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EXPLORATION OF FACTORS AFFECTING NURSE FACULTY USE OR RESISTANCE TO ONLINE EDUCATION

by

LISA M. HARLESS

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in Nursing
Department of Nursing

Sally Northam, Ph.D., Committee Chair

College of Nursing and Health Sciences

The University of Texas at Tyler
September 2016

The University of Texas at Tyler
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This is to certify that the Doctoral dissertation of

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Dedication

I dedicate this work to my family, friends and co-workers who helped me succeed.

Acknowledgements

I would like to thank God for enabling me to complete this arduous process. He has blessed me abundantly and I would not be where I am today without Him as my guide. Many times throughout this journey, I felt defeated because I did not accomplish what I set out to do in the timeframe I had established. I learned about priorities and that it was on His time, not mine. "For I know the plans I have for you, declares the Lord, plans to prosper you and not to harm you, plans to give you hope and a future," (Jeremiah 29:11 New International Version). I am most thankful for the love and support from my family. They are my greatest motivation and achievement. I could not have succeeded without the support of my dissertation chair and pal, Dr. Sally Northam. Her constant encouragement and expertise was invaluable. I would also like to thank my committee members Dr. Danita Alfred, Dr. Belinda Deal, and Dr. Kevin Gosselin for your time, support, and critique of my work. Finally, a special thanks to my 2011 cohort for making PhD work fun and memorable.

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EXPLORATION OF FACTORS AFFECTING NURSE FACULTY USE OR RESISTANCE TO ONLINE EDUCATION

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The University of Texas at Tyler
September 2016

The substantial increase in online nursing program enrollment demands that nurse educators be adept in the delivery of online education; however, a significant challenge exists in how to deliver practice-based nursing education in the online environment. Teaching online requires a change in the traditional role of the educator accompanied by the effective use of online learning technologies. Some studies suggest that faculties remain pessimistic to online delivery of education and do not participate, yet few objectively examine variables that influence resistance or use. Included in this dissertation are two manuscripts. The first manuscript defines resistance and addresses prominent concerns associated with teaching online: technology skills and competencies, faculty preparation and training, workload, and quality. The second manuscript is a research study report that utilized multiple regression to test the Unified Theory of Acceptance and Use of Technology (UTAUT) among a population of 940 southern U.S. nurse educators. The study revealed several causal connections associated with nurse faculty use of online education. Experience, performance expectancy, social influence, attitude, voluntariness, anxiety, and facilitating conditions significantly contributed to the

UTAUT model, explaining 36% (R^2) of the variance in usage behavior. Effort expectancy and self-efficacy variables did not significantly contribute to the model.

Keywords: nurse educator, faculty, online education, resistance, UTAUT

Chapter 1

Overview and Purpose of the Research Study

The growth in online education is extraordinary. The number of higher education students currently enrolled in online courses is 7.1 million or 33.5% of all higher education students (Allen & Seaman, 2014). Nursing education is not exempt to the increase in online education. Over half of the 679 registered nurse to baccalaureate degree (RN to BSN) programs and a considerable portion of graduate nursing programs offer hybrid and fully online coursework and more programs are under development (American Association of Colleges of Nursing [AACN], 2015). According to the AACN (2014), RN to BSN and graduate nursing program enrollments outpaced entry-level baccalaureate degree enrollments. RN to BSN program enrollment increased 10.4%, master's programs by 6.6%, and the largest enrollment increase occurred in doctor of nursing practice programs at 26.2% (AACN, 2015). The substantial increase in nursing program enrollment can be attributed to the availability and flexibility of online education coupled with the mandate for advanced nursing education.

The expectation that nurse faculty use electronic technologies to teach has significantly affected the nurse faculty role. Furthermore, developing the necessary technology skills to teach online often requires additional time and training (Axley, 2008). As a clinical profession, providing nursing education online presents some unique challenges. Faculty must incorporate real world, interpersonal online experiences that are equal to those of face-to-face interactions (Smith, Passmore, & Faught, 2009). The

challenges associated with teaching online, whether perceived or actual, may promote faculty resistance.

Despite the presence of online education for over two decades and convincing evidence on quality, only 28% of academic leaders say their faculties accept the legitimacy of online education (Allen & Seaman, 2015). This is the same reported percentage of faculty acceptance from 2003. Faculty acceptance continues to lag and concerns arise that online courses require greater faculty effort than face-to-face courses (Allen & Seaman, 2015). To sustain the demand for online nursing education, it is important to develop an awareness of variables that may affect faculty use of online education.

A lack of research on variables affecting nurse faculty use or resistance to online education was the impetus for study. The first article, *Online Nursing Education: A Perspective on Faculty Resistance and Variables That Influence Use* defines resistance and identifies prominent faculty concerns in the literature that may influence use or promote resistance to teaching online. The second article, *Utilizing the UTAUT to Explore Variables Affecting Nurse Faculty Use of Online Teaching*, reports the results of a study conducted during the spring of 2015 that tested variables associated with the Unified Theory of Acceptance and Use of Technology (UTAUT) within a population of southern U.S. nurse educators.

The UTAUT is a combined and simplified theory of user acceptance that identifies only major variables from the eight dominant technology acceptance theories: The Theory of Reasoned Action, the Technology Acceptance Model, the Motivational

Model, the Theory of Planned Behavior, the Combined TAM and TPB, the Model of PC Utilization, the Innovation Diffusion Theory, and Social Cognitive Theory (Venkatesh, Morris, Davis, & Davis, 2003). For every major model of technology acceptance, at least one variable was significant and had the strongest influence (Venkatesh et al., 2003). Performance expectancy, effort expectancy, social influence, facilitating conditions, attitude, self-efficacy, and anxiety are the seven significant independent variables among the major models accompanied by four moderating variables: gender, age experience, and voluntariness. While Venkatesh et al.'s (2003) final UTAUT model excluded attitude, self-efficacy, and anxiety, all seven independent variables and three moderating variables (gender excluded) were tested within this research study.

The results, presented in chapter three, identify several significant variables that explain nurse faculty use of online teaching. An increasing number of nurse faculty will be asked to teach online, thus developing an awareness of factors that may promote resistance or facilitate use is essential. Research findings may assist in proactively addressing the barriers and facilitators to teaching nursing online as well as planning and delivering faculty development programs that encourage, strengthen, and support the use of online teaching in nursing education.

