difficulty (Blumenfeld, et al., 2006; Rogers, 2000; Schunk & Pajares, 2002; Surry & Land, 2000). Blumenfeld, et al., (2006) also added that as student confidence in achieving their goals in classrooms increases, this would have a positive influence on their engagement and interaction. Students' confidence is not likely to be increased when successful achievement results from good luck or an easy task (Langelett, 2002; Pedretti, Mayer-Smith, & Woodrow, 1998).

Satisfaction. Learners' motivation to interact with learning activities is promoted when they experience satisfying outcomes to a learning task. This principle is necessary for students to have positive feelings about their interaction with learning experiences and to develop continuing motivation to interact with learning activities (Fusani, 1994; Hirumi, 2002; Huitt, 2007; Keller, 2008). Lee et al. (2005) and Reeve (1996) added that extrinsic reinforcement, such as rewards and recognition, must not have a detrimental effect on intrinsic motivation. It needs to be used in accordance with established principles of behavior management (Ryan & Deci, 2000).

Students will have intrinsic feelings of satisfaction when they have opportunities to apply what they have learned to their personal experiences (Keller, 2008). When learners persist in achieving their intentions and goals, motivation to interact with learning activities is promoted and maintained. After that, it is necessary for them persist in their effort to achieve their goals (Blumenfeld, et al., 2006; Keller, 2008; Schunk & Pajares, 2002). At this point, students who overcome the obstacles that face them and maintain their intentions tend to stay on task using strategies that help them to do so (Draper & Brown, 2004; Wigfield & Eccles, 2000).

Technology can be one of the means that offers opportunities to integrate motivational support strategies to students' interaction with learning activities in novel ways (Cope & Ward, 2002; Keller, 2008; Oblinger, 2005). It sustains students' curiosity (Keller, 2008; Oblinger, 2005); it is relevant to their actual world (Jones, 2002); students feel confidence using it (Apperson, Laws, & Scepanisky, 2006); and students are satisfied using technology in classrooms as in their daily lives (Goffe & Sosin, 2005; Oblinger, 2005; Surry & Land, 2000). Also Jones (2002) found in his study that college students are early adopters and heavy users of the Internet and their social life at the college has been changed by the Internet which has promoted their education. According to this information, technology can be used to motivate students to interact in their classrooms and seek learn.

Importance of the four aspects. Although there may be many aspects related to students' boredom and lack of motivation to interact for the purpose of this study, the four aspects presented in Keller's theory (2008) will be highlighted. Students usually will not be able to interact actively in their classrooms if these four aspects are missing (students' attention, relevant material, confidence in success, and satisfaction with the outcomes) (Zinn, W. and J. Zinn, 2009; Biggs, 2006; Hirumi, 2002; Keller, 2008; Taylor, 2006). Goffe and Sosin (2005) and Oblinger (2004) suggested that students like to interact with computer technology and the Internet media in classrooms which motivate them to interact in classrooms activities (Oblinger, 2005). Jones (2002) and Keller (2008) added that students' level of interaction with computer and the Internet indicates how much they perceive technology as an important aspect to interact within their daily lives. It also indicates students' fluency with computer use and their readiness to interact with computer technology in their classrooms.

In addition, Keller (1987, 2001, 2008) noticed that technology gets students' *attention* in real life, so why not use it in classrooms. He also reported students see the *relevance* of using technology in their classrooms and have that link with their daily lives. *Confidence* was one of the aspects Keller (1987, 2001, 2008) mentioned in his reporting about students' interaction with technology and how it is easy for them to accomplish things through using technology. He mentioned that students' satisfaction with what is going in classrooms (e.g, instructional technology) leads them to develop continuing motivation to interact and learn.

Purpose and Rationale of the Study

The purpose of this study was to understand the phenomenon of student boredom and lack of motivation to interact in classrooms in Nizwa College of Technology in Oman. I investigated ways to change classroom environments to increase students' interaction. The focus of the study was to find ways in which technology can be used as a means to motivate students to interact with each other and with the learning activities in classrooms. This study sought to explore students' perceptions about technology and the way it could be used to increase their motivation to interact in their classrooms. It addressed three questions related back to theory, dimensions of preparing the surrounding environment, the instruction, and students' readiness for interaction in classrooms. First, what were students' perspectives of how classrooms need to be in order to motivate them to come to class and interact? Second, how did the four aspects of Keller's (2008) motivational theory (*attention, relevance, satisfaction, confidence*) relate to students' motivation to interact in their classrooms? Did instructional technology increase students' motivation in their classrooms and motivate them to interact?

Significance of the Study

If instructors at the university were convinced that using instructional technology and Internet media might result in higher interaction between students and their learning activities, two benefits would come from this study. First, students could be more motivated and not bored to come to the university. Second, using instructional technology could also motivate students to interact with the learning activities, with instructors and with each other. Thus, the motivational theory presented by Keller (1987, 2001, 2006, 2008) could help investigate how to increase students' motivation by using technology as a means to interact in classrooms.

Overview

Chapter two presents the literature review of this study (i.e. student boredom and lack of motivation to interact in their classrooms at the university). The four sections of the literature review include (a) the disconnect students feel between their real world and their classrooms; (b) students' interaction with technology outside classes as integral of their daily routine lives; (c) the importance of motivation; and (d) the integration of technology as one means of solving the problem. Chapter three presents the methodology that was used in this study. It provides the research site that was used to conduct the study and the participants that were selected to participate in the study. Chapter three also presents the instruments that were used to collect the data, and the data collection procedure. Chapter four presents the results that answered the research questions and responded to hypotheses outlined in chapter two. The surveys were used to get students' perceptions about using technology and motivation. In addition, the four aspects presented in Keller's theory (2008) (*attention, relevance, satisfaction, and confidence*) were used and analyzed to present the results. These four aspects addressed the three questions related back to the theory, dimensions of preparing the surrounding environment, the instruction, and

students' readiness for interaction in classrooms. Chapter five discusses the researcher's findings and the other related studies; it presents her implications regarding the phenomenon of student boredom and lack of motivation to interact in classrooms in Nizwa College of Technology and generalizes these findings to Oman and the Middle East. Chapter five also presents the research limitations and suggestions for future research.

CHAPTER TWO

Literature Review

The purpose of the literature review is to present elements that are related to aspects of the research problem: Students' boredom and lack of motivation to interact in their classrooms at the university. The literature review also includes elements related to the four aspects presented by (2008) in his theory (*Attention, Relevance, Satisfaction, Confidence*) that address the problem. The four sections of the literature review include (a) the disconnect students feel between their real world and their classrooms; (b) students' interaction with technology outside classes as integral to their daily routine lives; (c) the importance of motivation; and (d) the integration of technology as one means of solving the proposed problem.

The Disconnect between Students' Class Activities and Real-Life Relevance

In the 1990s a new word appeared in the lexicon of educators: *disconnect*. Disconnect denotes the insufficient connection between what is going on in classrooms and the actual world of students (Boyer, 1994; Coye, 1997). In higher education, the need for this word seems obvious (Coye, 1997; Keller, 2001, 2008). Boyer (1994) was the first who noticed this disconnect and had that vision to "connect the disconnect" and make the college years a more holistic, fulfilling, and significant experience for students. He found that there were often inadequate connections between the academic and social lives of students and between the campus and the outside world (Coye, 1997). Boyer (1994) believed strongly that it was important for students to understand that they can connect their daily activities off campus to their learning environment at their colleges and universities; in other words "connect the disconnect."

Yazzie-Mintz (2007), Mitsoni (2006), and Wiggins and McTighe (2008) reported their desires that all students enter the classroom interested in what is being taught and intellectually prepared for further education. The truth is that many of them are neither interested in the way the information is presented nor are ready for the way learning is set up; students find the material is not interesting and not related nor connected to their lives. It is the struggle between the imagined ideal (and sometimes less-than-perfect reality of the classroom) compared to students' actual world (Oblinger, 2004; Oblinger & Oblinger, 2005). Oblinger added that if *interest* is missing, almost any kind of activity can be boring and unpleasant.

Yazzie-Mintz (2007), Wiggins and McTighe (2008), and Mitsoni (2006) all studied ways in which instructors generate classroom experience and link students' studies to their personal lives and passions. They indicated that this could motivate both disinterested and motivated students to feel satisfied with their learning experiences inside classrooms. In other words, all authors indicated the importance of combining students' experiences in the classrooms to what is important and relevant for them in order to engage them with the learning activities. These researchers indicated that, not only do students need to feel interest, but also see the relevance between classroom activities and their actual world. It is motivating when students can apply what is being learned in classrooms to their actual world; and this motivates their interaction with learning activities. They added that some students fail to make meaningful connections between what they are learning in classes and the hopes and dreams they want to fulfill in their lives. Thus, they experience a feeling of irrelevance between what faculty tell them they need to know and what they actually want to know to navigate life. This prevents early engagement with the learning activities.

Many things compete for college or university students' attention, and for adult students with adult responsibilities, the problems of paying attention and getting involved with learning are even more challenging (Huang, Diefes Dux, & Imbrie, 2006; Huitt, 2007). Researchers (Blumenfeld, et al., 2006; Boyer, 1994; Cope & Ward, 2002; Keller, 2008; Mitsoni, 2006; Yazzie-Mintz, 2007) suggest that students' engagement in campus life and courses will increase if students feel the connection between their learning experiences in classrooms and in campus and what is going on their daily lives. Due to this perspective, decision makers in institutions of higher education have started asking their faculty to draw connections to students' actual world and to students' everyday lives. Students' feelings of engagement are likely to be increased when they have greater choice in what topics to study, in how to explore the topics, and how to present their understanding the same way they do it in their actual life (Coye, 1997; Saunders & Klemming, 2003).

In this age of rapid technological innovation (Lee, et al., 2005; Selwyn, 2007), computer technology and Internet media play a large role in students' lives off campus, and college students today clearly expect the computer and Internet to be used in classrooms as a learning tool that provides them with the same interaction they have out off campus (Goffe & Sosin, 2005; Oblinger, 2005). University students assume the computer and Internet usage will be an important learning tool in college (Goffe & Sosin, 2005; Metz, 2003). However, many classes do not use this technology and students feel the disconnect between their classrooms, the way they learn, and their lives outside the classrooms (Oblinger, 2004; Selwyn, 2007).

Mitsoni (2006), Yazzie-Mintz (2007), and Biggs (2006) suggested that relevance is very important to attract students' attention in classrooms. When students perceive knowledge in classrooms is related to their learning goals and actual lives, they will interact and engage in

classrooms activities. Wiggins and McTighe (2008) and Keller (2008) added that, if relevance is missing, activities will not interest or motivate students to interact with classrooms activities. In other words, the insufficient connection between what is going on in students' classrooms and their actual world will present a *disconnect* between their actual world and their classrooms (Coye, 1997).

Students' Interaction with Technology

Jones (2002) and Oblinger (2004) emphasized that technology is part of our social and cultural environment: Children grow up using computers and continue the practice throughout college. Jones (2002) stated that college students are heavy users of computer technology, and it is part of their daily routine because they have grown up with it. Technology is integrated into their daily habits. His study found 20% of current college students began using computers between the ages of 5 and 8. By the time they were 16 to 18 years, technology was used heavily in the world in which they lived. Almost 50% of students began using computer technology at home before they arrived at college.

Oblinger (2004) and Lashinsky (2005) added students use technology in their daily lives and have developed a different set of attitudes and aptitudes having grown up in environments filled with technology. This provides advantages in their ability to use information technology, to interact, and to work collaboratively. Oblinger and Oblinger (2005) suggest the title of *net generation students* to refer to students in the digital world and their relation to technology use in their daily lives. They posit net generation students are digitally literate, connected, and multitasking individuals who can browse the web pages and work on an assignment.

Rowlands et al. (2008) used another concept describing students as *Google generation* referring to the generation who was born after 1993 and grew up in the Internet World. These

students are more comfortable working on a keyboard than writing in a notebook, and they are happier reading from the screen than from papers. For them to be in touch with friends and family members at any time and from any place is very important. Their study showed that 89% of college students use search engines to begin an information search, whereas 2% start from a library web site. Almost all the students (93%) are satisfied using a search engine, compared with 84% for a librarian-assisted search.

Ellison, Steinfield and Lampe (2007) reported that students are heavy users of Facebook outside their classes. They use it to interact with friends and family members or to meet new people. It is clear that the Internet facilitates new connections in that it provides new ways for people to connect with others with the same interests and goals. Oblinger (2005) and Ellison, et al. (2007) indicate that today's students' lives are filled with visual images, whether on the web, on TV, or through games. Therefore, it is not surprising that many students choose to express themselves through visual media (Lee, et al., 2005; Selwyn, 2007).

Brown (2008) added this is an age where all people use technology everywhere: work, schools, universities, and homes. The world today is different from decades ago because of technology, which itself will change (Selwyn, 2007). In the past the computer was used as a work technology, not home technology (Brown, 2008), but over time, nearly 75% of households now have computers. In fact, a variety of technologies has been developed specifically for the home. The power of home technology in the information age is through connectivity- specifically, Internet access and use. Users of computer technology apply it to work, study, and entertainment through wired and wireless access that enables people to interact (Brown, 2008; Ellison, Steinfield, & Lampe, 2007; Lashinsky, 2005). Given such descriptions, educators can imagine how these students function as learners interacting with technology. For learners who

are experiential, social, and multi-taskers, technology may provide a freshness of approach and motivation to their studies (Oblinger, 2004).

Students' interaction with technology in Middle East countries. Because this study addresses the Middle East (i.e., Jordan, Lebanon, Egypt, United Arab Emirates, and Oman), researchers have also reported how technology is part of students' social environment in these countries. Today Middle East universities and students can easily use technology and navigate the internet and search for resources (Abouchedid & Eid, 2004; Al-Senaidi, et al., 2009; Sadik, 2008). Abouchedid and Eid (2004) found that 24.3 % of college students in Middle East countries have personal computers at home, with some connection to the Internet. Al Musawi and Abdelranheem (2004) reported that many students use email facilities and surf the Web on a daily basis outside classrooms.

Tubaishat and Qauasmeh (2006) reported that students have access to technology and they are efficient in the use of it. Usually when students have access to the Internet, there are many free resources they can access from home. According to their study, 85% students from one of the Middle East universities reported that they did not have problems accessing the university web page from home. Students reported that they have their own laptops and can use the Internet from home. Only 5% of the students reported that they had problem in accessing the online sources.

