

**Using Demographic, Socioeconomic, and Access Factors to Predict Student Attitudes
toward Computer-Based Learning Technology in a Saudi Nursing Educational Program**

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Abstract

Computer knowledge and skills are becoming essential components technology in nursing education. Saudi nurses must be prepared to utilize these technologies for the advancement of science and nursing practice in local and global communities. Little attention has been directed to students' attitudes about computer usage in academic communities in Saudi Arabia. Their attitudes about the use of computers for the enhancement of learning are relatively unknown. Few research studies have been identified that explicate Saudi Arabian nursing students' attitudes toward computer usage for the acquisition of knowledge and skills.

Males and females matriculate at King Saud University (KSU), but attend classes in gender-specific groups. This descriptive correlation study will contribute to the body of

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knowledge related to nursing students' attitudes toward computer usage in their baccalaureate education at KSU. The research included all students enrolled in the College of Nursing at KSU in Riyadh, in the summer semester of the academic year 2009-2010. The total number of undergraduate nursing students were 600; 195 were males and 405 were females (KSU, 2008).

The findings ($n = 335$; $n_m = 133$ & $n_f = 222$) suggest that females were more anxious about computer usage (Mean=31.5; 32.7) than males. None of the independent variables explained the variance in the dependent variable, computer usage. Findings did indicate that students had less anxiety if they had access to a computer at home or at school; their anxiety was even less if they had computer exposure at both home and school. Implications of these findings are presented with regard to educating future nurses at KSU for complex roles in health care systems. The study also raises issues about the possibility of planning intervention studies for future research about computer learning, possibly using simulation-based approaches and virtual systems. Issues regarding gender, socioeconomic status, age, learner attitudes, and other variables will need to be systematically investigated. Future studies should assist with the unraveling of traditional cultural issues, including gender-specific roles and expectations for computer usage in nursing and health care delivery.

Introduction

Over the last 20 years, technology usage in nursing education has grown exponentially (Mallow & Gilje, 1999). Nurse educators throughout the global community have witnessed the increased use of overhead projectors in the classroom to the virtual learning environment that connects learners and scientists across continents. This breakthrough technology has greatly influenced education in all areas of inquiry (Shellenbarger, 1999). One of the many advantages

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of computer-based learning is the students' capacity to participate in rehearsals that help to ensure competency and self-efficacy (Ayoub et al., 1999). It also provides a time-related convenience that could not have been previously envisioned.

Computer-based learning technology has become accessible and available to all nursing students enrolled at King Saud University (KSU), Riyadh, Saudi Arabia. However, there has been little attention given to the students' attitudes about computer usage in the Saudi academic community. In fact, student and faculty attitudes about the use of computers in academic settings are unknown (Moshaikeh, 1992; Everett, 1995; World Bank, 1995; AAAS, 1998; Stewart, 1999; Alsebail, 2004). Scholars have assumed that students and faculty would adapt to this technology and exploit its many advantages in teaching and learning (Tumulty, 2001) but no evidence exists to support this assumption.

Despite studies that have been conducted in the United States and other western industrial countries about students' attitudes toward computers (Moshaikeh, 1992; Stewart, 1999), such studies that focus on Saudi students' attitudes about computer usage in the learning environment are limited. There is no evidence that the use of computer technology in Saudi has been empirically examined. The purpose of this study was to contribute to the body of knowledge related to student nurses' attitudes toward computer usage during their pursuit of baccalaureate degrees in nursing at KSU.

Purpose of the Study

The purpose of this study was to examine the attitudes of baccalaureate degree-seeking student nurses' attitudes toward computer usage at the College of Nursing at King Saud University (KSU), Riyadh, Saudi Arabia. Specifically, the study has been designed to investigate

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the influence of gender, age, socioeconomic status, academic classification, grade point average, and mandatory computer classes on students' attitudes toward computer usage. In this study, the independent variables are gender, age, socioeconomic status, academic classification, grade point average, length of previous computer experience before enrolling in KSU, access to computers outside of KSU, number of household members who use the household's computer, marital status, geographical region of the nation that is considered to be home for the students and mandatory computer classes. The dependent variable is attitudes toward computer use as self-reported by students in the College of Nursing at KSU. The measure that will be used to determine the students' attitudes is a four-point Likert-like scale consisting of 40 items distributed among four 10-item subscales that measure computer anxiety, computer confidence, attitude toward computers, and perceptions of the usefulness of computers.