Chapter 2

Online Nursing Education: A Perspective on Faculty Resistance and Variables That May Influence Faculty Use

Abstract

The convenience of online education coupled with the push for academic progression in nursing has produced considerable growth in online nursing enrollment. Despite the growth, concerns surrounding faculty resistance to online education are present in the literature. While no research studies specifically explore nurse faculty resistance to online education, delivering practice-based education in the online environment has considerably challenged the nurse faculty role. Research reveals a variety of variables that may promote resistance or affect faculty use of online education. This paper defines resistance and addresses prominent faculty concerns associated with teaching online: technology skills and competencies, preparation and training, workload, and quality.

Keywords: resistance, online nursing education, nurse faculty

Online Nursing Education: A Perspective on Faculty Resistance and Variables That May Influence Faculty Use

While distance education has been present for at least two decades, and online education continues to grow, research suggests that faculty remain conflicted and pessimistic about online learning. In a national survey of faculty and administrators (*N*=4564), 58% cited more fear than excitement, and 66% believe online learning outcomes to be inferior to comparable face-to-face courses (Allen & Seaman, 2012). Interestingly, chief academic officers are aware of faculty fears and resistance to online teaching. Over nine years of data indicate that one third or less of chief academic officer's report that their faculties accept the value and importance of online education (Allen & Seaman, 2013). In fact, the lack of acceptance of online education has not shown a significant change in nearly a decade (Allen & Seaman, 2015).

According to Green (2010), faculty resistance to online teaching is the major challenge that impedes institutional efforts to expand online course offerings. Online education is meeting a critical need for more highly educated nurses, yet limited information is available on why some faculties are resistant to this method of education. A foundational argument is that distance education dramatically changed the faculty role. With the introduction of new technologies, educators were transformed from disseminators to facilitators and with this change, expert educators were reduced to novice (Billings, 2007). If an educator's way of thinking or doing is disrupted by change or incongruence, resistance can be expected.

Resistance Defined

Resistance can be positive or negative, yet few recognize the positive qualities of resistance. Most often, resistance refers to, "negative actions and non-action, ill will, resentment, and defensive or confrontational disposition" (Starr, 2011, p. 650). Dictionary definitions support a negative association. Resist, the root word in resistance is defined, "to fight against; to try to stop or prevent; to remain strong against the force or effect of; to not be harmed or affected by; or to prevent yourself from doing something you want to do" ("Resist," n.d., para. 1). Resistance is:

> An act of or instance of resisting; the power or capacity to resist; an opposing or retarding force; the opposition offered by a body or substance to the passage through it of a steady electric current; a psychological defense mechanism wherein a patient rejects, denies, or otherwise opposes the therapeutic effects of a psychotherapist; an underground organization of a conquered or nearly conquered country engaging in sabotage and secret operations against occupation forces and collaborators ("Resistance," n.d., para.2).

Related terms include defiance, opposition, demur, objection, protest, remonstrance, compunction, misgiving, reservation, disobedience, and recalcitrance.

Searching *resistance* within medicine and nursing rapidly produces information on drug, insulin, and airway resistance, all negative associations. Resistance within electrical systems is also opposing. If the goal is to transmit electricity from one place to another, resistance is undesirable. If the purpose is to generate heat or light, resistance is necessary to protect the circuit and prevent fire or explosion (Nondestructive Testing Resource Center, n.d.). Biology, presents characteristic of resistance. Within biology, resistance explains how a population survives or flourishes in the face of stressors (McNeil, 2008). Although resistance is clearly defined within the preceding examples, it becomes ambiguous within the fields of sociology and psychology.

Within psychology, resistance can be viewed as protective and equilibrium restoring. It is the systems effort to maintain the status quo (Lerner & Lerner, 1983). Resistance constitutes a challenging aspect of practice. "It is the will to change that motivates patients to seek help, and it is the fear of change that motivates them to resist the very help they seek" (Lerner & Lerner, 1983, p. 388). Many studies about resistance introduce power, inequality, and social change (Hollander & Einwohner, 2004). Literature on resistance is replete with mention of Michel Foucalt's writings on power. He is recognized for contending, "Where there is power, there is resistance" (Brighenti, 2011, p. 58). Foucalt identifies that individuals demonstrate resistance to the discourses that attempt to control them (Armstrong & Murphy, 2011). War, picketing, and physical violence are socially constructed forms of resistance aimed at achieving or curtailing change (Hollander & Einwohner, 2004). Although these are overt forms of resistance, silence and non-participation can also represent resistance (Jeong-Hee, 2010).

Within education, resistance can be viewed as a communicative act (Jeong-Hee, 2010). "I don't like it! I don't believe it! I won't do it!" are examples of the affective, cognitive, and behavioral components of resistance (Knowles & Linn, 2004, p. 4). Resistance may also present as, "a smirk, a stare of inattention, or the sentence that begins with, 'Well perhaps, but. . .'" (Knowles & Linn, 2004, p.4). Hollander and Einwohner (2004) find that resistance is not always interpreted correctly, "What one observer sees as resistance, another may see as accommodation or even domination" (p. 548).

Throughout the literature, resistance has been described as, “slippery and problematic,” and, “a concept with a clear nucleus and fuzzy edges” (Jeong-Hee, 2010, p. 263; Knowles & Linn, 2004, p. 4). Perhaps this is because, “resistance is used in very specific contexts in scientific or technical disciplines, and with extreme flexibility in social and cultural studies” (Rabade Villar, 2010, p. 82). For resistance to be present, an object or person must receive or perceive a threat or divergence from or with another object, and thus, change, modify, or remain the same. Change or modification is often associated with acceptance, whether willingly or reluctantly (“Accept,” n.d.).

Online Nursing Education

Online teaching and learning is unquestionably a divergence from the traditional face-to-face delivery of nursing education. While the continued growth in online nursing education indicates that nurse faculties participate, few research studies specifically explore variables that influence nurse faculty use. While online education is now considered mainstream, it is still referred to in the literature in a variety of terms. The terms distance, web-based, and electronic paired with the interchangeable terms of education and learning complicate literature reviews (Moore, Dickson-Deane, & Galyen, 2011).