Abouchedid and Eid (2004) reported that off-campus students use electronic mail and have the same quality of communication with faculty members that on-campus students have. It facilitates the communication between students and the instructors and between students themselves.

Importance of Motivation

Motivation is based upon the idea that to be motivated means to be moved to do something (Ryan & Deci, 2000). Motivation involves the processes that give behavior its energy and direction (Lee, et al., 2005; Reeve, 1996; Surry & Land, 2000). It refers to the goals people undertake - the goals they see as relevant and valuable to them (Means, Jonassen, & Dwyer, 1997). Motivation, as Keller (2008) points out, refers to the choices people make as to what experiences or goals they will approach or avoid, and the degree of effort they will exert in that respect.

Motivation is an important aspect of students' engagement and interaction with a learning activity (Keller, 2008; Rogers, 2000; Schunk & Pajares, 2002). Several studies (Rigby, Deci, Patrick, & Ryan, 1992) have related motivation to interaction with learning activities which showed that the degree of engagement in a learning activity will affect the quality of one's learning. According to Means, et al. (1997) up to 38% of student learning and achievement is due to motivation (p. 5).

According to Keller (1987), most of the theories presented that time and research on motivation dealt either with psychological approaches to change individual motivational characteristics in students, or in terms of classroom control, reinforcement of learning, or effective outcomes. They did not help instructors know what types of strategies to use with a given student, and they did not incorporate important principles from several areas of motivational research that have been studied in recent years (e.g. curiosity, sensation, seeking, and intrinsic motivation). Subsequently, work has been done to help students learn how to be self-motivated.

Keller's Motivational Theory (Keller, 1987, 2001, 2010, 2008) discusses the importance of preparing the surrounding environment, the instruction, and students' readiness for interaction in classrooms in order to increase students' motivation to engage with learning activities. It includes sets of strategies to use to enhance the motivational appeal of instructions in classrooms.

In his theory, Keller (1987, 2001, 2008; 2010) stated a set of principles of motivation in his ARCS model (*attention, relevance, confidence, satisfaction*, and briefly presented them as follows: A person's motivation in regard to a topic can be increased if the topic (a) gains the person's attention, (b) if the topic is relevant to the person, (c) if the person is confident s/he can master the topic, (d) if the topic is satisfying to the person, and (e) after becoming motivated to achieve a goal, motivation to learn is promoted and maintained when learners persist to achieve their intentions and goals.

Extrinsic and intrinsic motivation. Ryan and Deci (2000) asserted that all humans' behaviors are motivated by physiological drives, and both extrinsic and intrinsic motivations have these drives. Extrinsic motivation provides students with satisfactory results for the hard work they do to learn a new skill (e.g., grades and instructors' praises) (Ryan & Deci, 2000), whereas intrinsic motivation provides students with the joy and the interest they need to explore the task itself. Rigby, et al. (1992) added that there are many different reasons that motivate students to interact and learn extrinsically and intrinsically.

Extrinsic motivation. Extrinsic motivation relates to behaviors that are engaged in doing something that derives benefits and has an end (Lee, et al., 2005; Ryan & Deci, 2000). The goals of such behaviors are to receive something positive and avoid something negative (Kowal & Fortier, 2000). Therefore, from an extrinsic motivational perspective, behavior is driven by its perceived values and benefits derived. Perceived usefulness refers to the degree to which a

person believes that using a particular technology would enhance his/her performance, and perceived usefulness in technology is an example of extrinsic motivation (Davis, Bagozzi, & Warshaw, 1992; Keller, 2008; Lashinsky, 2005; Ryan & Deci, 2000).

Extrinsically motivated behaviors are instrumental in nature. Students, who performed actions to gain something positive, and not out of interest, are extrinsically motivated (Deci, Vallerand, Pelletier, & Ryan, 1991). Extrinsic motivation provides students with satisfactory results for the hard work they do to learn a new skill (Blumenfeld, et al., 2006; Keller, 2008; Meece, et al., 2006). Students feel confidence when they experience the success of learning the task because of the hard work they do (Ryan & Deci, 2000).

Covington and Mueller (2001) argued that extrinsic rewards have negative influences on the sense of personal commitment to learning. Students get rewards for learning in classrooms, such as grades and praise, but if these rewards are no longer available, the willingness to continue learning will likely decrease. They added that students grew up in a way that they see their ability to achieve and their sense of worth related just to their grades. The more students get high grades, the more they appreciate learning. When students focus on grades they focus less on the learning process and acquiring information (Rigby, et al., 1992; Ryan & Deci, 2000).

Ryan and Deci (2000) suggest that intrinsic motivation becomes weaker in advanced grades and levels. Students in elementary classes do activities because of the enjoyment of the activities themselves rather than to their instrumental value (such as getting high grades, getting praise by their teachers). This instrumental value is referred to as extrinsic motivation to engage in the activities.

Intrinsic motivation. Intrinsic motivation refers to doing an activity for its own sake; the activity itself is interesting, engaging, or in some way satisfying (Deci, et al., 1991; Lee, et al.,

2005; Ryan & Deci, 2000). From intrinsic motivational perspective, behavior is evoked from the feeling of pleasure, joy, and fun. To perceive the activity of using the computer as enjoyment, for example, is to enjoy using it for its own sake, away from any personal achievements or gains. On the basis of this definition, perceived enjoyment is a form of intrinsic motivation. Students engage in these activities for their pleasure and satisfaction derived from their performance (Kowal & Fortier, 2000; Muuss, Velder, & Porton, 1996; Woodbridge, 2003). When students feel joy and interest in classroom activities, it is easy to capture their attention (Keller, 2008; Taylor, 2006; Yazzie-Mintz, 2007). To sustain it, it is necessary to respond to students' passions of relating the new task activity to their actual world (Biggs, 2006; Coye, 1997; Keller, 2008; Mitsoni, 2006; Wiggins & McTighe, 2008).

When intrinsically motivated, students engage in activities that interest them, and when they do them, they are freely doing them without waiting to be rewarded (Deci, et al., 1991). Therefore, if students perceive the use of technology in classrooms as enjoyable, they are more likely to have favorable feelings towards technology and a high degree of intention to use it. Students with intrinsic motivation are reported to interact with learning activities more because they were free from pressures to learn (such as grades) (Blumenfeld, et al., 2006; Rigby, et al., 1992; Woodbridge, 2003). The amount of their interacting with learning activities will be predicted according to their *interest, engagement, and enjoyment*. Added to this, some studies (Kowal & Fortier, 2000; Reeve, 1996) have added that intrinsic motivation correlates positively with retention. Students reported their willingness in trying hard to learn and do their best to gain knowledge.

Other studies (e.g. Rigby, et al., 1992) discussed that people have intrinsic motivation to explore, understand, and adjust to their environment. This kind of motivation does not require

external force to be operated. Ryan and Deci (2000) describe this as when a student is motivated to do homework or participate in activities out of interest and curiosity to know and learn.

According to Bandura (1989), intrinsic motivation results when students experience satisfaction from completing difficult tasks, achieving high standard, and perceiving oneself as a skilled and competent.

Ryan and Deci (2000) presented a study to measure intrinsic motivation and called it the *free choice* measure. The experimenters asked their students to work on a project in which they get a reward (e.g., grades). After sometime, the experimenters told their students they no longer wanted them to work on the project, they would not be graded for it, and the researchers left the room. Students now had a period of *free choice* about whether to complete the task or leave it. Some students went back and completed their work on the project and the others stopped. Ryan and Deci (2000) concluded that the more the students spent time doing the task and completing the project (knowing that there are no rewards), the more intrinsically motivated they were.

Ryan and Deci (2000) suggested another way to measure intrinsic motivation, (a *self-report* instrument) in which students report their interest and enjoyment of the activity. For intrinsic motivation, students experience satisfaction of their needs by reporting their enjoyment of, interest in, the task in classrooms.

Extrinsic and intrinsic motivation in Keller's (2008) theory. Rigby, et al. (1992) and Ryan and Deci (2000) mentioned that there are many studies showing that extrinsic and intrinsic motivations would work together to enhance learning. Bandura (1989) pointed out that what appears to be intrinsically motivated behavior might be really be extrinsic. Students might work hard and for a long time, not because of pure love of learning, but for instrumental rewards (e.g., first-rate college, preparing for future job). Lee, Cheung, and Chen (2005) indicated that learning

goals can be extrinsic to the learning event, when students just want to pass a course to be eligible for taking another required one. Intrinsic motivation, on the other hand, is achieved when the student is self-determining (Chen & Katz, 2009; Reeve, 1996; Ryan & Deci, 2000) and is engaged in the actions that are personally interesting and freely chosen (Blumenfeld, et al., 2006; Draper & Brown, 2004). It is difficult to separate the two types of extrinsic or intrinsic motivation related to students' behaviors, personal characteristics, and the surrounding environments. The most basic distinction between extrinsic and intrinsic motivation is the interest or enjoyment a student must have to act or join the learning process (Kowal & Fortier, 2000; Ryan & Deci, 2000).

Ryan and Deci (2000) reviewed many studies showing that instructors cannot rely only on students' intrinsic motivation to enhance learning. Generally, the tasks that educators ask students to perform are not enjoyable or interesting on their nature. For that, sometimes extrinsic motivation is needed to go along with the intrinsic one to actively engage students in the learning process and the classroom activities. Since educational activities are not designed to be intrinsically interesting, students need to be motivated to value such activities in classes without external pressure to get engaged. In other words, a task needs to be interesting and enjoyable enough for students to be motivated to take part in learning and actively engaged in the tasks in and outside classrooms (Deci, et al., 1991; Rigby, et al., 1992).

According to Keller's Motivational Theory (2008), the ARCS model can be used effectively in classrooms to motivate students to interact. These four categories include many of the specific concepts and variables that characterize human motivation which enhance and motivate students to interact with classroom activities.

Keller's (2008) primary assumption of motivation is based on notions that: (a) curiosity must be aroused and sustained; (b) the material must be perceived to be relevant to personal value or instrumental to accomplishing desired goals; (c) students must have the personal conviction that they will be able to succeed; and (d) the consequences of learning experience must consistent with the personal incentives of the learner (p. 176).

Extrinsic motivation provides students with satisfactory results for the hard work they do to learn a new skill (Blumenfeld, et al., 2006; Keller, 2008; et al., 2005). Students feel confidence when they experience the success of learning the task because of the hard work they do (Ryan & Deci, 2000). Extrinsic motivation can be related to the third and fourth categories (i.e., *confidence & satisfaction*) in Keller's motivational theory (1987, 2008).

According to Keller (2008), when learners feel that they can succeed in learning a task, their motivation and readiness to interact with classroom activities is promoted (Meece, et al., 2006; Oblinger, 2004). Students' positive experiences with success help them build confidence in their accomplishments, relating this success to their abilities and efforts which motivate them to have a continuous interaction with classrooms activities (Keller, 2008; Meece, et al., 2006). Keller (2008) also pointed out that when students experience satisfying outcomes to a learning task; their motivation to interact with classroom activities is promoted.

Since intrinsic motivation provides students with the joy and the interest they need to explore the task itself (Covington & Müeller, 2001; Lee, et al., 2005; Taylor, 2006), it can be related to the first and second categories (i.e., *attention & relevance*) in Keller's (2008) motivational theory. According to Keller (2008), attention means building learners' curiosity and keeping up their active engagement in classroom activities throughout, responding to their passions and needs. The motivational concern is for getting and sustaining students' attention.

Keller (2008) suggests relevance is the meaningful relation between what learners believe about the knowledge they receive, their goals, and their real lives. When learners perceive that the knowledge they interact with in their classrooms is related to their goals in the actual world, this will increase their motivation to interact.

Keller (2008) and Meece et al. (2006) reported that when students feel they can succeed in learning a task, their motivation to engage in learning is promoted and their confidence is achieved. Blumenfeld et al. (2006) and Keller (2008) added that students' confidence can be achieved by giving them chances to build positive experiences with success. Lee et al. (2005) and Keller (2008) reported motivation is an important aspect of students' interaction with learning activities.

Technology and Students' Motivation

According to Apperson et al. (2006) and Oblinger (2004), technology is everywhere across and beyond higher education; and Oblinger and Oblinger (2005) add educators can do many things in their classrooms using technology. Falvo and Solloway (2004) suggest that technology can provide college faculty with various educational resources and learning opportunities. Students are able to do and interact with new and exciting things which stimulate their curiosity and keep them engaged with the activities provided (Goffe & Sosin, 2005; Oblinger, 2005). This relates to Keller's (2008) theory about building learners' curiosity and keeping up their active engagement in classrooms activities.

Selwyn (2007) pointed out that students in the 21st century have incorporated technology into their daily lives and, because of their high degree of technology use, technology might be seen as an excellent medium for motivating students to interact with learning activities in classrooms. Oblinger (2005) also explained that it seems convenient to use technology in

classrooms to motivate students to interact with classrooms activities since students are already using technology on their daily lives.

Lee et al. (2005) indicated that, because students interact with technology in their daily lives, it is important for educators to understand why students expect a change in the interactions between students and educators, activities, and among students themselves. Oblinger (2005) and Bates (2004) added that because students grew up with technology, technology arouses their interest to interact with new activities that capture their attention all the time.

Bates and Poole (2003) defined instructional technology as learning tools that support the activities in the classrooms that enable students to interact with each other, with the instructor, and with the activities presented. Because technology is such a prevalent part of students' daily lives, the use of technology in the classroom is a viable means of addressing motivational techniques as a way of combating the disconnect students feel. Keller (2008) mentioned in his theory the first important issue is to gain students' attention in order to interact with classrooms activities. Keller (2008) and Taylor (2006) added that technology increases learners' curiosity and captures their attention because technology has changed the way people interact, work entertain, and communicate (Oblinger, 2005; Shaffer, Squire, Halverson, Gee, & Co-Laboratory, 2005). Since technology captures learners' attention, Draper and Brown (2004) and Lashinsky (2005) suggested using instructional technology to get students' attention in classrooms and increase their interaction with classrooms activities.

Keller (2008) and Oblinger (2005) reported that students feel satisfied when the outcomes to the interaction with the learning activity meet their expectations. These expectations are necessary for students to have positive feelings about their interaction with learning activities in classrooms

Attention. Apperson (2006) reported that attendance and motivation were high in her classes that have technology integrated. Students who attended classes in which the instructor used technology all the time had statistically significant performance advantage over students in classes using little technology. Technology motivates students to interact with learning activities and gains their attention to attend classes with technology integrated. Instructors found that technology activities used in classrooms motivated students to engage in those activities and were reported as the most interesting.