Significance of the Study

There are numerous noteworthy computer-related technological developments that have occurred over the last 5 to 10 years in Saudi Arabia (Moshaikeh, 1992; Alsebil, 2004). Among them all are (a) the acquisition of knowledge in all areas of nursing that allows the students to participate in self-directed learning; (b) the emergence of low-cost, high-performance technology that provides opportunities for self-directed learning to occur in a variety of settings, (c) improved proficiencies in manipulating technologies in healthcare delivery, (d) the use of computer technology to improve students' learning environments and enhance their knowledge and skill levels, and (e) the reduction of students' dropout rates related to academic deficits (Chin, 2001). Finding the best way to create a technological learning environment that may improve teaching methods and learning attitudes, and reduce the number of low-performing students would benefit nursing as a discipline, and would also help to improve health outcomes

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across the nation. Perhaps these outcomes could become more resolute if there were empirical data about the students' attitudes regarding the use of computer technology in baccalaureate nursing education in a gender-integrated educational milieu in Saudi Arabia.

One factor that determines the successful implementation of computer instruction is users' attitudes toward computers (Ajuwon, 2003; Alsebil, 2004; Ayoub et al., 1999; Chin, 2001; Lewis, 1999; Mastrian & McGonigle, 1999). This proposed research will be the first study in Saudi Arabia to explore nursing students' attitudes about the use of computers in their baccalaureate nursing education program. It will provide information regarding the students' attitudes toward the utilization of computers at KSU. The findings are expected to be beneficial to university leaders, the nursing faculty and staff, and the students. Based on the findings of this study, the leaders in the schools of nursing and the students could begin to identify approaches and methods that could be used within KSU to increase student acceptance of computer usage as a mechanism to enhance their learning and skills acquisition. It also has implications for other areas of education that serve as the foundation of nursing. Included are the core academic courses that are essential for critical thinking and decision making in nursing. Areas of study in which knowledge and skills must be acquired include, for example, the core requirements such as mathematics, physics, language, biology, and other related content. The linkage is that, if nursing students could be taught or coached to learn to use the computer for the enhancement of their education, could this approach also be introduced in other areas of academic instruction at KSU?

Attitude, Theoretical Definition

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Attitude is an enduring view regarding a person, object, or activity that consists of a cognitive element (perceptions and beliefs) and an emotional element (positive or negative feelings). It is also conceptualized as a positive or negative mental state of readiness, learned and organized through experience that influences the individual's response/reaction to people, objects, places, and situations (Ajzen & Fishbein, 1975). Attitudes affect the behaviors of people toward objects, events, and individuals (Scarpa, Smeltzer, & Jasion, 1992).

Attitude, Operational Definition

Student's attitude toward computers is defined as the total score on the four subscales as measured by the CAS: computer anxiety, computer confidence, computer liking, and computer usefulness (Loyd & Gressard, 1985; 1987).

Statement of the Problem

Attitudes toward computer use among Saudis have not been systematically studied. Attitudes are consistent opinions that are shaped by experiences, worldviews, cognition, and emotions that determine an individual's opinion about computers, or people, or events (Ajzen & Fishbein, 1975). This perspective suggests that attitudes influence the reactions that people have toward computers, others, and events that occur over time. Furthermore, it suggests that students who are exposed to computers in their academic programs might have some preexisting opinions about the use of computers as an enhancement for the acquisition of knowledge and skills in nursing.

The College of Nursing at KSU has been selected as the setting for this research because it is the first and only school of nursing in Saudi Arabia that awards a baccalaureate degree in nursing (BSN) to both sexes (KSU, 2008; Saudi Ministry of Higher Education, 2008). This practice began in 2004. In Saudi Arabia, male and female nursing students in the same

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educational milieu represent a new and novel approach in nursing education. The future of this policy change (gender-integrated learning) will be evaluated over the next few years (Tumulty, 2001).

King Saud University's College of Nursing now requires that all students successfully complete a computer course (Tech 227). This is a mandatory two-credit-hour class in which students spend 2 hours in the classroom where didactic learning occurs and an additional hour in the learning laboratory where skills are acquired. To accommodate the needs of students, the College of Nursing is equipped with laboratories that house state-of-the-art computer technology (KSU, 2008).

Research Questions

The research questions explored in this study included the following:

What are the personal demographics (age, gender, socioeconomic status, geographical location, and program level) of the nursing student body at the King Saud University College of Nursing?