Billings (2007) traced 25 years of distance education in nursing ranging from correspondence courses, the use of television, computer aided instruction and interactive videodiscs, to desktop computers with dial-up connections, and fully functioning mobile, anytime, anywhere, education. The convenience of online education is unmatched and the number of students participating continues to grow. Allen and Seaman tracked online

education for over 10 years. They provided a yearly analysis of online higher education in the United States using data from over 2,800 colleges and universities. In 2013, the number of students taking at least one online course increased to a new total of 7.1 million, or 33.5 percent of all higher education students (Allen & Seaman, 2014).

The largest consumers of online nursing education are registered nurses (RN) completing a baccalaureate degree (RN to BSN) or pursuing graduate education. RN to BSN program enrollments have demonstrated continuous growth for 12 years, and the greatest enrollment increase is in doctor of nursing practice programs at 26.2% (American Association of Colleges of Nursing [AACN], 2015a). The increase in enrollment was prompted by the availability of online education and the influence of two significant national nursing reports: The Institute of Medicine's 2011 report, *The Future of Nursing: Leading Change, Advancing Health*, and the Carnegie Foundation's *Educating Nurses: A Call for Radical Transformation* (Benner, Sutphen, Leonard, & Day, 2010). The reports identified that a significant change was required in how nurses are educated to contend with today's complex health care system. The 2011 IOM report recommended an increase in the number of nurses with baccalaureate degrees from 50% to 80% and double the number of nurses with doctoral degrees by 2020. Similarly, the Carnegie Foundation's report recommended the baccalaureate degree as the minimal educational level for entry into nursing practice (Benner, Sutphen, Leonard, & Day, 2010). Patients, employers, and communities benefit from advanced degrees in nursing (Benner et al., 2010). Employers experience fiscal benefits such as workforce stability, improved patient safety, and lower morbidity and mortality rates, while patients and

communities experience greater access to quality health care (AACN, 2014; Benner et al., 2010). The current health care environment prioritizes safe, efficient, quality healthcare, and nursing education must prepare graduates to meet this demand.

As of 2015, the AACN documented substantial progress toward these goals. Nineteen states doubled their RN to BSN enrollment and 23 states more than doubled their RN to BSN graduates. In addition, the number of nurses completing a doctoral degree increased 110% between 2010 and 2014 (AACN, 2015b). At that rate, the AACN (2015c) predicts the IOM recommendation for doctorally prepared nurses will be met by 2020. In 2015, there were 679 RN to BSN programs, 209 RN to master's degree programs, 269 doctor of nursing practice programs, and 134 research-focused doctoral programs in the U.S. (AACN, 2015c). A significant number of these offer online coursework and fully online programs, yet no nursing organization is collecting data on the exact number of nursing courses or programs offered partially of fully online (Skiba, 2015).

Variables Influencing Faculty Resistance to Online Education

From the beginning, distance education in nursing was identified as a challenge. In 1996, Billings cautioned, "distance education is not for all teachers, all students, or all instructional activities, and nurse educators must make careful choices about using distance education technologies" (para.10). Then, in 2000, the AACN Task Force on Distance Education published a white paper outlining "sticky issues" associated with executing distance education. Resources, cost of innovation, faculty training, quality and

standards, technical assistance, and intellectual property concerns were identified, all of which are still relevant today (AACN, 2000).

Loyd, Byrne, and McCoy (2012) conducted a survey to determine the perceived barriers to online teaching among a population of state university faculty from the southeastern U.S. (*N*=75). Among the participants was an equal representation of male (51%) and female (49%) faculty from a variety of ranks. Thirty-one percent of the sample came from health professions and 68% had some experience either teaching or taking an online course. The electronic survey contained 22 variables regarded as perceived barriers to online education within the literature. (Loyd et al., 2012). Participants were asked to rate each perceived barrier on a four point Likert scale, with the anchors "not a barrier" to "significant barrier." Using exploratory factor analysis, four factors were extracted that explained nearly 60% of the variance in barriers to online teaching: interpersonal (19%), institutional (13.6%), training and technology (13.5%), and cost/benefit analysis barriers (13.3%) (Loyd et al., 2012).

Interpersonal barriers refer to how faculty perceive the online environment as impersonal, with less faculty engagement, lack of personal relationships and social interaction, and lack of visual cues from students as barriers. Institutional barriers included lack of policies or standards for online courses, lack of control over property rights, lack of faculty involvement in decision-making, and the value of teaching online toward promotion and tenure. Training and technology barriers were inadequate training and technology support, frequent technology failures, and the rapidly changing software or delivery systems. Cost/benefit barriers were related to increased workload and time

commitments to conduct online education and inadequate compensation for instruction (Loyd et al., 2012). Participants ranked the greatest barriers to online education as increased workload (*M*=3.02, *SD*=.012), time commitment (*M*=2.97, *SD*=0.13), lack of personal relationship with students (*M*=2.74, *SD*=.14), frequent technology failures (*M*=2.74, *SD*=.13), and inadequate compensation for instruction (*M*=2.72, *SD*=.14).

Mitchell, Parlamis, and Claiborne (2015) used the Transtheoretical Model of Change to address faculty resistance to online education. Although not an empirical study, Mitchell et al. (2015) used common themes within the literature and anecdotal experiences to describe four sources of faculty resistance: 1) cultural assumptions and values, 2) fear of the unknown, loss, or failure, 3) fear of disruption of interpersonal relationships, and 4) concerns about the external impact. Cultural assumptions relate to misconceptions held by faculty. There is conflict between traditional education (face-to-face) that is instructor-centered and online education that is student-centered. Faculty are skeptical of online courses and the quality of education when they cannot physically see the student (visual cues) to assess learning outcomes. Faculty question the quality of online courses and how to validate student authenticity. Fear of the unknown, loss and failure identifies that faculty fear what they do not know or have experience with. Many faculty fear technology, which is often a generational issue that can be addressed through training and exposure (Mitchell et al., 2015). In addition, faculty fear the time it takes to acquire the skill to teach online, the time it takes to conduct online education, and an overall fear of failure in that transition from the classroom to educating students online. Disruption of interpersonal relationships is considered a threat because faculty may not

be able to physically see the impact on students' lives, or experience much personal communication and mentoring when separated by distance (Mitchell et al., 2015). Whether from a research study investigating faculty-perceived barriers or a combined theoretical and anecdotal perspective from the literature, many complex variables are present that affect faculty resistance to and use of online education.