Like any information system, the primary measures of system success are gaining users' attention and acceptance to interact with and use (Rogers, 2000). Lee, et al. (2005) suggested that successful technology-mediated interaction shows high levels of student engagement and participation. Similarly, a successful integration of technology into classrooms needs to be widely adopted with active engagement and participation from students (Blumenfeld, et al., 2006). Technology has motivational benefits that get students' attention to participate, and it also can help sustain interest and promote cognitive engagement.

An increasing number of instructors report that technology captures students' attention and motivates them to participate, integrate multiple skills, create practical reasons for reading, writing, and revising communication (Goffe & Sosin, 2005; Hirumi, 2002; Keller, 2008; Oblinger, 2005; Selwyn, 2007). Oblinger (2005) reported that technology in classrooms can support learning activities rather than be independent of them since many students reported that they like using technology in classrooms. Other researchers (Goffe & Sosin, 2005; Hirumi, 2002; Selwyn, 2007) added that technology has motivational benefits that get students attention to participate, and it also can help sustain interest and promote cognitive engagement.

Furthermore, Students respond positively to learning forms which technology provides in classrooms (Oblinger, 2005). Students' interest is heightened by access to resources, real-time information, input from others, data that bears on conversational issues and unresolved questions.

Relevance. Computers and technology are generally touted as being effective in increasing students' motivation by making learning relevant (Blumenfeld, et al., 2006; Draper & Brown, 2004; Meece, et al., 2006; Mistler-Jackson & Songer, 2000). Several studies indicated that technology activities can positively influence students' motivation (Bures, Abrami, & Amundsen, 2000; Davis, et al., 1992; Keller, 2008; Lee, et al., 2005; Woodbridge, 2003). Also, students' interaction with technology becomes an engaging experience (Blumenfeld, et al., 2006). This point may reflect how students push for changes in teaching, learning, and interaction in the classroom environment to connect them to their actual world application of technology use (Lohnes & Kinzer, 2007; Oblinger & Oblinger, 2005).

Bates and Poole (2003) proposed that, in this century, there is a relationship between knowledge, learning, teaching, interaction, and technology. Knowing this might help educators in providing chances for their students to interact in their classrooms with technology the same way they do in their actual daily lives (Brown, 2008; Jones, 2002; Oblinger, 2005).

Results from studies (Apperson, et al., 2006; Bures, et al., 2000; Meece, et al., 2006; Selwyn, 2007; TJ Shuell & SL Farber, 2001) about technology use in classes and student' motivation to interact with learning activities found that students agreed that using technology helped them understand the concepts and increased their attendances in the classrooms. Because the activities were relevant to their daily lives, students became motivated to know more and interact with the classrooms activities

Satisfaction. According to the Pew Institute and American Life project survey of college students (Goffe & Sosin, 2005), 80% of the students reported that technology use had a positive effect on their academic experience. Even more telling was the fact that students preferred instructors using technology more actively and productively in assignments. When used effectively, technology can open doors to learning, which is then enhanced by students' experiences with technology (Davis, et al., 1992; Oblinger, 2005; Selwyn, 2007; Venkatesh & Davis, 2000). Technology increases students' curiosity to search and know more (Keller, 2008); therefore, students perceive technology in classrooms as a motivator that increases their interaction with learning activities (Goffe & Sosin, 2005; Hirumi, 2002). Apperson et al. (2006) and Oblinger (2005) stated that computer technology also makes students feel satisfied in classrooms and satisfied with the outcomes expectations.

Davis, et al. (1992) adapted the motivational perspectives and added enjoyment aspects to explain technology acceptance from both extrinsic and intrinsic motivational perspectives. Venkatesh and Davis (2000) also redefined technology acceptance within a motivational framework. They presented extrinsic and intrinsic motivation as predictors of behavioral intention to use technology to motivate students to engage in the culture of classes and interact with the learning activities.

Confidence. When talking about engagement and interacting in classrooms, this includes students' willingness to invest and put forth effort in learning (Blumenfeld, et al., 2006). Students have shown a preference toward interacting with learning, which engages them in doing things and thinking about what they are doing, more than sitting in classrooms, listening to professors, and taking notes, which lead them to feel bored in classrooms (Anthony, 1996; Mitsoni, 2006; Selwyn, 2007; Wiggins & McTighe, 2008; Yazzie-Mintz, 2007).

Keller (2008) emphasized that when students establish a connection between learning experience and their past experience, they will be motivated to interact with actions that are personally interesting and freely chosen. Technology can provide students with excellent connections to their actual world since students use technology much of the time in their daily lives (Goffe & Sosin, 2005; Oblinger, 2005). Oblinger (2005) also explained that it seems convenient to use technology in classrooms to motivate students to interact and learn since students already use technology on their daily lives.

Apperson et al., (2006) and Oblinger (2005) reported students feel that they can succeed in learning a task when interacting with technology. Their motivation to interact with classroom activities is increased because it is related to their beliefs that they can personally control the task and can succeed as they interact with technology outside their classrooms. This motivates them to have a continuous interaction with classrooms activities (Keller, 2008).

Technology gives students opportunities to build positive experiences with success while interacting with technology. This feeling of accomplishments attributed to their abilities and efforts using technology increases their motivation to interact with classrooms activities (Meece, et al., 2006).

Technology and students' motivation in Middle East countries. Abouchdid and Eid (2004) reported that technology increases positive interaction between student-to-student and faculty-to-students and enables student-centered teaching approaches, providing 24 hour a-day accessibility to course material, and provides just-in-time methods to assess and evaluate student engagement and interaction with learning activities in and outside classrooms. Abouchdid and Eid indicated that universities and college students in the Middle East countries welcome technology as a method of making education more flexible, motivated, and immediate. They

reported that students see technology as the building block that supports the structure of the classrooms activities.

Sadik (2008) indicated in his study that instructors can use instructional technology as tools to engage their students more and increase their interaction with the learning activities they provided. He added that instructional technology encourages students to construct their knowledge and ideas to present them and share them. This helps students interact effectively with each other, with instructors, and with the learning activities in the classrooms. He also found that using instructional technology increases students' engagement and interaction, organizes their ideas, and allows them to express these ideas.

Al Musawi and Abdelraheem (2004) indicated, based on research evidence, that technology can help create an atmosphere that increases students' motivation to interact in classrooms. Senadidi, et al. (2009) reported that one of the public universities in the Middle East began a project to implement using blackboard in 2007. There were only 15 courses that used Blackboard and 581 students enrolled on these classes. In 2008, 30 courses used Blackboard with 890 students. Faculty and students at that university seemed to favor using Blackboard as new technology in their classrooms because it increases students' opportunities to interact with what is going on in classrooms.

Tubaishat and Qauasmeh (2006) presented results of a case study based on surveys conducted in two universities in Middle East countries. Survey results showed that using technology in classrooms improved the motivation and confidence of students, improved their communication skills, encouraged students to interact and collaborate, and increased their motivation to interact with the learning activities presented in the classrooms.

Abouchedid and Eid (2004) recommended in their study that decision makers do not need to feel afraid that Arab universities and colleges might become *no lecture* institutions if instructors motivated their students to interact with each other, share knowledge, ask questions, discuss concepts with them instead of listening to a lecture-based class almost for 45 minutes without interaction. They suggest that educational institutions need to support technology use in classrooms since instructors and students see technology as a *building block* that supports the structure of the classrooms and does not substitute it.

Summary

The literature review presented the elements that were related to the aspects of the problem: Students' boredom and lack of motivation to interact in their classrooms at the university. Students feel a disconnect between their real world and their classrooms, and interact with technology outside classes as an integral part of their daily routine lives.

The focus in addressing the problem were the four dimensions of motivation presented by Keller (2008) with his ARCS model (*Attention, Relevance, Satisfaction, Confidence*). Keller's (2008) theory and its components helped in understanding the problem from looking at the four aspects as the nature of the problem. The theory discussed the importance of preparing the surrounding environment, the instruction, and students' readiness for interaction in classrooms, and the literature review was arranged according to these dimensions. Keller (2008) stated that, in order for students to be motivated to interact with learning activities, students must be curious about the material presented in classrooms, the material must be relevant to their real world, students must have the confidence that they will be able to succeed, and students must be satisfied with their learning experiences.

The importance of motivation and the integration of technology into classrooms were proposed as one means of solving the problem. Research in Middle East colleges and universities resulted in similar findings as that in the United States: students are bored and not motivated to interact in classrooms, feel the disconnect between their classrooms and their real world, and the importance of technology in their daily lives.

Research Hypotheses

Six research hypotheses resulted from the material presented in the literature review:

Hypothesis one. Will there be a positive relationship between instructor use of technology and students' *motivation* to interact with each other, with instructors, and with learning activities in classrooms (according to Keller's (2008) motivational theory)?

Hypothesis two. Will there be a positive relationship between instructor use of technology and students' *attention* to what is going in the classrooms (according to Keller's (2008) motivational theory)?

Hypothesis three. Will there be a positive relationship between instructor use of technology and students' sense of *relevance* to their real world (according to Keller's (2008) motivational theory)?

Hypothesis four. Will there be a positive relationship between instructor use of technology and students' *confidence* to interact with the material presented in classrooms, with instructors, and with each other (according to Keller's (2008) motivational theory)?

Hypothesis five. Will there be a positive relationship between instructor use of technology and students' *satisfaction* with the material presented in classrooms, with instructors' styles of presenting the material, and their interaction with each other (according to Keller's (2008) motivational theory)?

Hypothesis six. Is there a relationship between students' comfort level with using technology and their desires for instructors to use technology?

CHAPTER THREE

Methodology

This study used a quantitative design that addresses relationships between students' perceptions and the use of technology as motivational tools used in their classes at the university. Quantitative research approaches focuses on hypothesis testing and theory testing (Johnson & Christensen, 2004). The intention of this study is to test hypotheses and see how the four aspects of Keller's motivational theory (2008) (*attention, relevance, satisfaction, and confidence*) relate to students' motivation to interact in their classrooms at the university.

Quantitative design reduces measurements to numbers and usually analyzes the data by using statistical analysis programs (Drew, Hardman, & Hops, 2007; Johnson & Christensen, 2004). The quantitative method is used to discover the relationships and differences between the variables, which allows for an in depth look at numbers, means, and standard deviations for participants. This research design allows for interpretation of the data gathered in order to show comparisons, contracts, or correlations in the variables (Bogdan & Biklen, 2007; Creswell, 2008). The variables in this study were not manipulated; instead they were investigated as they exist (Belli, 2009).

Research Site

Nizwa College of Technology (NCT) was the research site for this study. It is located in Nizwa, Sultanate of Oman. Nizwa College of Technology was established as a public academic Omani Institution of Higher Education. It is accredited and operates under the supervision of the Ministry of High Education in Oman (www.nct.edu.om). Nizwa College of Technology (NCT) is one of seven colleges of technology in the Sultanate of Oman operating under the auspices of the

Ministry of Manpower. The other six colleges are located in Ibra, Ibri, Musanna, Muscat, Salalah, and Shinas. Nizwa College of Technology is located on the eastern side of the town of Nizwa, twelve kilometers from its city center and about 160 kilometers northwest of Muscat(www.nct.edu.om).

Nizwa College of Technology (NCT) was known as Nizwa Industrial College in 1993. It was renamed and upgraded as such in 2001. It was one of the five public vocational training institutes under the Ministry of Social Affairs and Labor. It started with 102 students, 22 academic and 12 administrative staff with Arabic as the medium of instruction (http://www.nct.edu.om/about_nct/overview.php). The College was converted into Nizwa College of Technology through the Ministerial Decision No. 174/2001. Since then, NCT has been operating under the supervision of the Ministry of Manpower. Over the years, new college facilities were added and equipment was upgraded for teaching and learning. A new credit hour system was introduced which is still being used today. This new system allows four levels of graduates: Certificate, Diploma, Higher Diploma and Bachelor of Technology. At that time, English began to be the medium of instruction (www.nct.edu.om). Nizwa College of Technology (NCT) continuous to grow and as of spring 2012 the numbers were 3908 students, 191 academic staff, 74 technicians & trainers, and 65 administrative staff with English as the medium of instruction (www.nct.edu.om).

The College started developing the NCT Quality Assurance Manual (QAM) in 2005-2006. Its Strategic Plan paved the way for the creation of the College Quality Assurance Follow-up Unit (QAFU). The QAM, through QAFU, provided guidance on how NCT should carry out its quality assurance and enhancement activities (www.nct.edu.om).

Modern buildings equipped with the latest educational technologies were constructed such as the Student Affairs building, the Electrical and Electronics Engineering building, and the modern Mechanical and Welding workshops. New specializations such as Oil and Gas were offered, in addition to the introduction of the e-Learning system on the college website (http://www.nct.edu.om/about_nct/overview.php).

Participants

The 630 participants in this study consisted of freshman and junior students (600) and the instructors (30) who taught freshman and junior required courses.

Students. There were 1041 freshman and junior students enrolled in the selected courses. . Those students were divided into 47 sections; 43 sections were allocated to freshmen (n=934) and 4 sections were allocated to juniors (N=107). The researcher managed to visit 35 sections (freshmen= 33 sections; junior= 2 sections) out of 47 sections since some of the instructors apologized for not having time to complete the material and did not approve the researchers’ visit to their classes. There were 798 freshman and 71 junior students in those 35 sections. The return of the students’ surveys was 600 (69%) out of 869 students, and 58%return rate of the total 1041 possible students (see Table 1 for the details).

Table 1

Student Demographics

Year in School	N	Gender		Age		Major		
		Male	Female	18-19	20+	Bus.	Eng.	IT
Freshmen	529	300	229	217	312	132	291	106
Junior	71	49	22	9	62	16	45	10

The Participants were 251 female students and 349 male students in all freshman and junior in required courses at the College. There were 529 freshmen and 71 juniors. Their ages

ranged between 18 and 25 years (M=19.8). Nizwa College of Technology provided three majors for its students; Business, Engineering, and Information Technology (IT). 148 were Business students, 336 were Engineering students, and 116 were IT students. All 600 students were Omanis with the same ethnicity and all of them were full-time students.

Instructors

There were 28 instructors who taught freshmen and 2 instructors who taught junior required courses for a total of 30 instructors. Table two contains a summary of the instructor demographics.