Do length of previous computer experience before enrolling in King Saud University College of Nursing, access to computers outside of the university, number of household members who use computers, and a mandatory computer class predict the students' attitudes toward computer usage?

Do gender, age, and socioeconomic status predict attitudes about computer usage in academic learning among the baccalaureate students in the College of Nursing at King Saud University?

Theoretical and Operational Definitions of Study

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Computer, Theoretical Definition

Computer: An electronic device that is capable of storing, manipulating, and retrieving information as designed through the use of precise mathematical instructions that are guided by software (Merriam-Webster, 2007). An example of software that manages data is Excel, a spreadsheet program.

Computer, Operational Definition

In this study, a Dell Inspiron computer (electronic device) will be used to manipulate several software programs including Word, Excel, and Statistical Package for the Social Sciences – SPSS 18.

Attitude, Theoretical Definition

Attitude is an enduring view regarding a person, object, or activity that consists of a cognitive element (perceptions and beliefs) and an emotional element (positive or negative feelings). It is also conceptualized as a positive or negative mental state of readiness, learned and organized through experience that influences the individual's response/reaction to people, objects, places, and situations (Ajzen & Fishbein, 1975). Attitudes affect the behaviors of people toward objects, events, and individuals (Scarpa, Smeltzer, & Jasion, 1992).

Attitude, Operational Definition

Student's attitude toward computers is defined as the total score on the four subscales as measured by the Computer Attitudes Scale (CAS): computer anxiety, computer confidence, computer liking, and computer usefulness (Loyd & Gressard, 1987).

Anxiety, Theoretical Definition

Computer anxiety is defined as the sense of fear or negative feelings toward computers and a reluctance to learn or manipulate the computer in the academic environment. Computer

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anxiety involves an array of emotional reactions including fear, apprehension, uneasiness, and distrust of computer technology in general (Loyd & Gressard, 1987). It can also be defined as hesitation or self-doubt in one's own ability to learn about and use computers in the academic environment. This type of anxiety is related to one's sense of self-efficacy about learning and mastering the use of computers (Loyd & Gressard, 1987).

Anxiety, Operational Definition

The CAS questionnaire will be used to determine the level of computer anxiety that the students manifest. Specifically, items 1, 5, 9, 13, 17, 21, 25, 29, 33, and 37 on the CAS measure will be used to determine computer anxiety levels among the students (Loyd & Gressard, 1987).

Computer Confidence, Theoretical Definition

Computer confidence is associated with the inherent belief in one's ability to master the use of computers in the academic environment and to use this technology to enhance individual and group learning (Loyd & Gressard, 1987).

Computer Confidence, Operational Definition

Items on the Computer Attitudes Scale will be used to measure computer confidence. As indicated on the questionnaire, an expression of computer confidence (or lack thereof) may include statements like "I am sure I could do work with computers," "I'm not the type to do well with computers," and "I could get good grades in computer courses." Questionnaire items 2, 6, 10, 14, 18, 22, 26, 30, 34, and 38 are concerned with computer confidence on CAS (Loyd & Gressard, 1987).

Computer Liking, Theoretical Definition

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Computer liking is defined as the internal feeling of enjoyment and stimulation, or the desire to learn about, think about, or converse with others about the characteristics and advantages of the computer and its multiple uses (Loyd & Gressard, 1987).

Computer Liking, Operational Definition

Computer liking will be measured by statements such as “I would like to work with computers,” or “Once I start to work with the computer, I would find it hard to stop,” or “I don’t understand how some people can spend so much time working with computers and seem to enjoy it.” Items 3, 7, 11, 15, 19, 23, 27, 31, 35, and 39 on the Computer Attitudes Scale will be used to measure this concept (Loyd & Gressard, 1987).

Computer Usefulness, Theoretical Definition

Computer usefulness is the extent to which a person believes that using a computer system could/will enhance his or her job performance and improve his/her knowledge and skills (Loyd & Gressard, 1987).

Computer Usefulness, Operational Definition

Computer usefulness, in this study, will be measured by computing items 4, 8, 12, 16, 20, 24, 28, 32, 36, and 40 on the Computer Attitudes Scale.