Technology Skills and Competencies

Axley (2008) traces the incorporation of technology within nursing education first from the early 1990s where the overhead projector was replaced with PowerPoint, to the upsurge in electronic mail, and then the first National Council Licensure Examination offered on a computer in 1997. Today, nursing education is saturated with mobile technologies, electronic medical records and equipment, simulation, and online teaching. The National League for Nursing (NLN) (2015) identified that nurse educators should be fluent and competent in the use of technology; however, a gap was noted between current faculty, the digital immigrant, and students termed digital natives (Prensky, 2001). In fact, the low digital fluency of faculty hinders technology adoption within higher education (Johnson, Adams Becker, Estrada, & Freeman, 2014; Schnetter et al., 2014). The rapid pace at which technologies are introduced combined with the expectation of fluent use, have nurse faculty concerned (Johnson & Meehan, 2013). "Developing online courses requires mastery of technologies that many faculty are not familiar with, and that some actually fear" (Schmidt, Hodge, & Tschida, 2013, p. 131).

Nguyen, Zierler, and Nguyen (2011) conducted a web-based survey of 193 nurse faculty members from the Pacific Northwest in the U.S. The descriptive, cross-sectional

study explored faculty use of four technologies: distance learning, simulation, telehealth, and informatics. Tools used in the study included a use of technology rating scale (1= not at all to 6 = more than one time per week), a knowledge and skill self-assessment using Benner's (1984) novice to expert framework, and a training needs assessment consisting of six yes/no items. Most the respondents had earned at least a master's degree in nursing, and worked full-time with a median of 10 years of teaching experience in baccalaureate clinical and lecture settings. Fifty-nine percent of the respondents self-identified as competent users of distance education. Chi- square tests were used to examine how use and knowledge of distance learning were related to demographic, teaching characteristics, and perceived institutional support (Nguyen et al., 2011).

Variables associated with the increased use of distance learning included level of education $\chi^2(4, N=191)=12.38$, $p<.01$, type of institution $\chi^2(2, N=191)=8.35$, $p<.05$, financial support $\chi^2(2, N=192)=9.95$, $p<.01$, technical support $\chi^2(2, N=179)=5.83$, $p<.05$, and training $\chi^2(2, N=165)=21.04$, $p<.001$ (Nguyen et al., 2011). Age, administrative support, and curricular design support were not significant variables affecting faculty use of distance learning.

Variables associated with greater perceived knowledge of distance learning tools were education $\chi^2(6, N=190)=21.3$, $p<.001$, type of institution $\chi^2(3, N=194)=14.74$, $p<.001$, technical support $\chi^2(3, N=178)=8.99$, $p<.05$, and training $\chi^2(3, N=169)=36.83$, $p>.001$. Neither age, financial support, administrative support, nor curricular design support increased perceived knowledge of distance learning (Nguyen et al., 2011). Doctorally prepared faculty teaching at the university level, who received adequate

training, technical, and financial support were more likely to use distance learning and self-report as proficient to expert in distance learning knowledge.

The number of skills or competencies needed by faculty who teach online is extensive. Within the literature, the number of skills required ranges from 28 to 51 (Bailie, 2011). Bailie (2011) conducted a modified Delphi study utilizing competencies and skills identified from three prior research studies to determine if experienced online faculty (*n*=13) and students (*n*=13) could reach a consensus on the critical competencies for online faculty. In the first Delphi probe, participants were asked to review a list of 20 critical competencies, selecting only the 15 competencies they identify as most important for an online instructor. By frequency of selection, the participants determined the 15 most important competencies; however, through open response, identified four additional competencies. Those 19 competencies were: feedback skills, content knowledge, organization skills, interpersonal communication skills, facilitation skills, English proficiency, questioning skills, skills with internet tools, planning skills, writing skills, skills in collaborative learning, knowledge of distance learning, adult learning theory, teaching strategies and models, learning styles and theories, email efficiency, classroom assessment, multicultural competence, and student engagement (Bailie, 2011). The second Delphi probe asked participants to rank the competencies on a 4-point Likert scale ranging from "very important" to "unimportant." After round two, although both students and faculty perceived all 19 competencies as important and a consensus was reached on four critical competencies: feedback skills, interpersonal communication, student engagement techniques, and content knowledge (Bailie, 2011).

Teaching online requires educators to be adept in the use of Learning Management Systems (LMS). The most common LMS's are Blackboard, Canvas, Moodle, Desire2Learn and Sakai (Dahlstrohm & Brooks, 2014; Kroner, 2014). LMS's are software applications that automate the administration, documentation, reporting and delivery of electronic courses (Ellis, 2009; Sharma & Vatta, 2013). Instructors then utilize a variety of tools and applications within the LMS to deliver content, engage students, promote interaction, and evaluate student performance. A primary issue surrounding LMS training is that while faculty are introduced to all the tools and applications, they are not assisted in exactly how to use them in their content or subject area (Macdonald & Poniatowska, 2011). As a clinical practice profession, selecting online teaching and learning tools presents some unique challenges. Schwartz (2010) identified that the distrust of online education among practice profession faculty may be related to the assumption that kinesthetic and interpersonal skills cannot be taught online. A qualitative study of 160 acupuncture, chiropractic, and massage therapy faculty, reported consensus in the perception that kinesthetic skills can't be taught online and that faculty lack awareness of all the capabilities of online education (Schwartz, 2010).

Any faculty member developing an awareness of the skills it takes to teach online could easily become overwhelmed or simply choose not to participate. Some faculty are not provided with a choice to teach online, may not have access to quality training, or time to complete training. When words such as, "terror, worry, and apprehensiveness" are used to describe an experienced educator's first online teaching experience, it is evident that training and support are essential (MacDonald & Poniatowska, 2011, p. 135).