Table 2

Instructor Demographics

Gender	N	Teaching Yrs	N	Ethnicity	N	Computer Proficiency	N
Males	20	1-5	26	Omani	3	Adv.or Exp.	15
Females	10	6-7	3	Other	27	Average	10
		8+	1			Beg. Or Unfam.	5

Two thirds (20) of the instructors were males and one third (10) were females. Their ages ranged between 25 and 65 years old (M=40.6). The instructors taught in two departments: 19 taught in the English Language Center (ELC) and 11 taught in the Information Technology (IT). The instructors came from several ethnics’ background; 3 were Omanis, 18 were Hindis, 1 was Jordanian, 2 were Americans, 2 were British, 1 was from Phillipine, and 3 were Pakistanis.

Almost one third (9) of the instructors perceived themselves as experts in computer proficiency, 6 perceived themselves as advanced, 10 of the instructors perceived themselves as average, and only five perceived themselves as either beginners or unfamiliar with using

computers. All 30 instructors were lecturers with a full-time load. Of the thirty five sections, 9 instructors taught one section, 10 instructors taught two sections, and 2 instructors taught 3. One junior instructor taught both 2 sections. Some instructors taught 2 sections and others taught 1 section. The remaining 9 instructors the 12 sections that the researcher did not visit; however they did take the instructor survey.

Instruments

Four instruments were used to collect the data for this study from both students and instructors. These surveys were: Instructional material motivational survey (IMMS), Student technology survey, Student perceived effectiveness of computer technology use survey, Instructor Perceived Effectiveness of Computer Technology Use Survey.

Student surveys. Three surveys were given for the students: Instructional Material Motivational survey (IMMS), Student Technology Survey, and Student Perceived Effectiveness of Computer Technology Use Survey.

Instructional material motivational survey (IMMS). This survey was first developed by Keller in (1993) as a measuring instrument to serve as a data-collection tool to analyze motivational problems within instructional materials. Then Huang, Diefes-Dux, and Imbrie (2006) used all the original IMMS (Instructional Material Motivational Survey) items in Keller's study (1993) with minor modification to accommodate the items to the setting of their study. The IMMS contains 43 survey items in which the first 7 items represent students' demographics. The remain 36 items corresponding to each component of the ARCS model, in which (a) 12 items measure *attention*, (b) 9 items measure *relevance*, (c) 9 items measure *confidence*, and (d) 6 items measure *satisfaction*.

The survey utilizes a (5-point-likert) scale for the 36 items with statements from 1= not true, 2= slightly true, 3= moderately true, 4= mostly true, and 5= very true (See Appendix A). Scores for attention section can range from 12- 60; relevance section can range from 9- 54; confidence section can range from 9- 45; and satisfaction section can range from 6- 30. The survey was used more than once, however there were no reliability and validity results provided.

The researcher sent Dr. Keller email asking about the reliability and validity of ARCS items in his study. The author gave the researcher his approval to use his survey and provided some information about reliability and validity results of that survey items. Keller (2010) reported that the survey was first administered to a class of 45 university undergraduates, and the internal consistency estimates were satisfactorily high. A pretest version was prepared by rewriting items in the future tense and was administered to an undergraduate class of 65 students. The internal consistency estimates were high, but further revisions were made to improve the instrument. The standard version of the survey was then administered to 200 undergraduates and graduate students in the School of Education at a university in the Southeast. The internal consistency estimates, based on Cronbach's alpha, were satisfactory (Attention 0.84, Relevance 0.84, Confidence 0.81, Satisfaction 0.88, Total scale 0.95) (Keller, 2010). Keller (2008) reported construct validity studies by Naime-Diffenbach (1991) and Small and Gluck (1994) that indicated through experimental studies the relationship of instructional materials to the domains of Keller's motivational theory. There have been many studies over the past 20 years that substantiate the relationship between motivation and learning (e.g., Chang & Lehman, 2002; Winiecki, Fenner & Chyung, 1999).

Student technology survey. This survey was posted online and any one can access it and participate voluntarily ("Student technology survey," 2001). The survey contains 10 survey

questions corresponding to students' experience with computers, in which (a) questions 1-8 measure students' access and use of computers, (b) question 9 measures how often students use computers regarding software programs or tools, and (c) question 10 measures how much help students need concerning applications that they have used (See Appendix B).

The survey utilizes a different (Likert-type) scale for each question. The scales are either Yes-No (Questions 1 and 4), never to almost daily (Questions 2, 7, 8, 9), individually to in pairs (Question 5), or questions regarding students' use of computers (Questions 3 and 6)

The first question can range from 1-2, question two can range from 1-5, question three can range from 0-1, question four can range from 1-2, question five can range from 1-4, question six can range from 0-1, question seven can range from 1- 5, question eight can range from 1-5, question 9 can range from 15- 75, and question 10 can range from 13- 65. The survey was used online many times, however there were no reliability and validity results provided.

Student perceived effectiveness of computer technology use survey. This survey was designed, along with the instructors' survey mentioned before, by Lowerison, Sclater, Schmid and Abrami (2006) to examine what, if any, effect the use of computer technology has on student perceived effectiveness of a course. The researchers indicated that relevant studies (e.g., Shuell & S Farber, 2001) helped create an initial pool of the items in this survey. The final survey consisted of 63 items, in which (a) 7 items measure students' learning experiences in the course, (b) 6 items measure the learning strategies that they used within the class, (c) 9 items measure students' evaluation of the overall effectiveness of the instructional techniques used in the class, (d) 4 items measure students' evaluation of the overall effectiveness of the course in relation to instructors effectiveness, amount learned, increased interest in course content, etc, (e) 12 items measure the manner of technology use, (f) 12 items measure students' perceived effectiveness of

computer use, (g) 11 items measure students' personal use of computer technology, and (h) the last item ask about students' comments (See Appendix C).

The survey utilizes a (5-point-likert) scale for sections 1-5 and (6-point-likert) Scale for sections 6 and 7. Section one includes statements from 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, and 5= strongly agree. Section two and three include statements from 1=never, 2= seldom, 3=sometimes, 4= often, and 5=very often. Section four includes statements from 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, and 5= strongly agree. Section five includes statements from 1=never, 2= seldom, 3=sometimes, 4= often, and 5=very often. Section six includes statements from 1= not applicable, 2= very ineffective, 3= ineffective, 4= neutral, 5= effective, 6= very effective. Section Seven includes statements from 1= not applicable, 2= strongly disagree, 3= disagree, 4= neutral, 5= agree, 6= strongly agree.

In the first section, scores can range from 7-35, section two scores can range from 6-30, section three scores can range from 9-45, section four scores can range from 4-20, section five scores can range from 12-60, section six scores can range from 12-72, and section seven scores can range from 11-66.

The authors gave the researcher their approval to use their survey and provided some information about reliability and validity results of their survey items. Lowerison et al. (2006) used their survey again in another study (e.g., Gretchen Lowerison, Tamim, Schmid, Bernard, & Abrami, 2008) that investigated the relationship between computer technology's role and students' perceptions about course effectiveness in two different universities (e.g., one Canadian and one American). To test the validity of the instrument, the two universities conducted separate factor analyses with the data. Considering that large sample sizes adequately met criteria for factor analysis, the items related to the use of computer technology and the learner-centered

approach were factor analyzed using varimax rotation with data from both samples. The factor analyses were highly similar, where the rotated factor matrix with the Canadian sample resulted in three factors (accounting for 46.22% of the total variance) with eight values larger than 2.0 (ranging from 2.26 to 8.40). Similarly, the rotated factor matrix for the American sample revealed three factors (accounting for 48.94 % of the total variance) having eight values larger than 2.0 (ranging from 2.46 to 8.35). With both samples, factor loading higher than .40 on each of the three factors were examined, and they revealed a high level of similarity. In both cases, factor 1 included items addressing *computer-use*, factor 2 included items addressing *course-structure*, and factor 3 included items addressing *active-leaning and time-on-task*.

Instructor Survey .Instructors were given the same third survey that students took. This survey was: *Instructor Perceived Effectiveness of Computer Technology Use Survey* (See Appendix D).

Data Collection Procedures

Data collection consisted of students' surveys which were given during class time and instructors' survey which was given during work time. The researcher asked the instructors to complete their survey first, and then the students were given the three surveys later at the end of the semester.

Students. Students selected were freshmen from required courses for freshmen and junior students from required courses for juniors at Nizwa College of Technology. Classes for each group were determined through registration department at the College, and the instructors for each class were asked to provide information about the level of the students in each class. Instructors were given a good explanation about the study before visiting their classes. They were informed that the survey would take 50 minutes to 60 minutes (one class period).

Instructors were asked to approve the visits to their classes to give the survey for their students. After that, the instructors who approved the visit were contacted by sending emails. Instructors who replied were contacted in person to confirm the date, the class number, and the time to visit their classes. At the beginning of each class, a constructed speech that presented a brief idea about the study was given and read to the students by the instructors or the researcher herself.

Each student was given a packet that included the surveys and a consent form. Students were asked to sign the consent form showing that they were voluntarily participating in the study (See Appendix E). The consent form gave more details about the study that students read before participating on the study. Students were informed that the survey would take 50 to 60 minutes. They were also informed that there were no right or wrong answers; we just wanted their opinions. The researcher agreed to stay in some classes to translate difficult words or phrases into Arabic since the surveys were written in English. The researcher also agreed to stay after the class to answer any questions students asked about the survey, and was willing to come back and present the results of the study. Students were asked to return the surveys and the consent form to the packet and the researcher or the instructors collected them.

Instructors. Instructors selected were instructors who taught those freshman and junior at Nizwa College of Technology. The instructors were asked to participate in the study by giving them a good explanation about it. They were informed that the survey would take 20 minutes to 30 minutes (during their work time at the college). After that, the instructors who were willing to participate were contacted by sending emails. Instructors who replied were contacted in person to confirm the date and the time to take the survey. All instructors were asked to take the survey at the same time. At the beginning, a constructed speech that presented a brief idea about the study was given to the instructors. The researcher asked the instructors who spoke Arabic to translate

difficult words for their students while they were taking the surveys. Other instructors who did not speak Arabic were asked to approve the researcher visits to their classes to translate and explain any difficult words or phrases from the surveys.

Each instructor was given a packet that included the survey and the consent form. Instructors were asked to sign the consent form showing that they were voluntarily participating in the study (See Appendix F). The consent form gave more details about the study that instructors read before participating on the study. Instructors were informed that the survey would take 20 to 30 minutes. They were also informed that there were no right or wrong answers; we just wanted their opinions. I agreed to stay after they finished answering the questions they asked about the survey, and was willing to come back and present the results of the study. Instructors were asked to return the survey and the consent form to the packet and the researcher collected them.

CHAPTER FOUR

RESULTS

Results in chapter four are presented to answer the research questions and respond to hypotheses outlined in chapter one. For the purpose of this study, surveys were used to get students' perceptions about using technology and motivation. In addition, the four aspects presented in Keller's theory (2008) (*attention, relevance, satisfaction, and confidence*) were used and analyzed by the researcher. These four aspects addressed the three questions related back to the theory, dimensions of preparing the surrounding environment, the instruction, and students' readiness for interaction in classrooms. The six hypotheses analyzed were:

- Will there be a positive relationship between instructor use of technology and students' *motivation* to interact with each other, with instructors, and with learning activities in classrooms?
- Will there be a positive relationship between instructor use of technology and students' *attention* to what is going in the classrooms?
- Will there be a positive relationship between instructor use of technology and students' sense of *relevance* to their real world?
- Will there be a positive relationship between instructor use of technology and students' *confidence* to interact with the material presented in classrooms, with instructors, and with each other?
- Will there be a positive relationship between instructor use of technology and students' *satisfaction* with the material presented in classrooms, with instructors' styles of presenting the material, and their interaction with each other?

- Is there a relationship between students' comfort level with using technology and their desires for instructors to use technology?

These results were utilized to determine the relationship of instructional technology with students' motivation and interaction in higher education.

Descriptive Statistics

Before presenting the correlational analyses, the means and standard deviations are presented for each of the variables that were correlated--The four domains of motivation: attention, relevance, confidence, and satisfaction as well as the total ARCS. The researcher also presented the instruction variables of instructional techniques, instructor use of computer, and perceived effective use of technology from both the student's and instructor's perspective. Last, student learning experiences, student learning strategies, student personal use of computer, student frequency use of computer, and the amount of help a student needs with the computer are provided in Table 3.

Table 3

Means, Standard Deviations, and Numbers for the Domains and Total ARCs, Student Learning Experiences, Student Learning Strategies, Student Use of Computer, and Perception of Instructor Use of Computers by Students and by Instructors

	N	Attention M (sd)	Relevance M (sd)	Confidence M (sd)	Satisfaction M (sd)	ARCS M (sd)
Students	600	40.21 (5.2)	30.48 (4.4)	28.73 (4.7)	20.69 (4.1)	120.11 (4.1)
		Student Learning Experiences	Student Learning Strategies	Personal Use of Computer	Frequency Use of Computer	Student Need Help with Computer
Students	600	23.67 (3.9)	19.54 (3.3)	44.66 (8.4)	42.08 (7.2)	31.99 (8.6)
		Instructional Techniques	Instructor Use of Comp	Perceived Effective Use of Technology		
Students	600	29.42 (4.6)	37.55 (6.2)	46.9 (8.1)		
Instructors	30	31.8 (5.1)	35.2 (12.9)	47.67 (16.7)		

Zero Order Correlation Table

In this study, zero order correlations were created to answer research questions and respond to hypotheses outlined in chapter one. For that, Person r correlations were used in this study because they enabled the researcher to describe the relationships between the variables used in the surveys. There was no reason to suggest that findings from the United States were related to what is happening in Middle Eastern universities and colleges regarding using technology in classrooms. The researcher could not find that many studies addressed the phenomenon of student boredom and lack of motivation to interact in their classrooms in the

Middle East; for that reason it seemed most appropriate to study the associations of student motivation with instructor use of technology in a college in the Middle East (Cronk, 2008).

Hypotheses Two to Five

Going back to Keller's Motivational Theory (2008), the ARCS model (*Attention, Relevance, Confidence, and Satisfaction*), represented a model of motivation for interaction. Keller's theory discussed the importance of preparing the surrounding environment, the instruction, and students' readiness for interaction in classrooms.

Keller (1987, 2001, 2008) noticed that technology gets students' *attention* in real life and he reported students see the *relevance* of using technology in their classrooms and have that link with their daily lives. *Confidence* was one of the aspects Keller mentioned in his reporting about students interaction with technology and how it is easy for them to accomplish things through using technology. He mentioned that students' *satisfaction* with what is going in classrooms (e.g, instructional technology) leads them to develop continuing motivation to interact and learn.