Computer Attitudes Scale (CAS)

The Computer Attitudes Scale is an instrument adapted from Loyd and Loyd (1987) to assess the attitudes of individuals toward computers. The CAS is 40-item instrument divided into four 10-item subscales: anxiety, fear, or phobia; confidence in using a computer; enjoyment of computer use; and usefulness of computers.

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Research Methods

Design

The study utilized a descriptive correlation design, appropriate for the investigation of the relationships of demographic characteristics (age, gender, socioeconomic status, previous exposure to computers, years of study at KSU, successful completion of a computer class [Tech 227], and students' attitudes toward computer usage at KSU). The independent variables in the study were gender, age, socioeconomic status, academic classification, grade point average, length of previous computer experience before enrolling at KSU, access to computers outside of KSU, number of household members who use the household's computer, marital status, geographical region of the nation that is considered to be the students' home, and completion of the mandatory computer classes (Tech 227). There were four dependent variables that were derived from the subscales on one instrument, the CAS measure. These subscales include computer anxiety, computer confidence, liking of computers, and computer usefulness. Collectively, they were used to describe the nursing students' attitudes toward computer use at KSU.

Sample

The researcher invited all officially enrolled students at the College of Nursing at KSU in Riyadh, Saudi Arabia in the summer semester of the academic year 2009 who met the criteria to participate. Recent (2007-2008) statistical data revealed that there were a total of 63,315 undergraduate students at KSU: 38,092 males and 25,223 females. More specifically, the total number of undergraduate nursing students was 600: 195 males and 405 females (KSU, 2008). From these data, it was hypothesized that the majority of the study sample might be females.

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The inclusion criteria for participation in the study were: (a) both sexes (males and females), (b) all educational levels at the university (freshman, sophomore, junior, and senior), (c) 18 years of age or older, (d) enrolled as full-time students at KSU, (e) a Saudi citizen, and (f) willingness to participate in this study as evidenced by the signed Informed Consent Form that was completed by each participant before he/she could enter the research study. Other students who did not fit these criteria were not invited to participate in this research study. A clear explanation was provided to the students.

Instruments

Demographic Questionnaire

The Demographic Questionnaire was used to collect data about the personal characteristics of the enrolled students in the sample. This questionnaire has 13 items that query the subjects about variables such as age, gender, family income, number of years of previous exposure to computer usage, perceived level of expertise in computer usage, years of matriculation at KSU, marital status, and geographical region of the nation that is considered to be home. The instrument was developed by the researcher and was administered in the Arabic language.

Computer Attitude Scale (CAS)

The Arabic Version of the Computer Attitude Scale (CAS) was used in this study to describe the students' attitudes toward computer usage. The CAS was developed by Loyd and Loyd in 1984 and was modified 1985. It is a four-point Likert-like scale consisting of 40 items distributed among four 10-item subscales that measure computer anxiety, computer confidence, liking of computers, and perceptions of the usefulness of computers. The total CAS score can range from 40-160; higher scores correspond to more positive attitudes about computer usage.

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Subscales measuring variable constructs included: Computer Anxiety, Computer Usefulness, Computer Liking, and Computer Confidence. This study used the revised version of the CAS by Loyd and Gressard (1987). The CAS has been employed by a diverse group of researchers in numerous global communities, including Israel (Francis et al., 2000), China (Chin, 2001), South Africa (Burger & Blignaut, 2004), and Saudi Arabia (Abanmie, 2002; Alsebail, 2004).

Reliability and validity of the instrument have been well-established. The reliability coefficient for the Arabic version is 0.91 for the total scale. Validity has been evaluated by Loyd and Gressard (1987), and the measure was found to be an effective tool for differentiating learners' attitudes based on varying degrees of computer experiences. Each of the subscales was able to stand alone and produce their own psychometric properties, including validity and reliability. Total instrument Cronbach *alphas* ranged from .78 in Arabic (Alsebail, 2004), to .89 in English (Burger & Blignaut, 2004), and .95 in English (Loyd & Gressard, 1987), to a high of .95 in Hebrew (Francis, Katz, & Jones, 2000). Subscale *alphas* ranged from .71 (Computer Liking, Alsebail, 2004, in Arabic) to .95 (Computer Liking, Burger & Blignaut, 2004, in English).