Faculty Preparation and Training

As the growth in online education continues, it is important to sufficiently prepare nurse educators to teach online. The sharing of faculty experiences is one method of preparation. Johnson (2008) invited 12 faculty members in a graduate nursing program at a private college to participate in a qualitative phenomenological study. The researcher used a 12-item guided interview instrument to explore faculty member experiences transitioning from the traditional classroom to the online environment. When the data was sorted, five themes were revealed: 1) structuring and delivering course content; 2) faculty development; 3) student roles and responsibilities; 4) communication and relationships, and 5) the faculty role (Johnson, 2008).

Participants described a change in teaching philosophies, from delivering information to more participative styles. Developing relationships was also important, however more difficult in the online environment. Communication must be structured and intentional to avoid feelings of isolation (Johnson, 2008). Faculty believed physical cues make it easier to assess learning in the face-to-face environment. These physical cues are absent in the online environment so when something is not working, it is difficult to discern and time consuming to adjust (Johnson, 2008). When asked about faculty preparation to teach online, 66% had been students in an online course that helped them recognize what does and does not work. All faculty agreed that collaboration with faculty members who had experience was very beneficial. "Mentorship cannot be duplicated. Someone who has a lived experience [of teaching web-based courses] is a valuable resource" (Johnson, 2008, p. 19). Three experts were identified as essential

support when transitioning to the online environment: a content expert (the faculty member), a web-based education expert, and a technology expert (Johnson, 2008).

Paulus et al. (2010) conducted a series of faculty development workshops to discover what supported faculty in their transition to teaching online. These workshops were developed in response to a needs assessment conducted within the college of nursing. A qualitative case study method was used and included 25-nurse faculty. Five faculty development workshops were conducted, offered virtually and face-to-face. The workshops focused on facilitation and community building in online environments and direct experience with various LMS tools (Paulus et al., 2010). Three participants attended all five session, 17 attended three or four sessions, and five attended one or two sessions. Participants with and without experience teaching online were strategically placed in discussion groups.

Using the constant comparative method, six themes described the faculty development program and participant experiences: 1) plugging-in; 2) peer sharing, modeling and community building; 3) multidimensional learning; 4) role-shifting and metalearning; 5) paradigm shifting; and 6) sustaining momentum (Paulus et al., 2010). Plugging-in referred to participant engagement. Time, work responsibilities, and how soon participants needed to use what was being taught were all factors that affected engagement (Paulus et al., 2010). Participants discussed the varying levels of engagement and negotiated different levels of involvement. One participant even identified the need for release time to participate in faculty development.

Peer sharing, modeling, and community building was encouraged through faculty discussion and reflection in small groups. Some faculty were intimidated to share their fears but eventually discovered it was helpful to share. Modeling was reported as both positive and negative. Functioning as a student in an online discussion allowed faculty participants to envision the skills it takes to manage and facilitate an online course. Some described it as, "exhausting" (Paulus et al., 2010, p. 8). Furthermore, multidimensional learning refers to teaching, learning, and technology, all of which are skills required in the online environment. Overall, the workshops resulted in a role shift. By participating in online faculty development, faculty functioned as a student, which made them reflect on the ways that they teach and how they may need to adapt their teaching methods. As new techniques were acquired, the shift from teacher to learner and back again allowed self-evaluation of teaching methods and learning styles. When first presented with new technology, it is viewed as a challenge; however, over time the perceived threat diminishes (Paulus et al., 2010). After the program, there was qualitative evidence of faculty growth as facilitator.

Learning to teach online has also been described as a process. In a qualitative study of five public health faculty members teaching in the southwest United States, the development of online courses was described as, "difficult, daunting, painful, and time consuming," which left faculty feeling, "frustrated, exhausted, stressed, fed up, and in some cases, discouraged" (Kidd, 2011, p. 246). These negative components did not begin to dissipate until after the instructors worked through the development phase and progressed into the teaching phase. Although a small sample, study participants

described a mental, intellectual, and pedagogical transformation that must occur to be successful at teaching courses online (Kidd, 2011).

Faculty believe they could be more effective at teaching online if institutions had appropriate infrastructure and design for the overall technology environment (Dahlstrohm & Brooks, 2014). The Educause Center for Analysis and Research (ECAR) conducted a study of faculty from 151 college and university sites in 13 countries to explore the faculty perspective on use of information technology in education. Thirty-two percent of the sample (*N*=17451) were health science professionals and 35% have recent online teaching experience. The ECAR study revealed that 59% of faculty do not believe their institutions have clear strategies for online learning (Dahlstrohm & Brooks, 2014). Nonwhite females who teach part-time in public administration, health sciences, or education, have less than 10 years of teaching experience, are ranked as instructor or non-tenured professors, and work with graduate or professional students were characteristics of faculty who were most agreeable to more LMS training (Dahlstrohm & Brooks, 2014). Although the type of LMS training was not explored in the study, nearly half (49%) were satisfied or very satisfied with their learning management system training and 42% with their ongoing training (Dahlstrohm & Brooks, 2014).

There are no mandates for faculty training in distance education, only best practice recommendations. The Quality Matters organization, a nationally recognized organization that certifies the quality of online courses, identifies that the first step in planning faculty development is to conduct a needs assessment. It is essential to communicate and ask faculty what they need to know now, what would have been

helpful when they started, and what will be helpful in the future (Shattuck, n.d.). Recommended are "just-in-time" faculty training sessions that address the immediate needs of faculty teaching or planning to teach online (Lee et al., 2010; Patterson Lorenzetti, n.d.). Topics should be collaborative, where faculty members share their experiences and examples of use in different programs of study provided (Shattuck, n.d.). Training should include the why (pedagogy) and how (use of technology), and sessions should be short or segmented, provided online or in hybrid format, and be archived for those unable to attend (Lee et al., 2010; Patterson Lorenzetti, n.d.).

To facilitate attendance in faculty training sessions, continuing education credit and/or release time should be offered (Lee et al., 2010). It is also vital to recognize faculty members who complete training and identify them as resources for other faculty members (Shattuck, n.d.). Instructional technology personnel must look for ways to make faculty training and adoption of technology easy and sustainable (Dahlstrohm & Brooks, 2014).