The researcher addressed each of these dimensions of motivation to determine if Keller's theory would be supported at Nizwa College of Technology; she focused on the relationship of the instructors' use of technology with each these four areas:(a)"Will there be a positive relationship between instructor use of technology and students' *attention* in classrooms (*Ho2*),(b) students' sense of *relevance* to their real world (*Ho3*), (c) students' *confidence* to interact with the material presented in classrooms, with instructors, and with each other (*Ho4*),(d) and students' *satisfaction* with the material presented in classrooms, with instructors' styles of presenting the material, and their interaction with each other (*Ho5*).

The Instructional Material Motivational Survey (IMMS) defined 12 items that measured attention. Thus the researcher totaled those 12 items from the IMMS as the measure for

attention. The IMMS defined 9 items measuring relevance; those 9 items were totaled as the measure for relevance. The IMMS defined 9 items that measured confidence; those 9 items were totaled as the measurement for confidence; and, finally, the IMMS defined 6 items measuring satisfaction; those 6 items comprised the satisfaction score.

According to these hypotheses, the researcher addressed the *instructional techniques section* (which included 9 items) and *computer use in course* sections (which included 12 items) in “Student Perceived Effectiveness of Computer Technology Use Survey” to find support for these hypotheses. According to the researcher, these two sections defined instructors’ use of technology in classrooms.

Table 4 presents the analysis of hypotheses two to five and indicates zero order correlations of attention, relevance, confidence, and satisfaction with instructional techniques and computer use in course.

Table 4

Zero Order Correlations of Attention, Relevance, Confidence, Satisfaction, Instructional Techniques, and Instructor Computer Use in Course, (N= 600)

	Attention r (p)	Relevance r (p)	Confidence r (p)	Satisfaction r (p)	Instructional Techniques r (p)	Inst. Comp . Use Course r (p)
Attention	1					
Relevance	.507** (<.001)	1				
Confidence	.424** (<.001)	.528** (<.001)	1			
Satisfaction	.398** (<.001)	.554** (<.001)	.488** (<.001)	1		
Instr. Tech	.307** (<.001)	.337** (<.001)	.327** (<.001)	.291** (<.001)	1	
Comp. Use Course	.283** (<.001)	.292** (<.001)	.321** (<.001)	.351** (<.001)	.464** (<.001)	1

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

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

Table 4 presents the analysis of hypotheses two to five, and it indicates the correlations of attention, relevance, confidence, and satisfaction presented in Keller’s (2008) motivational theory. Table 4 also includes instructional techniques and computer use in course. As would be expected from Keller’s theory, attention, relevance, confidence, and satisfaction are significantly correlated with each other. According to Keller’s motivational theory (2008), all of the four dimensions (*Attention, Relevance, Confidence, and Satisfaction*) are related to each other and students usually will not be able to interact actively in their classrooms if these four aspects are missing (students’ attention, relevant material, confidence in success, and satisfaction with the

outcomes) (Zinn, W. and J. Zinn, 2009; Biggs, 2006; Hirumi, 2002; Keller, 2008; Taylor, 2006) (see Table 4).

As presented in the table, *attention* has significant correlations with instructional techniques ($r=.307, p<.001$) and computer use in course ($r= .283, p<.001$). *Relevance* has significant correlations with instructional techniques ($r=.337, p<.001$) and computer use in course ($r= .292, p<.001$). *Confidence* has significant correlations with instructional techniques ($r= .327, p<.001$) and total computer use in course ($r= .321, p<.001$). *Satisfaction* has significant correlations with instructional techniques ($r= .291, p<.001$) and computer use in course ($r= .351, p<.001$). The table shows that instructional techniques and computer use in course section have a significant correlation with each other ($r= .464, p<.001$).

To address students' motivation in classrooms, Keller (2001, 2008) posited that these four categories operated together to motivate students to interact in the classroom. Thus, the researcher went back to present hypothesis one as a means of correlating overall motivation.

Hypothesis One

To answer hypothesis one:” Will there be a positive relationship between instructors' use of technology and students' *motivation* to interact with each other, with instructors, and with learning activities in classrooms, this hypothesis was analyzed. Two sections of Perceived Effectiveness Survey were used to define students' interaction with each other, with instructors, and with the activities. The first was labeled *students' learning experiences* and it included 7 items; the second was labeled *students' learning strategies* and it included 6 items. The researcher included *instructor computer use* in course section that includes 12 items from this survey since the hypothesis addressed the relationship between instructors' use of technology and students' *motivation* in classrooms.

Table 5 introduces zero order correlations of total ARCS (*Attention, relevance, Confidence, and Satisfaction*), *students' learning experiences, students' learning strategies, and instructor computer use in course.*

Table 5

Zero Order Correlations of ARCS, Students' Learning Experiences, Students' Learning Strategies, and Instructor Computer Use in Course, (N= 600)

	ARCS r (p)	Student Learn. Exp. r (p)	Student. Learn. Strat. r (p)	Instr Comp Use Course r (p)
ARCS	1			
Student Learn Exp.	.506** ($<.001$)	1		
Student Learn Strat	.455** ($<.001$)	.491** ($<.001$)	1	
Instr Comp Use Course	.397** ($<.001$)	.383** ($<.001$)	.424** ($<.001$)	1

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

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

Table 5 presents the analysis of hypothesis one, and it indicates the correlations of ARCS, students' learning experiences, students' learning strategies, and their computer use in course. Table 5 shows that *ARCS* has significant correlations with: Students' learning experiences ($r=.506, p<.001$), students' learning strategies ($r= .455, p<.001$), and computer use in course ($r= .397, p<.001$). *Students' learning experiences* section has significant correlations with: Students' learning strategies ($r=.491, p<.001$), and computer use in course ($r= .424, p<.001$).

Students' learning strategies section has significant correlations with computer use in course ($r=.424, p<.001$).

Hypothesis Six

To answer hypothesis six: “Is there a relationship between students’ comfort level with using technology and their desires for instructors to use technology,” this hypothesis was analyzed. The sections which were analyzed to answer hypothesis six were taken from two surveys: Students Technology Survey and Student Perceived Effectiveness of Computer Technology Use Survey. *Frequency computer use* section includes 13 items and students’ *need for help using computer* section includes 11 items. These two sections were taken from Students Technology Survey. The remaining sections were taken from Student Perceived Effectiveness of Computer Technology Use Survey. These sections were: *Students’ personal computer use* section which includes 11 items, and *perceived effectiveness* section includes 12 items. Because the hypothesis addresses the desire for instructor use of technology, the instructional techniques section which includes 9 items, and instructor computer use in course section that includes 12 items were included once again.

Table 6 introduces zero order correlations of perceived effectiveness, students’ personal computer use, frequency computer use, students’ need for help using computer, instructional techniques, and computer use in course.

Table 6

Zero Order Correlations of Student Perceived Effectiveness, Student Personal Computer Use, Student Frequency Use of Computer, and Students' Need of Help Using Computer, with Instructional Techniques and Instructor Computer Use in Course (N = 600).

	Perceived Effective r (p)	Personal. Comp. Use r (p)	Frequency Use Comp r (p)	StudNeed Help Com r (p)	Instructor Techniques r (p)	Instructor Computer Use r (p)
Perceived Effectiveness	1					
Personal Comp Use	.329** (<.001)	1				
Frequency Use Comp	.109** (.008)	.211** (<.001)	1			
Stud Need Help Comp	.076 (.062)	.059 (.150)	.306** (<.001)	1		
Instructor Techniques	.354** (<.001)	.353** (<.001)	.028 (.492)	-.037 (.362)	1	
Instructor Comp Use	.376** (<.001)	.330** (<.001)	.090 (.028)	.111** (.006)	.464** (<.001)	1

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

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

Table 6 presents the analysis to hypothesis six and it indicates the correlations of total perceived effectiveness, total students' personal computer use, total students' frequency use of computer, total students' need for help using computer, total instructional techniques, and total computer use in course,. As presented in the table, *instructional techniques* has significant correlations with: Perceived effectiveness ($r = .354, p < .001$), students' personal computer use ($r = .353, p < .001$), and computer use in course ($r = .464, p < .001$). *Computer use in course* has

significant correlations with: Perceived effectiveness ($r = .375, p < .001$), students' personal computer use ($r = .330, p < .001$), students' frequency use of computer ($r = .090, p < .028$), students' need for help using computer ($r = .111, p < .006$), and with instructional techniques ($r = .464, p < .001$).

Ancillary Analysis

Because there may have been a difference between the students' perspective of their instructors' use of technology and how their instructors perceived their own use of technology, the researcher measured the instructors in all the courses in which students participated. The instructors were given a similar instrument to the Perceived Effectiveness of Computer Technology Use. Three areas were addressed: Instructional techniques, instructor computer use, and perceived effective use of computer. In the Instructor Perceived Effectiveness of Computer Technology Use Survey, there were 9 items for instructional techniques, 12 items for computer use in course, and 12 items for perceived effectiveness of computer use.

Ttests. Independent sample t-tests were conducted to see if there were any significant differences between students' perspectives regarding using technology in their classrooms by their instructors and instructors' shared information regarding their use of technology in classrooms on those three areas: Instructional techniques, instructor computer use in course, and perceived effectiveness of computer use. A t-test was run for each of these three variables, comparing the instructor's perceptions to those of the students. Following are the results: Computer use in course, ($t(df=29) = .99, p > .05$); and perceived effectiveness of computer use ($t(df=29) = -.265, p > .05$). There were no significant differences between students' perspectives and instructors' perceptions in terms of computer use and perceived effectiveness of computer

use in the course. However, there was a significant difference between students and instructors on instructional techniques ($t(df=628) = -2.78, p < .006$).

Correlational analysis. Finding a significant difference between students and instructors on instructional techniques, the researcher conducted a correlational analysis of total ARCS (Attention, Relevance, Confidence, and Satisfaction) with the instructional techniques used by students' respective instructor in the classrooms. *Instructional techniques* has a significant correlation with ARCS ($r = .012, p = .050$), indicating a positive relationship between instructors' use of technology and students motivation. This finding supports the hypothesis of the research in which technology can be used as a means to motivate students to interact with each other and with the learning activities in their classrooms.

CHAPTER FIVE

Discussion

The purpose of this study was to research the elements that are related to aspects of the proposed problem: Students' boredom and lack of motivation to interact in their classrooms in higher education. The focus in addressing the problem was the four aspects presented by Keller (2008) in his motivational theory (*Attention, Relevance, Satisfaction, Confidence*). The focus of the study was to find ways in which technology can be used as a means to motivate students to interact with each other and with the learning activities in classrooms. Throughout this study, the researcher wanted to explore students' perceptions about technology and the way it can be used to increase their motivation to interact in their classrooms. Keller's motivational theory and the four components were analyzed throughout looking at students' perspectives presented in the surveys.

Keller's (2008) primary assumption in his motivational theory is based on the interaction between instructional materials and students. With its components, this theory discusses the importance of preparing the surrounding environment, the instruction, and students' readiness for interaction in classrooms. The proposed study addressed the phenomenon of student boredom and lack of motivation to interact in their classrooms in the Middle East, and students feel a disconnect between their real world and their classrooms, and interact with technology outside classes as an integral part of their daily routine lives. The researcher chose Oman to conduct her study there. First-year and third-year students from Nizwa College of Technology were the sample of the study.

According to Keller's (2008) dimensions (*ARCS*), he stated that, in order for students to be motivated to interact with learning activities, students must be curious about the material presented in classrooms, the material must be relevant to their real world, students must have the confidence that they will be able to succeed, and students must be satisfied with their learning experiences.

The traditional knowledge delivery system for higher education in the Arab world remains the same which is indoctrination and instructor-based (Abouchedid & Eid, 2004; Abu-Melhim, 2009; Al Musawi & Abdelraheem, 2004; Al-Senaidi, et al., 2009; Sadik, 2008). Instructors introduce a topic by lecturing on general concepts, and then introduce the whole idea of the topic. Students take notes and write down word for word without understanding the *why*. The instructor's job is to transmit his/her knowledge to students and lecturing is the natural method for doing so. The students' role is to (a) absorb the knowledge they are introduced to and (b) be tested on the notes written down from their instructors.

Tubaishat and Qauasmeh (2006) reported that the teaching system remains very traditional with instructor-led classes where memorizing is emphasized and Sadik (2008) reported that students in lectured-based classes remain silent and wait for instructors to lecture to them about ideas from books without having the opportunity to foster active learning and engagement. He added their boredom in classrooms was clear to the point that they did not want to interact with each other, with the instructors, nor with the learning activities.

Abu-Malhim and Abdel-Rahman (2009) reported in their study that students favor activities that facilitate student-to-student interaction as well as student-to- instructor interaction. They reported the instructors' job is not to dictate to students what they have learned; it needs to be more than instructors talk and students write. It must be the instructors sharing knowledge and

information, discussion based, and students interacting with activities. Abu-Malhim and Abdel-Rahman (2009) noticed also that most instructors realize that their students' interaction increases when they are positively motivated to interact with each other, with the instructors, and with the learning activities in their classrooms. Sadik (2008) added that, when learners explain concepts they read at home and share their understanding of the topic with others, this helps them overcome their boredom in classrooms and highly interact with each other, with the instructors, and with the learning activities.

Findings

Hypotheses two to five dealt with the four components of Keller's (2008) motivational theory (*Attention, Relevance, Confidence, and Satisfaction*) and the researcher focused on the relationship of the instructors' use of technology with each of these four areas. The results indicated that there were significant relationships for all four of these domains. According to the survey analysis, technology gets students' *attention*. Students' responses indicated that when the instruction was eye-catching this stimulated their curiosity during classes. Thus, instructional technology increased students' interests in their classes and kept their attention and they learned things that were surprising and unexpected to be learned easily through using technology. Al Musawi and Abdelraheem (2004) indicated, based on research evidence, that technology can help create an atmosphere that gets students' attention and increases their motivation to interact in classrooms. Sadik (2008) reported in his study that instructors can use instructional technology as tools to get their students' attention and increase their interaction with the learning activities they provided. He added that instructional technology encourages students to construct their knowledge and ideas to present them and share them.