Data Collection and Analysis

This study was approved by institutional review boards at both the participating university in the U.S. and by King Saud University. Data were collected from students at KSU who volunteered to participate in the study. The researcher emphasized to prospective student participants that the data collection process was confidential and that no one at the school, or any place else, would have information about their responses to the demographic data form and the CSA questionnaire. Students were informed about their rights to refuse to participate in the study or to withdraw from the study at any time during the process of data collection without reprisals

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or disapproval. They were also told that there were no foreseeable risks associated with participating in this study. SPSS 18 was used to compute and analyze the data. The study sample was described by mean, median, range, standard deviation, and frequency statistics. Missing data were delineated by the numbers 9999. Pie charts and bar graphs were created to visually describe the demographic variables and the distribution of the subscales of students' attitudes toward computers.

Data Analysis Plan for the Research Questions

Research Question One

What are the personal demographics (age, gender, socioeconomic status, geographical location, and program level) of the nursing student body at the KSU College of Nursing?

Data Analysis Plan

Summary measures including descriptive statistics, mean, standard deviation, variance, and frequencies were used to answer this question.

Research Question Two

Do length of previous computer experience before enrolling in KSU College of Nursing, access to computers outside of KSU, number of household members who use computers, and the mandatory computer class (Tech 227) predict students' attitudes toward computer usage?

Data Analysis Plan

Correlation statistics were used to answer this question. Pearson and Spearman correlations were employed. Step-type (backward, forward, and step-wise) regression analysis was used.

Research Question Three

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Do gender, age, and socioeconomic status predict attitudes about computer usage in academic learning among the baccalaureate students in the College of Nursing at KSU?

Data Analysis Plan

Multiple regression using step-type regression analysis was used to predict the influence of the independent variables on the dependent variable, computer usage attitude.

Results

The purpose of this study was to examine the attitudes of baccalaureate-degree seeking student nurses' attitudes toward computer usage in the College of Nursing at King Saud University (KSU), Riyadh, Saudi Arabia. Specifically, the study was designed to investigate the influence of gender, age, socioeconomic status, academic classification, grade point average, and mandatory computer classes on students' attitudes toward computer usage.

The data were collected at KSU during the summer of 2009. All data collection activities were done under the guidance of the researcher and the administrators of KSU. A total of 355 questionnaires were completed (males = 133 and females = 222). Twenty questionnaires were excluded because of missing values (males = 13; females = 7). The actual number of completed and accepted questionnaires was 335 (males = 120 and females = 215). This number reflects more than half of the total student body ($n = 600$) during the 2009 summer academic semester at the university.

Descriptive statistics highlight the demographic profile of the study sample. Variables such as age, gender, and grade point average are included in the profile. See Table 1 for a complete demographic profile of the sample.

Table 1: Demographic Profile of Study Participants

	Mean-Male	Mean-Female	Mean-Total	SD-Male	SD-Female	SD-Total
Age	21.98	21.20	21.47	1.98	1.72	1.84
GPA	3.08	3.38	3.27	0.85	0.89	0.89
Family Members	8.24	7.78	7.95	3.81	2.80	3.20
Income	8,000-9,999	8,000-9,999	8,000-9,999	4,877.56	5,067.53	4,977.51
Computer Experience	49.86	34.73	40.15	3.79	3.53	3.69
Anxiety Score	32.97	31.54	32.04	4.44	4.85	4.75
Confidence Score	31.63	30.77	31.08	4.84	4.94	4.88
Liking Score	29.28	29.61	29.49	3.82	4.20	4.07
Usefulness Score	33.21	32.87	32.99	3.30	4.25	3.93
Total Score	127.10	124.77	125.60	13.81	15.91	15.21

SD=Standard deviation

Source: O. A. Samarkandi, *Students attitudes toward computers at the College of Nursing at King Saud University (KSU)*, Table 11, p. 63. Ph.D. Dissertation, Case Western Reserve University, 2011.

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To address the second research question, step-type (backward, forward, and step-wise) regression analysis was used. The optimal regression equation consisted of experience with learning about or working with computers, home or school access, and both home and school access. 16% (Adjusted R square = 0.163, $F = 17.3$, $p < .0001$) of the variance in the dependent variable (students' attitudes toward computer usage) was explained by the independent variables (experience with learning about or working with computers, home or school access, and both home and school access). All of those independent variables in the optimal regression equation had a significant relationship with the dependent variable (see Table 2).