Faculty Workload

In consideration of the technology skills, training, and adaption required by faculty who teach or plan to transition to online teaching, workload is an expected concern. The time required to participate in training, prepare materials, facilitate the course, and communicate with students contributes to a negative faculty perception of online education. Many self-report studies consistently suggest that teaching online is more time intensive than face-to-face courses (Bolliger & Wasilik, 2009; Conceição, 2006; Fish & Gill, 2009; Johnson, 2008; Paulus et al., 2010; Santilli & Beck, 2005).

Other studies find inconsistencies in how 'time' is studied and reported (Tynan, Ryan, & Lamont-Mills, 2015; Van de Vord & Pogue, 2012). Van de Vord and Pogue (2012) investigated which aspects were more time consuming for instructors teaching in the online environment. When comparing time logs kept by four online instructors and six on-campus instructors for six weeks, face-to-face teaching required slightly more time per student (*Md*=13.88 minutes) than online (*Md*=12.32 minutes) (Van de Vord & Pogue, 2012). When comparing tasks, interacting with students (*Md*=44.17) was the most time consuming for face-to-face courses, while evaluating student work (*Md*=47.84) took priority in online courses (Van de Vord & Pogue, 2012).

Comparing face-to-face and online courses can be misleading because of the many variables involved (Conceição and Lehman, 2011; Van de Vord & Pogue, 2012). Instructor experience, institutional infrastructure, support, student factors, and countless cognitive, affective, and behavioral factors impact the amount of time required to teach online (Conceição and Lehman, 2011). Whether teaching online is more time intensive than teaching face-to-face is still unclear. If the instructor is new to online teaching or the design and delivery of the course is unsystematic, the instructor workload will be greater. The key to faculty workload management is allocating time effectively through course organization, content delivery, and task management (Conceição and Lehman, 2011).

Quality

While online nursing education is well established, quality and consistency among programs is not. No regulatory agency endorses a specific set of online education

quality standards. The only mandate regarding distance education is that programs delivered solely or in part through distance, learning must meet the same approval and regulatory standards as face-to-face programs (AACN, 2003; Lowery & Spector, 2014; National Council of State Boards of Nursing, 2015). Standards and criteria are prescribed by accrediting bodies and during site visits, student outcomes, faculty development, technical support, professional role socialization, and resources are evaluated for both face-to-face and distance education programs (AACN, 2003). There are several distinguished programs that provide frameworks and measures of quality for online education; however, they appear to be underutilized in nursing (Russell, 2015).

Early quality standards were first introduced by Billings, Connors, and Skiba (2001) in the article, *Benchmarking Best Practices in Web-Based Nursing Courses*. The pilot study, distributed to nursing students across three state schools of nursing (N=219) was the first of its kind to identify critical areas of performance in web-based nursing education. The descriptive, exploratory study utilized a 52-item instrument (α=.85) to collect data on student perceptions of outcomes, educational practices used to facilitate learning, and the use of technology within online nursing courses (Billings et al., 2001).

The study identified convenience (M=3.7, SD=.79) as the primary advantage of online courses. Convenience was positively correlated with active learning (r=.64, p<.01), feedback (r=.34, p<.01), student-faculty interactions (r=.54, p<.01), and interactions with peers (r=.37, p<.01). Students over age 50, $F(3, 212) = 3.09$, $p<.05$, and living 100 miles or more from campus, $F(4, 211) = 6.67$, $p<.01$, perceived the greatest level of convenience. Students also generally felt satisfied with web courses

(*M*=3.2, *SD*=1.18). Student satisfaction was correlated with preparation for real-world work (*r*=.84, *p*<.01), socialization (*r*=.79, *p*<.01), connectedness or lack of isolation (*r*=-.62, *p*<.01), and convenience (*r*=.76, *p*<.01) (Billings et al., 2001).

In reference to educational practices, students perceived that they were actively involved in learning online (*M*=3.3, *SD*=.84). Active learning was positively correlated with feedback (*r*=.40, *p*<.01), student-faculty interaction (*r*=.69, *p*<.01), and interaction with peers (*r*=.54, *p*<.01). When comparing interaction among online and face-to-face courses, students were somewhat less likely to interact with peers (*M*=2.7, *SD*=1.03) and faculty (*M*=2.3, *SD*=1.06) in online courses versus face-to-face (Billings et al., 2001).

Although the Billings et al. (2001) study was conducted more than 15 years ago, the results can be utilized to plan and develop online nursing courses. Nurse educators must incorporate active learning, socialization, various technologies, and provide useful feedback to encourage positive student experiences and deliver quality online education. Today, several renowned organizations provide evidence based quality standards. The Quality Matters (QM) program is a nationally recognized, faculty centered, peer-review process that is designed to certify the quality of online courses ("Quality Matters," n.d.). The program utilizes an eight-standard rubric (course overview and introduction, learning objectives, assessment and measurement, instructional materials, course activities and learner interaction, course technology, learner support, and accessibility and usability) from which to evaluate courses ("Quality Matters"). The QM program promotes continuous quality improvement and faculty development within online education. The Online Learning Consortium (OLC), formerly the Sloan Consortium, also promotes

quality online learning and professional development. The OLC operates under five pillars of quality education: learning, faculty, students, scale, and access ("Online Learning Consortium," n.d.).

Although faculties continue to question the quality and effectiveness of distance education compared to traditional face-to-face programs despite the evidence, the U.S. Department of Education (2010) conducted a meta-analysis of 50 research studies that compared student outcomes in online versus face-to-face or blended courses. They discovered that students in online courses performed modestly better than those learning the same material in a face-to-face course (d=.20, p<.001) (U.S. Department of Education, 2010). A larger effect (d=.35, p<.001) existed among those in blended courses (U.S. Department of Education, 2010). While this was a large-scale meta-analysis and included data from a wide range of academic and professional studies, it did not specifically evaluate practice professions such as nursing.

While there is considerable disagreement on what constitutes effective online teaching, ideally, quality is measured objectively and based on established standards (Wray, Lowenthal, Bates, & Stevens, 2008). Russell (2015) appraises the evaluation practices within online nursing education as, "diffuse and superficial" (p. 19). In a review of literature (N=36) to explore the current state of evaluation within online nursing education, the primary emphasis of evaluation within online nursing education has been teaching strategy effectiveness or outcomes associated with the affective domain (satisfaction, perception, preference, and experience). Although the studies reviewed demonstrate positive learning outcomes, much of it is perceived (self-reported)

as opposed to actual (Russell, 2015). Russell (2015) identified the need for nursing education to conduct outcome-based studies on the effectiveness of teaching cognitive and psychomotor skills in the online environment and encouraged cross-disciplinary reviews of online nursing courses by faculty in education and psychology.