Students reported that when technology was used in their classes, it was *relevant* to their interests and had that link with their daily lives. Using technology helped students in how to connect the content of their classes to things they already knew, done, or thought about in their own lives. Students reported that using technology in classes made the content worth knowing and useful to them. Tubaishat and Qauasmeh (2006) reported that students have access to technology and they are efficient in the use of it. Usually when students have access to the Internet, there are many free resources they can access from home. According to their study, 85% students from one of the Middle East universities reported that they did not have problems accessing the university web page from home. Students reported that they have their own laptops and can use the Internet from home. For that, students see that computers and technology increase their motivation by making learning relevant.

When students interacted with technology, they had *confidence* and they had that impression they could easily learn the content of the class and passed the tests. They added using technology helped organizing the content of the class which made them confident that they would learn the material presented. Tubaishat and Qauasmeh (2006) presented results of a case study based on surveys conducted in two universities in Middle East countries. Survey results showed that using technology in classrooms improved the motivation and confidence of students, improved their communication skills, encouraged students to interact and collaborate, and increased their motivation to interact with the learning activities presented in the classrooms. Many researchers from the Middle East (Abu-Malhim& Abdel-Rahman, 2009; Al- Senaidi, et al., 2009; Sadik, 2008; Tubaishat&Qauasmeh, 2006; Abouchedid & Eid, 2004; Abouchedid & Eid , 2004) reported that students were confidence using technology in classrooms as in their

daily lives. Furthermore, Students responded positively to learning forms which technology provided in classrooms.

When technology was used, students' *satisfaction* with what was going in classrooms led them to develop continuing motivation to interact and learn as found by Keller (2008).

According to students' responses, using technology helped students to complete the exercises and gave them a satisfying feeling of accomplishment. Students were satisfied with the class and they enjoyed learning and knowing more about the topics presented. Students added that it was pleasure to work on such well-designed classes using technology and they felt satisfied completing that course with enjoyment. Abouchedid and Eid (2004) reported that universities and college students in the Middle East countries were satisfied with using technology as a method of making education more flexible, motivated, and immediate. They reported that students see technology as the building block that supports the structure of the classrooms activities. Abu-Malhim and Abdel-Rahman (2009) suggested that most instructors realize that their students' satisfaction and interaction increases in their classrooms when they are positively motivated to interact with each other, with the instructors, and with the learning activities. Students reported that they were satisfied with the activities that facilitated student-to-student interaction as well as student-to- instructor interaction.

Hypothesis one dealt with the ARCS Model being effectively used in classrooms to motivate students to interact. According to Keller's Motivational Theory (2008), these four categories included many of the specific concepts and variables that characterize human motivation which enhance and motivate students to interact with classroom activities.

According to this hypothesis, the researcher addressed the total of ARCS (*Attention, relevance,*

Confidence, and *Satisfaction*), students' learning experiences, students' learning strategies, and computer use in course.

Results showed that *ARCS* has significant correlations with students' learning experiences, students' learning strategies, and computer use in course. According to students' responses to the surveys related to *ARCS* (*Attention, Relevance, Confidence, & Satisfaction*) and students' learning experiences, students reported that they had effective interaction with other students, with their instructors, and with the activities presented in their classrooms. Students felt they were in control of their learning and they took advantage of the opportunities and recourses presented in their classes. Abu-Malhim and Abdel-Rahman (2009) reported students' interaction increases when they are positively motivated to interact with each other, with the instructors, and with the learning activities in their classrooms. For example, students' interaction with the activities can be influenced by their attitudes toward the target goals they establish to gain from these classes. In their study, students indicated that they favor activities that facilitate student-to-student interaction as well as student-to- instructor interaction. They reported the instructors' job is not to dictate to students what they have learned; it needs to be more than instructors talk and students write. It must be the instructors sharing knowledge and information, discussion based, and students interacting with activities.

Students reported they were motivated to take notes in classrooms and compare and contrast these notes to what they already knew. Students read their notes forming new ideas related to their knowledge and the new material presented in their classrooms. Students added they were accessing their college website and class folders throughout using their own laptops or the computers provided by the college. Students used emails to receive and send assignments to their instructors which facilitated their communication. Also students used presentation

applications such as PowerPoint and LCD projector to present, share, and develop knowledge in their classrooms. Sadik (2008) indicated in his study that instructors can use instructional technology as tools to engage their students more and increase their interaction with the learning activities they provided. He added that instructional technology encourages students to construct their knowledge and ideas to present them and share them. This helps students interact effectively with each other, with instructors, and with the learning activities in the classrooms. He also found that using instructional technology increases students' engagement and interaction, organizes their ideas, and allows them to express these ideas. Al Musawi and Abdelraheem (2004) indicated also, based on research evidence, that technology can help create an atmosphere that increases students' motivation to interact in classrooms. Senadidi, et al. (2009) reported that one of the public universities in the Middle East began a project to implement using blackboard and they reported that faculty and students at that university seemed to favor using Blackboard as new technology in their classrooms because it increases students' opportunities to interact with each other, with the instructors, and with what is going on in classrooms. This indicates that motivation is important for students' engagement and interaction with learning activities in classrooms that supported their learning experiences using technology. Students' level of interaction with computers also substantiated how much they perceived technology as an important aspect of their learning strategies and readiness to interact with computer technology in their classrooms.

Abouchedid and Eid (2004) reported that universities and college students in the Middle East countries welcome technology as a method of making education more flexible, motivated, and immediate. They reported that students see technology as the building block that supports their learning experiences with the structure of the classrooms activities. Al Musawi and

Abdelraheem (2004) indicated also, based on research evidence, that technology helped create an atmosphere that increased students' motivation to interact in their classrooms. And Tubaishat and Qauasmeh (2006) reported that using technology in classrooms improved the motivation and confidence of the students, improved their communication skills, encouraged students to interact and collaborate, and increased their motivation to interact with the learning activities presented in the classrooms.

Hypothesis Six dealt with students' comfort level with using technology and their desires for instructors to use technology in their classrooms. Once again, there were significant correlations with all three areas and instructor use of technology. Accordingly, the researcher looked at Frequency computer use section, students' need for help using computer section, students' personal computer use section, and perceived effectiveness section.

Students reported that they used their laptops or computers to search the internet, communicate with each other and with their instructors. They also reported that they use computers to do their homework, create presentations, and play games. Students added that they wanted to learn how to use technology proficiently to develop knowledge of the basic concepts related to the subject they were studying. Students perceived that the course had been a good course and their instructors were effective instructors since they learned what they really expected to learn. They reported their interest in the course had increased and they learned a lot because of implementing technology in their courses. Based on their responses, students showed interest and comfort feelings for using technology by their instructors. This supported the idea of using technology to provide strategies to make instruction more appealing. It makes students eager and willing to sit, interact and participate to learn, and this is how we keep students interested in classrooms activities.

Tubaishat and Qauasmeh (2006) reported that technology increases positive interaction between student-to-student and faculty-to-students and enables student-centered teaching approaches which the students indicated they needed. Many researchers from the Middle East (Abu-Malhim& Abdel-Rahman, 2009; Al- Senaidi, et al., 2009; Sadik, 2008) added that students preferred instructors using technology more actively and productively in classrooms activities and assignments. When used effectively, technology can open doors to learning, which is then enhanced by students' experiences with technology.

Sadik (2008) indicated also in his study that students reported using instructional technology encourages them to construct their knowledge and ideas to present them and share them. This helps students interact effectively with each others, with instructors, and with the learning activities in the classrooms. He also found that using instructional technology increases students' engagement and interaction, organizes their ideas, and allows them to express these ideas.

Today Middle East universities and college students can easily use technology and navigate the internet and search for resources (Abouchedid & Eid, 2004; Al-Senaidi, et al., 2009; Sadik, 2008). Abouchedid and Eid (2004) found that 24.3 % of college students in Middle East countries have personal computers at home, with some connection to the Internet. Al Musawi and Abdelranheem (2004) reported that many students use email facilities and surf the Web on a daily basis outside classrooms. Tubaishat and Qauasmeh (2006) reported also that students have access to technology and they are efficient in the use of it. According to their study, 85% students from one of the Middle East universities reported that they did not have problems accessing the university web page from home. Students reported that they have their own laptops and can use the Internet from home.

Implications

Before conducting the study, the researcher thought if the instructors at universities and colleges were convinced that using instructional technology and Internet media might result in higher interaction between students and the learning activities, two benefits would come from this study. First, students could be more motivated and not bored while in the university classroom. Second, using instructional technology could also motivate students to interact with the learning activities, with instructors and with each other. Thus, the motivational theory presented by Keller (1987, 2001, 2006, 2008) could help support how to increase students' motivation by using technology as a means to interact in classrooms.

The purpose of this study was to determine if there was a relationship between the use of technology and motivating students in higher education in the Middle East to interact with each other in classrooms, with the instructors, and with the learning activities. The researcher's findings and those of other related studies substantiate that technology can be used to ameliorate students' problems in the Middle East in higher education in which students are bored and feel the disconnect between their classrooms and their real world, and the importance of technology in their daily lives (Abouchdid & Eid, 2004; Al Musawi & Abdelraheem, 2004; Al-Senaidi, Lin, & Poirot, 2009; Sadik, 2008; Tubaishat, El-Qawasmeh, & Bhatti, 2006). Research in Middle East colleges and universities resulted in similar findings as that in the United States: that technology provides students with excellent connections to their actual world since students use technology much of the time in their daily lives.

Researchers in the Middle East (Abouchdid & Eid, 2004; Al Musawi & Abdelraheem, 2004; Al-Senaidi, Lin, & Poirot, 2009; Sadik, 2008; Tubaishat, El-Qawasmeh, & Bhatti, 2006) found that technology sustains students' curiosity, it is relevant to their actual world; students

feel confidence using it; and students feel are satisfied using technology in classrooms as in their daily lives. Instructors in Nizwa College of Technology (NCT) also saw that technology can be one of the means that offers opportunities to integrate motivational support strategies to students' interaction with learning activities in novel ways. They reported that students very often had effective interactions with their instructors, with each other, and with the activities presented in classrooms. Instructors noticed students took advantages of the learning opportunities and resources presented through technology. They started to think critically and actively participated in their classrooms.

Decision makers at the college noticed how technology has provided faculty with huge educational resources and learning opportunities and how students would like to interact with it in their classrooms because it enables them and their instructors to do new and exciting things. For that decision makers have been trying to blend instructional technology into students' classrooms to meet their academic needs for the past 20 years at NCT.

The researcher found that instructors at NCT would like to take advantage of students' interest in technology to improve their interaction with class activities hoping that instructional technology will increase students' motivation to interact with each other, with the instructors themselves, and with the learning activities in their classrooms.

Abouchedid and Eid (2004) found that a higher percentage of students tend to enroll in courses that were student-centered lectures that encouraged them to interact with each other , with instructors, and with learning activities in classrooms. Sadik (2008) added that students in students-based classes explain concepts they read at home and share their understanding of the topic with others, this helps them overcome their boredom in classrooms and highly interact with each other, with the instructors, and with the learning activities.

Instructors at the college reported that students' interaction increased when they are positively motivated to interact with each other, with the instructors, and with the learning activities in their classrooms. And as Abu-Malhim and Abdel-Rahman (2009) presented in their study, students indicated that they favor activities that facilitate student-to-student interaction as well as student-to- instructor interaction. They reported the instructors' job is sharing knowledge and information, discussion based, and students interacting with activities.

According to the instructors' responses to the survey, instructors reported that using computers in classrooms made it easier to collaborate with students and get their attention sustained all the time. They agreed with Keller's motivational theory (ARCS) (2008) that students' motivation is promoted when their curiosity and attention are aroused when they feel the activities in classrooms require them to learn new knowledge in order to accomplish these activities (Blumenfeld, Kempler, & Krajcik, 2006; Keller, 2008; Ryan & Deci, 2000).The instructors at NCT indicated also that their teaching experiences were facilitated using computers which helped keeping students' attention to interact with classroom learning activities in order to gain new knowledge and skills.

Instructors at NCT agreed with Yazzie- Mintz (2007) and Mitsoni (2006) who suggested that relevance is very important to attract students' attention in classrooms or they will be busy in something that has meaning to them over interacting with learning activities. Instructors reported that using computer technology was necessary for them to do a good job relating the material presented in classes to students' personal goals and real lives. NCT Instructors indicated that when students perceive knowledge in classrooms related to their personal goals and actual lives, this will increase the opportunities to increase their interaction with learning activities (Keller, 2008).

The instructors noticed that computers helped them to teach the material in a meaningful way. When their students feel that they can succeed in learning a task, their motivation to interact and learn is promoted. It has variables related to the feelings that students can personally control the task and can succeed, which then motivates them to have a continuous interaction with classrooms activities. They added as student confidence in achieving their goals in classrooms increases, this would have a positive influence on their engagement and interaction (Blumenfeld, et al., 2006; Rogers, 2000; Schunk & Pajares, 2002; Surry & Land, 2000).

Instructors at NCT indicated that the use of computers improved the quality of their works. They noticed that students were satisfied with their outcomes to the learning tasks which motivated them to interact with the learning activities provided by the instructors using technology. Many researchers (Fusani, 1994; Hirumi, 2002; Huitt, 2007; Keller, 2008) indicated this principle is necessary for students to have positive feelings about their interaction with learning experiences and to develop continuing motivation to interact with learning activities. Keller (2008) added students will have intrinsic feelings of satisfaction when they have opportunities to apply what they have learned to their personal experience.

In this study, the researcher noticed that college students are heavy users of the Internet; students' social life at the college has been changed by the Internet; the Internet has promoted their education. According to this information, technology can be used to motivate students to interact in their classrooms and seek learning.

Universities and college students in the Middle East countries and, specifically, students in Nizwa College of Technology welcome technology as a method of making education more flexible, motivated, and immediate. This study investigated the use of technology in classrooms and how did it affect students' motivation to interact with each other, with their instructors and

with the learning activities. First, Students could be more motivated and not bored to come to the university. Second, using instructional technology could also motivate students to interact with the learning activities, with instructors, and with each other.

Students in NCT saw technology as the building block that supported the structure of their classrooms activities. They believed that technology gives them opportunities to build positive experiences with success while interacting with technology. This feeling of accomplishments attributed to their abilities and efforts using technology increased their motivation to interact with classrooms activities (Oblinger, 2005; Keller, 2008).

The researcher found that students in Nizwa College felt that they can succeed in learning a task when interacting with technology. Their motivation to interact with classroom activities was increased because it was related to their beliefs that they can personally control the task and can succeed as they interact with technology outside their classrooms. This motivated them to have a continuous interaction with classrooms activities.