Table 2: Correlation of Students Attitudes with Independent Variables

Independent Variable	Estimate	t	p
Experience with learning about or working with computers in months	0.132	6.178	0.000
Home access	12.984	3.120	0.002
School access	22.968	2.125	0.034
Both home and school access	16.087	3.765	0.000

Source: O. A. Samarkandi, *Students attitudes toward computers at the College of Nursing at King Saud University (KSU)*, Table 13, p. 65. Ph.D. Dissertation, Case Western Reserve University, 2011.

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Using step-type regression analysis to address the third research question, it was determined that the independent variables (gender, age, and socioeconomic status) did not significantly explain the variance in the dependent variable (attitudes about computer usage in academic learning among the baccalaureate students). This result mirrors the findings of the two previous research questions. When socioeconomic status was added to the regression model, again, the variance could not be explained by the independent variables. This finding could be explained by the demographic profile of the sample that suggests that age, socioeconomic status, and gender did not have a significant effect on the dependent variable, attitudes about computer usage among males and females at KSU.

Table 3: Multiple Regression Analysis of the Influence of the Independent Variables on Computer Attitudes

	Unstandardized Coefficients <i>Beta</i>	Standard Error	Standardized Coefficients <i>Beta</i>	<i>t</i>	Significance	95% Confidence Interval for <i>Beta</i>	
						Lower Bound	Upper Bound
(Constant)	79.68	.747		106.615	.000	78.22	81.25
Gender	3.62	.744	.071	4.925	.000	2.18	5.06
Age	-7.67	.769	-.143	-9.986	.000	-9.15	-6.21
SES	1.64	.138	.171	11.882	.000	1.37	1.91

SES=Socioeconomic status

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Summary and Implications

The participants in the study were young, representing a mean age of 21.5 for males and females. The female students had a slightly higher grade point average than did the male students. From a historical perspective, this is an important finding when consideration is given to the recent trend in Saudi universities in which male and female students are educated at the same university but in different classroom settings. Outdated notions of women's inability to use computers in the region are beginning to change as other social norms shift and adjustments to gender-defined roles and expectations of women emerge in the society. The findings of this research mirror other studies in which investigators found that male and female perceptions and attitudes toward computers and the Internet were not the same (Kadijevich, 2000; Colley, 2003; Tsai, 2004).

These studies suggest that males have more favorable attitudes than do females. Mitra et. al. (2001) examined computer and Internet attitudes among college students and found that both groups had adequate access to computers, but females held less positive views of computers and used them less often than did the males. In Saudi Arabia, women are becoming more educated and, in turn, engaging in politics and other important roles in society. It is anticipated that women will continue to gain prominence and contribute to society in new and novel dimensions including developing positive attitudes towards computer use.

In one of the few studies conducted about computer usage in Saudi Arabia, Oshan and Khudair (2008) reported that students at KSU who had more Internet experience displayed more positive feelings about computers, expressed lower anxiety, and conveyed higher confidence about the Internet overall. They also suggested that confidence helped the students to develop a

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sense of control over their Internet usage (Oshan & Khudair, 2008). These researchers' findings are similar to the results that were reported in the current study.

In addition, it was determined that the independent variables (gender, age, and socioeconomic status) did not significantly explain the variance in the dependent variable (attitudes about computer usage in academic learning among the baccalaureate students). This result mirrors the findings of the two previous research questions. When socioeconomic status was added to the regression model, again, the variance could not be explained by the independent variables. This finding could be explained by the demographic profile of the sample that suggests that age, socioeconomic status, and gender did not have a significant effect on the dependent variable, attitudes about computer usage among males and females at KSU. In another Middle Eastern country, Iranian students (n=375), Shashaani and Khalili (2001) found that parental education had a stronger effect on the attitudes of the students than other variables such as occupation.

According to the findings of this study, males and females can learn through the use of computers even though females in the College of Nursing at KSU are more anxious than their male counterparts. Giving students access to computers in school would also help with their learning and provide an opportunity to increase their usage time and decrease their anxiety.

Recommendations for Nursing Education

1. Strengthen and continue to build computer knowledge and skills among the students at KSU School of Nursing,
2. Provide opportunities for additional computer-based learning in various segments of the curriculum,

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3. Increase public awareness of and support for the use of computer-based learning for advancing nursing knowledge.

Nurses who are expected to use computers during their undergraduate learning experiences would be better prepared to utilize computers in their practice and for their continuing learning needs. Given the growing frequency of the use of computers in educational settings and in practice systems, nurses will be expected to utilize computers for their personal learning and for quality patient care and safety (Kilbridge & Classen, 2008).

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