Conclusions and Recommendations

While it is evident that nurse faculty are participating in online education, research suggests that faculty resistance is present in higher education. The literature abounds with many variables that promote resistance and may affect use of online education. This article highlighted issues surrounding technology skills and competencies, faculty preparation and training, faculty workload, and quality.

The time required to learn, prepare, and participate in online teaching is perceived as a barrier. The number of skills and competencies required of faculty who teach online is extensive. Within the literature, fear and concern were associated with the use of technology. While the use of technology is an absolute necessity to teach online, the rapid pace at which it is introduced and changes significantly challenges faculty. Preparation and training can help prepare or acclimate faculty to teaching online; however, the type and method of training that is offered does not always meet the specific needs of faculty. Teaching a clinical practice profession online presents some unique challenges. Nurse faculty need to know which applications and tools can be used effectively to teach nursing. Evaluating quality in online nursing education appears to be an area in need of improvement. Various organizations and benchmarking studies provide some guidance.

Preparing a sufficient number of nurse educators to meet the needs of online students is a priority for years to come. It is essential to determine what may facilitate or inhibit the process. Nurse educators who have adopted this teaching innovation must improve the dissemination of knowledge about online teaching and learning. As a profession guided by evidence-based practice, knowledge must be generated on how faculty' best conduct nursing education online. Assessment of nurse faculty populations must be made before interventions can be designed and evaluated.

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Chapter 3

Utilizing the UTAUT to Explore Variables Affecting Nurse Faculty Use of Online Teaching

Abstract

Problem: Faculty resistance to online teaching is present in higher education. A significant number of nursing students and faculty engage in online education; however, few research studies explore variables that influence use. Reliable technology acceptance theories identify major variables that affect use and acceptance of technology, yet they are underutilized in nursing. No research studies explore factors affecting nurse faculty use of online education using the Unified Theory of Acceptance and Use of Technology (UTAUT).

Purpose: To explore variables affecting nurse faculty use of online education using the UTAUT.

Method: An online survey was administered to 940 nurse educators. Theory testing via multiple regression was used to explore eleven independent variables associated with the UTAUT.

Results: Experience, performance expectancy, social influence, attitude, voluntariness, anxiety, and facilitating conditions significantly contributed to the UTAUT model, explaining 36.7% (R^2) of the variance in usage behavior. Effort expectancy and self-efficacy variables did not significantly contribute to the model.

Keywords: nurse faculty, UTAUT, online education, online teaching

Utilizing the UTAUT to Explore Variables Affecting Nurse Faculty Use of Online Teaching

The growth in online education continues. The number of higher education students currently enrolled in online courses is at an all-time high of 33.5 percent, or 7.1 million students (Allen & Seaman, 2014). Nursing education is not exempt to the increase in online enrollment. Over 60% of accredited registered nurse to baccalaureate degree (RN to BSN) completion programs and a considerable number of graduate programs offer hybrid coursework and fully online degrees (American Association of Colleges of Nursing [AACN], 2012). In 2013, RN to BSN and graduate nursing program enrollments outpaced pre-licensure baccalaureate degree enrollments (AACN, 2014).

Despite the growth in online education, research suggests that faculty remain conflicted and pessimistic about online learning. In a national survey of faculty and administrators (*N*=4564), 58% cited more fear than excitement towards online education, and 66% said they believe online learning outcomes to be inferior or somewhat inferior to comparable face-to-face courses (Allen & Seaman, 2012). Over nine years of data indicate that one third or less of chief academic officer's report that their faculties accept the value and importance of online education (Allen & Seaman, 2013). In fact, the lack of acceptance of online education has not shown a significant change in nearly a decade (Allen & Seaman, 2015). Interestingly, chief academic officers are aware of faculty fears and resistance to online teaching and cite this as a barrier. According to Green (2010), faculty resistance to online teaching is the major challenge that impedes institutional efforts to expand online course offerings.

Research and data suggest some faculties accept online education, while others resist. In analyzing definitions, *resistance* implies a refusal to accept; while, *acceptance* means, "agreeing to receive whether willingly or reluctantly" ("Accept," n.d., para. 1). Closely related to acceptance is *adopt*, "to begin to use" ("Adopt," n.d., para. 2). The acceptance of technology is described as complex, social, and variable. Individuals are influenced by their own malleable perceptions of what technology use can achieve (Straub, 2009). Researchers have tried to understand the factors that influence user acceptance of technology for at least two decades (Dillon & Morris, 1996). The result is a wealth of technology acceptance theories, each with their own set of variables.

Technology Acceptance Theories and Models

A theory provides a set of defined variables that can be used to predict an occurrence whereas a model is a systematic description or abstract representation of a system (Samaradiwakara & Gunawardena, 2014). According to Venkatesh, Morris, Davis, and Davis (2003), there are eight prominent theories and models of technology acceptance: The Theory of Reasoned Action, the Technology Acceptance Model, the Motivational Model, the Theory of Planned Behavior, the Combined TAM and TPB, the Model of PC Utilization, the Innovation Diffusion Theory, and Social Cognitive Theory. These eight models offer 32 variables that influence intent or use (Venkatesh et al., 2003).

The Theory of Reasoned Action (TRA) is one of the most influential theories of human behavior (Venkatesh et al., 2003). Many technology acceptance theories use the TRA as a foundation. The TRA has only two core variables, attitude and subjective

norm. Attitude refers to positive or negative feelings about performing a behavior and subjective norm relates to the subjective interpretation that those who are important (to the user) support or disprove of a behavior (Fishbein & Ajzen, 1975). The Theory of Planned Behavior (TPB) is a modified version of the TRA adding the variable perceived behavioral control, "the perceived ease or difficulty of performing the behavior" (Ajzen, 1991, p. 186).