As the researcher has noted, technology can be one of the means that offers opportunities to integrate motivational support strategies to students' interaction with learning activities in novel ways. According to Keller's (2008) Motivational Theory with its components (*Attention, Relevance, Confidence, and satisfaction*), technology sustains students' curiosity, it is relevant to their actual world, students feel confidence using it, and students feel are satisfied using technology in classrooms as in their daily lives.

Students reported that using technology in their classrooms will make that connection between their real world (using technology) and their artificial classrooms if their instructors used technology. They reported that technology made the material more interesting, appealing, and motivating to be discovered and learned. Technology helped students to connect their

personal knowledge to the material presented in classes because they already knew most of it because of the implementation of technology.

Students also reported that they were attracted to the style of the class and the way the instructors presented the material and that gave them the impression that the material was worth knowing. For that students were happy completing this course and wanted to learn more about it and that gave them a motivation to interact with their instructors to know more.

Again Keller's (2008) Motivational Theory with its components (*Attention, Relevance, Confidence, and satisfaction*), proved that technology sustains students' curiosity, it is relevant to their actual world, students feel confidence using it, and students feel are satisfied using technology in classrooms as in their daily lives which helped students overcome their boredom and lack of motivation to interact in their classrooms .

This researcher can generalize her findings in this current study not only in Nizwa, Oman, but also in Middle East countries, since the systems of education are similar in these countries. Students would not be able to interact actively in their classrooms if there is nothing to capture their attention and sustain it, if the material presented in classes is not related to their real world, if they lack the confidence in their success, and they do not have that satisfaction with the outcomes. Technology can help instructors in general and the researcher in particular to overcome all of these problems in a wanted interesting way to motivated students to overcome their boredom and increase their motivation to interact with the learning activities in their classrooms, with each other, and with their instructors.

Research Limitations

In this particular study, the intention was to know freshman and junior students' attitudes toward use of Internet technology for instructional purposes and whether they would be more

motivated to interact with the learning activities in their classes. The participants were limited to these particular students. The research site was Nizwa College of Technology in Oman. Fewer than 60% of the students participated in this study; thus, the study needs to be replicated in order to ensure that if there is indeed a relationship that is strong.

In this particular study, the researcher got her participants from one college in one city in Oman in the Middle East. In order to be able to generalize more rigorously, the study needs to be conducted in other areas in Middle Eastern areas.

The researcher found herself motivated by technology as a means of interacting in classrooms as a student and sought further knowledge to learn. The researcher faced the same problem as being bored in classrooms and not motivated to interact with the activities which made this research personal. This undoubtedly influenced my choice of a hypothesis for using technology in classrooms as in actual life interaction to motivate students to interact with the learning activities.

Suggestions for Future Research

Connecting the disconnect in classrooms is something needed in the Middle East regarding the material covered in classrooms and the item tested. It is noticeable that the outcomes the instructors want from their students to learn are totally different from the material presented in classrooms and the ones are tested too. The responsible people who prepare the course delivery plans are not the instructors of the course themselves. For that, students feel the insufficient connection between what is presented in classrooms, the course delivery plan, and what is going to be tested at the end of the semester.

Abouchedid and Eid (2004) recommended in their study that decision makers do not need to feel afraid that Arab universities and colleges might become *no lecture* institutions if

instructors motivated their students to interact with each other, share knowledge, ask questions, discuss concepts with them instead of listening to a lecture-based class almost for 45 minutes without interaction. And the researcher herself recommends a study presented the elements of students-based lecture instead of instructor-based lecture in the Middle East.

Conclusion

The purpose of this study was to understand the phenomenon of student boredom and lack of motivation to interact in classrooms in Nizwa College of Technology in Oman. The focus of the study was to find ways in which technology can be used as a means to motivate students to interact with each other and with the learning activities in classrooms. The researcher wanted to explore students' perceptions about technology and the way it can be used to increase their motivation to interact in their classrooms. The study addressed three questions related back to the theory, dimensions of preparing the surrounding environment, the instruction, and students' readiness for interaction in classrooms. Six hypotheses resulted from Keller's (2008) motivational theory with its components (ARCS), the literature review, and the research questions.

The researcher supported her assumption of using technology as a means to motivate students in the Middle East countries to interact in their classrooms through presented related material from researchers' conducted studies and from her own findings from analyzing her surveys took by students from Nizwa College of Technology in Oman. She found that students welcome the technology to be used in their classrooms the same way they use it outside. Technology seems to motivate students to interact with each other, with the instructors, and with the class activities in higher education in the Middle East. The researcher can generalize her

findings to all countries in the Middle East knowing that all their Educational systems similar to each other.

The researcher believed in the motivational concepts not only in learning and teaching but also in accomplishing things which increase humans' confidence and satisfaction in what they are engaged themselves in. Keller's (2008) motivational theory indicated that learners need something arouses their curiosity and sustains it. They need to know what is the relationship between what they are learning the use of it in their lives. Learners need to feel the confidence in their abilities to accomplish things and they need to feel satisfied about themselves and what they are engaged with in order to sustain continues engagement.

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APPENDICES

Appendix A

Student Survey

Instructional Material Motivational Survey

The researcher is interested in students' responses about the classes they are taking. Please answer all the sections.

Section One: Student Demographics (7 Items)

Please indicate the following:

1. **Gender** Female _____ Male _____

2. **Age** _____

3. **Your Major** _____

4. **Your Student Status:** Full- Time _____ Part-Time _____ Independent _____

Continuing Education _____ Other (Please Specify) _____

5. **How do you classify yourself as a student?**

Freshman (First Year) _____

Sophomore (Second Year) _____

Junior (Third Year) _____

Senior (Fourth Year) _____

6. **Your Expected grade for this course:**

A (A- , A or A+) _____

B (B- , B or B+) _____

C (C- , C or C+) _____

D (D- , D or D+) _____

F _____

7. **Ethnicity:**

Arab _____

Afro-Arabian _____

Persians _____

South Asian (Indian, Pakistani, Sri Lankan, Bangladeshi) _____

European _____

Section Two: Gaining Attention (12 Items)

1. Please rate your response towards each statement.

	Very True	Mostly True	Moderate True	Slightly True	Not at all True
a) There was something interesting at the beginning of the class.	5	4	3	2	1
b) The instruction was eye-catching.	5	4	3	2	1
c) The quality of what was said helped to hold my attention.	5	4	3	2	1
d) The class is so abstract that it was hard to keep my attention.	5	4	3	2	1
e) The design of the class looks dry and unappealing.	5	4	3	2	1
f) The way the information is arranged in the class helped keep my attention.	5	4	3	2	1
g) The class has things that stimulate my curiosity.	5	4	3	2	1
h) The amount of repetition in class cause me to get bored sometimes.	5	4	3	2	1
i) I learned some things in class that were surprising or unexpected	5	4	3	2	1
j) The variety of exercises, illustrations, etc., helped keep my attention in class.	5	4	3	2	1
k) The style of the class is boring.	5	4	3	2	1
l) There are so many words that it is irritating.	5	4	3	2	1

Section Three: Relevance (9 Items)

1. Please rate your response towards each statement.

	Very True	Mostly True	Moderate True	Slightly True	Not at all True
a) It is clear to me how the content of the class is related to things I already know.	5	4	3	2	1
b) There were examples that showed me how what I learned could be important to some people.	5	4	3	2	1
c) Completing the class successfully was important to me.	5	4	3	2	1
d) The content of the class is relevant to my interest.	5	4	3	2	1
e) There are explanations or examples of how people use the knowledge in the class.	5	4	3	2	1
f) The content and style of the class convey the impression that its content is worth knowing.	5	4	3	2	1
g) The class was not relevant to my needs because I already knew most of it.	5	4	3	2	1
h) I could relate the content of the class to things I have seen, done, or thought about in my own life.	5	4	3	2	1
i) The content of the class will be useful to me.	5	4	3	2	1

Section Four: Confidence (9 Items)

1. Please rate your response towards each statement

	Very True	Mostly True	Moderate True	Slightly True	Not at all True
a) When I first entered the class, I had the impression that it would be easy for me.	5	4	3	2	1
b) The class was more difficult to understand than I would like for it to be.	5	4	3	2	1
c) After reading the instructor information, I felt confident that I knew what I was supposed to learn from the class.	5	4	3	2	1
d) Much of the class had so much information that it was hard to pick out and remember the important points.	5	4	3	2	1
e) As I worked on the class, I was confident that I could learn the content.	5	4	3	2	1
f) The exercises in the class were too difficult.	5	4	3	2	1
g) After working on the class for a while, I was confident that I would be able to pass a test.	5	4	3	2	1
h) I could not really understand quite a bit the material in the class	5	4	3	2	1
i) The good organization of the content helped me be confident that I would learn this material	5	4	3	2	1

Section Five: Satisfaction (6 Items)

1. Please rate your response towards each statement.

	Very True	Mostly True	Moderate True	Slightly True	Not at all True
a) Completing the exercises in the class gave me a satisfying feeling of accomplishment.	5	4	3	2	1
b) I enjoyed the class so much that I would like to know more about the topic.	5	4	3	2	1
c) I really enjoy studying in the class.	5	4	3	2	1
d) The working of feedback after exercises, or other comments in the class, helped me feel rewarded for my effort.	5	4	3	2	1
e) I felt good to successfully complete the course.	5	4	3	2	1
f) It was a pleasure to work on such a well-designed class.	5	4	3	2	1

Appendix B

Student Technology Survey

Your Experience with Computers: (10 Items)

Please answer the following questions quickly with the answer that first comes to your mind

1. Does your family have a computer at home? Yes _____ No _____
2. If your family has a computer, how often do you use it?
_____ Never _____ Once or twice a year _____ Monthly
_____ Weekly _____ Almost daily
3. How long have you been using a computer at home? Number of months and/ or years _____
4. Since what grade have you been using computer at school? Grade _____
5. Do you have access to a computer at the university / a computer lab at the university?
_____ Yes _____ No
6. How do you access computers at the university?
_____ Individually _____ As a whole class _____ In small groups _____ In pairs
7. In an average university year, how often do you use computers at school?
_____ Never _____ Once or twice a year _____ Monthly
_____ Weekly _____ Almost daily
8. You decide when you want to use a computer to work on assignments
_____ Always _____ Often _____ Sometimes
_____ Rarely _____ Never

9. How often do you use a computer to complete the following tasks?

Check the response that MOST accurately describes how often you use each of the following software programs/ tools:

	Never	Once or twice a year	Monthly	Weekly	Almost daily
a. Play Games	1	2	3	4	5
b. Do university work	1	2	3	4	5
c. Word process a document	1	2	3	4	5
d. Perform calculation with spreadsheets	1	2	3	4	5
e. Create presentations	1	2	3	4	5
f. Create a computer program	1	2	3	4	5
g. Create database	1	2	3	4	5
h. Produce multimedia projects	1	2	3	4	5
i. Use the Internet	1	2	3	4	5
j. Search for information on the web	1	2	3	4	5
k. Communicate through e-mail	1	2	3	4	5
l. Use tutorials / drill & practice software	1	2	3	4	5
m. Work with graphics and pictures	1	2	3	4	5
Others: (Please list below other programs you use)					
n. _____	1	2	3	4	5
o. _____	1	2	3	4	5

10. When using each of the following software programs, check the statement that **MOST** accurately describes how much help you need. Skip questions concerning applications that you have not used yet.

	I always need help	I sometimes need help	I rarely need help	I never need help	I can help others (I am an expert)
• Games	1	2	3	4	5
• Word processing (e.g. Word, WordPerfect)	1	2	3	4	5
c. Spreadsheet (e.g. Excel)	1	2	3	4	5
d. Presentation software (e.g. PowerPoint)	1	2	3	4	5
e. Computer programming	1	2	3	4	5
f. Databases (e.g. Access)	1	2	3	4	5
g. Multimedia (e.g. Hyperstudio)	1	2	3	4	5
h. Internet (e.g. Web pages)	1	2	3	4	5
i. E-mail (e.g. Outlook Express)	1	2	3	4	5
j. Tutorials / Drill and Practice Software	1	2	3	4	5
k. Working with graphics and pictures	1	2	3	4	5
l. Others: (Please list programs you use) _____	1	2	3	4	5

Appendix C

Student Perceived Effectiveness of Computer Technology Use Survey

Section One: Learning Experiences (7 Items)

Using the scale provided, please rate the extent to which you agree or disagree with the following statement

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a. I had effective interactions with the instructor.	5	4	3	2	1
b. I had effective interactions with other students.	5	4	3	2	1
c. I felt that I was in control of my learning.	5	4	3	2	1
d. I actively participated.	5	4	3	2	1
e. I took advantage of learning opportunities and resources.	5	4	3	2	1
f. I developed knowledge of basic concepts and facts.	5	4	3	2	1
g. I learned to think critically about this subject.	5	4	3	2	1

Section Two: learning Strategies (6 Items)

Using the scale provided, please indicate ***how often*** you used the following learning strategies while taking this course

	Very Often	Often	Sometimes	Seldom	Never
a. I used rehearsal strategies such as reading my notes over and over.	5	4	3	2	1
b. I used elaboration strategies such as summarizing the material and relating it to material I already know.	5	4	3	2	1

c. I used organizational strategies such as creating outlines and taking note of the most important ideas.	5	4	3	2	1
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d. I used analysis strategies such as comparing and contrasting ideas.	5	4	3	2	1
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e. I used synthesis strategies such as examining the material and forming new ideas, theories or hypotheses.	5	4	3	2	1
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f. I used evaluation strategies such as assessing, evaluating, and/ or critiquing the material.	5	4	3	2	1
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Section Three: Instructional Techniques (9 Items)

Using the scale provided, please indicate how often the following instructional techniques were used in this course.

	Very Often	Often	Sometimes	Seldom	Never
a. Instructor led lectures	5	4	3	2	1
b. Textbooks or other written material	5	4	3	2	1
c. Class discussions	5	4	3	2	1
d. Independent projects and / or independent assignments	5	4	3	2	1
e. Group projects and / or group assignments	5	4	3	2	1
f. Computer based instruction	5	4	3	2	1
g. Portfolios	5	4	3	2	1
h. Students-develop activities	5	4	3	2	1
i. Experiential learning and / or field studies	5	4	3	2	1

Section Four: Overall Perceived Effectiveness (4 Items)

Using the scale provided, please rate the extent to which you agree or disagree with the following statements.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a. Overall, this course has been a good course.	5	4	3	2	1
b. Overall, the professor is an effective teacher.	5	4	3	2	1
c. Overall, I learned a lot in this course.	5	4	3	2	1
d. My interest in this subject area has increased as a result of taking this course.	5	4	3	2	1

Section Five: Computer Use in Course (12 Items)

Using the scale provided, please indicate *how often* the following computer applications were used by the instructor as part of this course.

* Please use ***Not Applicable*** if computer technology was not used for this course.

	Very Often	Often	Sometimes	Seldom	Never
a. Instructional Supplements such as drill and practice exercise or tutorials	5	4	3	2	1
b. Communication such as email, mailing lists, conferencing	5	4	3	2	1
c. Organizational applications such as databases and/ or spreadsheets	5	4	3	2	1
d. Analytical/ Programming applications such as statistics, charting, graphing, drafting or robotics	5	4	3	2	1
e. Expansive uses such as simulations or experiments	5	4	3	2	1

f. Creative use such as desktop publishing, digital videos, digital cameras, scanners or graphics	5	4	3	2	1
g. Expressive uses such as word processing or on-line journals	5	4	3	2	1
h. Evaluative uses such as electronic portfolios	5	4	3	2	1
i. Informative application such as Internet, CD-ROM or DVD	5	4	3	2	1
j. Presentation applications such as PowerPoint and or LCD projector	5	4	3	2	1
k. Access applications such as a class website or class folder	5	4	3	2	1
l. Overall, how often was computer technology used by your instructor in this course?	5	4	3	2	1

Section Six: Perceived Effectiveness of Computer Use (12 Items)

Using the scale provided, please indicate how effective the following computer applications were used by instructor as part of this course

* Please use Not Applicable if computer technology was not used for this course

	Very Effective	Effective	Neutral	Ineffective	Very Ineffective	Not Applicable
a. Instructional Supplements such as drill and practice exercise or tutorials	6	5	4	3	2	1
b. Communication such as email, mailing lists, conferencing	6	5	4	3	2	1
c. Organizational applications such as databases and/ or spreadsheets	6	5	4	3	2	1
d. Analytical/ programming applications such as statistics, charting, graphing, drafting or robotics	6	5	4	3	2	1

e. Expansive uses such as simulations or experiments	6	5	4	3	2	1
f. Creative use such as desktop publishing, digital videos, digital cameras, scanners or graphics	6	5	4	3	2	1
g. Expressive uses such as word processing or on- line journals	6	5	4	3	2	1
h. Evaluative uses such as electronic portfolios	6	5	4	3	2	1
i. Informative application such as Internet, CD-ROM or DVD	6	5	4	3	2	1
j. Presentation applications such as PowerPoint and or LCD projector	6	5	4	3	2	1
k. Access applications such as a class website or class folder	6	5	4	3	2	1
l. Overall, how effectively was computer technology used <i>by your instructor</i> in this course	6	5	4	3	2	1

Section Seven: Personal Computer Use (11 Items)

Using the scale provided, please rate the extent to which you agree or disagree with the following statements

* Please use **Not Applicable** if computer technology was not used for this course

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Applicable
a. Computers make my job as a student a lot easier.	6	5	4	3	2	1
b. Computer technology is useful for	6	5	4	3	2	1

other classes and / or my career.

c. I enjoy working with a computer.	6	5	4	3	2	1
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d. Computers help me to learn the material in a meaningful way.	6	5	4	3	2	1
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e. Computers make it easier to work in groups with other students.	6	5	4	3	2	1
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f. I can always find a computer to work on when I need one.	6	5	4	3	2	1
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g. My learning experience in this course was facilitated with the use of a computer.	6	5	4	3	2	1
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h. I used a computer for this course because I had to not because I wanted to.	6	5	4	3	2	1
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i. The use of computers improved the quality of my work.	6	5	4	3	2	1
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j. The computer technology used in this course did not work the way that it was supposed to.	6	5	4	3	2	1
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k. Using computer technology was necessary for me to do well in this course.	6	5	4	3	2	1
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Section Two: Perceived student learning experiences (7 Items)

Using the scale provided, please rate the extent to which you agree or disagree with following statements.

In this course I felt the students

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a. had effective interactions with the instructor.	5	4	3	2	1
b. had effective interactions with other students.	5	4	3	2	1
c. were on control of my learning.	5	4	3	2	1
d. actively participated.	5	4	3	2	1
e. took advantage of learning opportunities and resources.	5	4	3	2	1
f. developed knowledge of basic concepts and facts.	5	4	3	2	1
g. learned to think critically about this subject.	5	4	3	2	1

Section Three: Teaching Strategies (6 Items)

When Studying for this course, I encourage the students to use...

	Very Often	Often	Sometimes	Seldom	Never
a. rehearsal strategies such as reading my notes over and over.	5	4	3	2	1
b. elaboration strategies such as summarizing the material and relating it to material I already know.	5	4	3	2	1

c. organizational strategies such as creating outlines and taking note of the most important ideas.	5	4	3	2	1
d. analysis strategies such as comparing and contrasting ideas.	5	4	3	2	1
e. synthesis strategies such as examining the material and forming new ideas, theories or hypotheses.	5	4	3	2	1
f. evaluation strategies such as assessing, evaluating, and/ or critiquing the material.	5	4	3	2	1

Section Four: Instructional techniques (9 Items)

	Very Often	Often	Sometimes	Seldom	Never
a. Instructor led lectures	5	4	3	2	1
b. Textbooks or other written material	5	4	3	2	1
c. Class discussions	5	4	3	2	1
d. Independent projects and / or independent assignments	5	4	3	2	1
e. Group projects and / or group assignments	5	4	3	2	1
f. Computer based instruction	5	4	3	2	1
g. Portfolios	5	4	3	2	1
h. Students-develop activities	5	4	3	2	1
i. Experiential learning and / or field studies	5	4	3	2	1

Section Five: Perceived Computer Proficiency Level (5 Items)

Please read the following descriptions of the proficiency levels a user has in relation to computer technologies. Determine the level that best describes you and circle the corresponding letter.

- **Unfamiliar** (I have no experience with computer technology).
- **Beginner** (I am able to perform basic functions in a limited number of computer technologies).

- **Average** (I demonstrate a general competency in a number of computer applications).
- **Advanced** (I have acquired the ability to competently use a broad spectrum of computer technologies).
- **Expert** (I am extremely proficient in using a wide variety of computer technologies).

Section Six: Computer Use in Course (12 items)

Using the scale provided, please indicate *how often* you used the following computer applications as part of this course.

* Please use *Not Applicable* if computer technology was not used for this course.

	Very Often	Often	Sometimes	Seldom	Never
a. Instructional Supplements such as drill and practice exercise or tutorials	5	4	3	2	1
b. Communication such as email, mailing lists, conferencing	5	4	3	2	1
c. Organizational applications such as databases and/ or spreadsheets	5	4	3	2	1
d. Analytical/ Programming applications such as statistics, charting, graphing, drafting or robotics	5	4	3	2	1
e. Expansive uses such as simulations or experiments	5	4	3	2	1
f. Creative use such as desktop publishing, digital videos, digital cameras, scanners or graphics	5	4	3	2	1
g. Expressive uses such as word processing or on-line journals	5	4	3	2	1
h. Evaluative uses such as electronic portfolios	5	4	3	2	1

i. Informative application such as Internet, CD-ROM or DVD	5	4	3	2	1
j. Presentation applications such as PowerPoint and or LCD projector	5	4	3	2	1
k. Access applications such as a class website or class folder	5	4	3	2	1
l. Overall, how often was computer technology used in this course?	5	4	3	2	1

Section Seven: Perceived Effectiveness of Computer Use (12 Items)

Using the scale provided, please indicate how effective you believe the following computer applications were as part of this course.

* **Please use** *Not Applicable* if computer technology was not used for this course

	Very Effective	Effective	Neutral	Ineffective	Very Ineffective	Not Applicable
a. Instructional Supplements such as drill and practice exercise or tutorials	6	5	4	3	2	1
b. Communication such as email, mailing lists, conferencing	6	5	4	3	2	1
c. Organizational applications such as databases and/ or spreadsheets	6	5	4	3	2	1
d. Analytical/ programming applications such as statistics, charting, graphing, drafting or robotics	6	5	4	3	2	1
e. Expansive uses such as simulations or experiments	6	5	4	3	2	1
f. Creative use such as desktop publishing, digital videos, digital cameras, scanners	6	5	4	3	2	1

or graphics

g. Expressive uses such as word processing or on- line journals	6	5	4	3	2	1
h. Evaluative uses such as electronic portfolios	6	5	4	3	2	1
i. Informative application such as Internet, CD-ROM or DVD	6	5	4	3	2	1
j. Presentation applications such as PowerPoint and or LCD projector	6	5	4	3	2	1
k. Access applications such as a class website or class folder	6	5	4	3	2	1
l. Overall, how effectively was computer technology in this course	6	5	4	3	2	1

Section Eight: Personal Computer Use (11 Items)

Using the scale provided, please rate the extent to which you agree or disagree with the following statements

***Please use Not Applicable if computer technology was not used for this course.**

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Applicable
a. Computers make my job as an instructor a lot easier.	6	5	4	3	2	1
b. Computer technology is useful for other classes that I teach and /or my career.	6	5	4	3	2	1
c. I enjoy working with a computer.	6	5	4	3	2	1
d. Computers help me to teach the material in a meaningful way.	6	5	4	3	2	1

e. Computers make it easier to 6 5 4 3 2 1

collaborate with students /other instructors.

f. I can always find a computer to work 6 5 4 3 2 1

on when I need one.

g. My teaching experience in this course 6 5 4 3 2 1

was facilitated with the use of
a computer.

h. I used a computer for this course 6 5 4 3 2 1

because I had to not because I
wanted to.

i. The use of computers improved the 6 5 4 3 2 1

quality of my work.

j. The computer technology used in 6 5 4 3 2 1

this course did not work the way
that it was supposed to.

k. Using computer technology was 6 5 4 3 2 1

necessary for me to do a good job

in this course.

Appendix E
Student Consent Form



Dear Survey Participant:

Purpose: You are invited to participate in a study with the aim of understanding the phenomenon of student boredom and lack of motivation to interact in classrooms in Nizwa College of Technology in Oman. The researcher hopes to investigate ways to improve the classroom environment to increase students' interaction. The focus of the study will be to find ways in which technology can be used as a means to motivate students to interact with each other and with the learning activities in classrooms. This study seeks to explore students' perceptions about technology and the way it can be used to increase their motivation to interact in their classrooms.

Participant Selection: You were selected as a possible participant in this study as a member of a freshman required courses or of sophomore required courses. The researcher will give the survey to approximately 934 freshman students and 214 junior students.

Explanation of Procedures: If you decide to participate, you will be asked to answer the questions of the surveys during your class for freshmen or seniors. The survey should take fifty to sixty minutes to complete.

Discomfort/Risks: Participants will be encouraged to be open in their responses on the survey. The study is designed to provide feedback that will assist the researcher in her study. There will

be no anticipated risks to the participants. All participation will be voluntary, and participants have been informed of the research purpose.

Benefits: The research will be conducted in Nizwa College of Technology in Oman. Results of the study might be used by Nizwa College of Technology instructors to continue to improve students' motivation and increase their interaction in classrooms, and to understand how best to provide a motivational environment for students to come to classes and interact with each other, with instructors, and with the learning activities in their classrooms.

Confidentiality: Any information obtained in this study in which you can be identified will remain confidential and will be disclosed only with your permission.

Refusal/Withdrawal: Participation in this study is entirely voluntary. Your decision whether or not to participate will not affect your future relations with Wichita State University or Nizwa College of Technology. If you agree to participate in this study, you are free to withdraw from the study at any time without penalty.

Contact: If you have any questions about this research, you can contact me at: Maram Jaradat at 95723109 or Linda Bakken at 316-978- 5764. If you have questions pertaining to your rights as a research subject, or about research-related injury, you can contact the Office of Research Administration at Wichita State University, Wichita, KS 67260-0007, telephone (316) 978-3285.

You are under no obligation to participate in this study. Your signature indicates that you have read the information provided above and have voluntarily decided to participate.

You will be given a copy of this consent form to keep.

Signature of Subject

ID Number

Date

Appendix F
Instructor Consent Form



Dear Survey Participant:

Purpose: You are invited to participate in a study with the aim of understanding the phenomenon of student boredom and lack of motivation to interact in classrooms in *Nizwa College of Technology* in Oman. The researcher hopes to investigate ways to improve the classroom environment to increase students' interaction. The focus of the study will be to find ways in which technology can be used as a means to motivate students to interact with each other and with the learning activities in classrooms. This study seeks to explore instructors' and students' perceptions about technology and the way it can be used to increase students' motivation to interact in their classrooms.

Participant Selection: You were selected as a possible participant in this study as an instructor of a freshman required courses or of sophomore required courses. The researcher will give the survey to all 28 instructors who teach freshman students and to the 2 instructors who teach sophomore students.

Explanation of Procedures: If you decide to participate, you will be asked to answer the questions of the survey during your presence in the college. The survey should take twenty to thirty minutes to complete.

Discomfort/Risks: Participants will be encouraged to be open in their responses on the survey. The study is designed to provide feedback that will assist the researcher in her study. There will be no anticipated risks to the participants. All participation will be voluntary, and participants have been informed of the research purpose.

Benefits: The research will be conducted in Nizwa College of Technology in Oman. Results of the study might be used by Nizwa College instructors to continue to improve students' motivation and increase their interaction in classrooms, and to understand how best to provide a motivational environment for students to come to classes and interact with each other, with instructors, and with the learning activities in their classrooms.

Confidentiality: Any information obtained in this study in which you can be identified will remain confidential and will be disclosed only with your permission.

Refusal/Withdrawal: Participation in this study is entirely voluntary. Your decision whether or not to participate will not affect your future relations with Wichita State University or Nizwa College of technology. If you agree to participate in this study, you are free to withdraw from the study at any time without penalty.

Contact: If you have any questions about this research, you can contact me at: Maram Jaradat at 95723109 or Linda Bakken at 316-978- 5764. If you have questions pertaining to your rights as a research subject, or about research-related injury, you can contact the Office of Research Administration at Wichita State University, Wichita, KS 67260-0007, telephone (316) 978-3285.

You are under no obligation to participate in this study. Your signature indicates that you have read the information provided above and have voluntarily decided to participate.

You will be given a copy of this consent form to keep.

Signature of Subject _____ Date _____