The TAM is also a popular theory and an extension of the TRA although excludes attitude (Venkatesh et al., 2003). It was designed to explain use of computer information systems. It includes perceived usefulness, perceived ease of use, and subjective norm. The TAM addresses whether a person believes using a system would enhance job performance and be free of effort (Davis, 1989). The TAM has been widely tested and as result, was extended to include additional variables. The TAM2 includes more determinants of cognitive processes (job relevance, output quality, result demonstrability), and the social influence processes of subjective norm and image (Venkatesh & Davis, 2000). The TAM3 added two groups of antecedents for perceived ease of use defined as anchors and adjustments (Venkatesh, 2000). Anchors were general beliefs of computers, and adjustments were beliefs that are shaped based on direct experience with a system (Priyanka & Kumar, 2013). There is also a combined TAM and TPB.

The Motivational Model (MM), Innovation Diffusion Theory (IDT), and Model of PC Utilization (MPCU) also contribute variables explaining technology adoption. The MM details extrinsic (pay, promotion, improved performance), and intrinsic (requiring no

reinforcement) motivators as variables predicting system use (Davis, Bagozzi, & Warshaw, 1992). IDT variables include relative advantage, ease of use, image, visibility, compatibility, results demonstrability, and voluntariness of use. Simplified, the IDT variables seek to explain if a technology will work better, be easy to use, improve image, is needed, produces results, and is a choice. The MPCU addresses job-fit, complexity, long-term consequences, affect towards use, social factors, and facilitating conditions (Thompson, Higgins, & Howell, 1991). Finally, Social Cognitive Theory (SCT) is known to be one of the most powerful theories of human behavior (Venkatesh et al., 2003). SCT relates acceptance behavior to personal and performance outcomes, self-efficacy, affect, and anxiety (Compeau & Higgins, 1995).

The body of literature identifying variables that predict faculty adoption, use, and acceptance of technology is complex and varies across systems and populations. Venkatesh et al. (2003) sought to analyze the competing models to construct a more parsimonious model. They discovered that among the eight dominant technology acceptance theories and models, at least one variable was significant, and that variable had the strongest influence (Venkatesh et al., 2003). To explore the key variables, Venkatesh et al. (2003) constructed a questionnaire containing the dominant variables that significantly predicted intent or use: performance expectancy, effort expectancy, and attitude toward using technology, social influence, facilitating conditions, self-efficacy, anxiety, and behavioral intent. The questionnaire was then administered to employees from four different organizations who were being introduced to a new technology in the workplace (N=215). From the longitudinal field study, Venkatesh et al. (2003) used the

highest loading items over time and reduced the key variables from 32, to eight, to four. The final UTAUT model (Figure 1) includes three direct determinants of intent to use (performance expectancy, effort expectancy, and social influence), and two direct determinants of use behavior (intent and facilitating conditions (Venkatesh et al., 2003). Self-efficacy, anxiety and attitude were omitted from the final model because previous research found them to be non-significant, having no direct influence on behavioral intent. The UTAUT model outperformed each of the eight individual technology acceptance models with an R^2 of 69% (Venkatesh et al., 2003). The UTAUT is the foundation for the study and the review of the literature will explore the utility of the UTAUT within faculty populations.

Review of the Literature

When the initial literature search was conducted, it appeared that the UTAUT was widely used. Searching "UTAUT" within the Swoop Search database, produced over 4,600 records. When limited to current, scholarly journal articles, the total was reduced to just over 3,000. Upon review of article abstracts, it became clear that most articles citing the UTAUT do not actually test the theory and many modify it to fit their suppositions. In addition, it is used primarily in business and information technology disciplines, and very modestly in education, with few studies conducted within faculty populations. Williams et al. (2011), and Taiwo and Downe (2013) found similar results when they conducted an analysis of the literature. The researchers reviewed records referencing the original Venkatesh et al. (2003) publication. Out of 450 articles available, 407 simply cited the original article and did not use the theory (Williams et al.,

2011). Many authors cite the UTAUT to support an argument rather than test the theory (Taiwo & Downe, 2013). For the purposes of this review, only studies that tested the UTAUT within faculty population are presented.

Birch and Irvine (2009) used a mixed methods approach to explore factors that influence preservice teachers' acceptance of information and communication technology. Eighty-Five Canadian participants, most under age 30 (89%), took the UTAUT survey. There were multicollinearity issues as well as poor reliability of the social influence subscale (α=.63). Using all four UTAUT independent variables and behavioral intent as the dependent variable, the model predicted 27% of the variation in user intent. Effort expectancy was the only significant predictor of behavioral intent (p<.001) and age was the only significant moderating variable (β= -.26, p<.01).

Within a population of student teachers in Australia (N=159), the UTAUT predicted 59% of the variance in behavioral intent to use interactive whiteboards (Wong, Teo, & Russo, 2013) The study explored all four independent variables but only one moderating variable, experience. The study excluded use behavior because at the time of the study, interactive whiteboard use was still new. A positive relationship was found between performance expectancy (β=.69, p<=.001) and effort expectancy (β=.32, p<.001) towards behavioral intent. Experience did demonstrate a strong moderating effect on the relationship between effort expectancy and behavioral intent. Effort expectancy for the limited experience group (β=.75, p<.01) was distinctly more influential than those with some experience (β=.36, p<.01). Wong et al. (2013) identifies the importance for teacher educators and designers of curriculum to instill positive

perceptions of whiteboard during training. Educators will utilize technology when they understand the value and benefit in doing so. In addition, effort expectancy (ease of use) is an important consideration for teachers using new technologies (Wong et al., 2013).

Taiwo & Downe (2013) investigated the validity of the UTAUT by conducting a meta-analytic review of research. Included behavioral studies were published between 2003-2011, involved empirical testing of technology use, reported a sample size, and correlation coefficients between UTAUT variables. Variables explored were performance expectancy, effort expectancy, social influence, facilitation conditions, behavioral intent, and use behavior. No moderating variables were included in the analysis (Taiwo & Downe, 2013). The results were presented in terms of effect size. After review of 96 studies, the strongest predictor of behavioral intent was performance expectancy (d=.54), while effort expectancy (d=.44) and social influence (d=.42) had only a small effect. The influence of facilitating conditions (d=.38) and behavioral intent (d=.44) on use behavior was also small. The Taiwo & Downe (2013) analysis supported the original findings of Venkatesh et al. (2011) that performance expectancy has a strong relationship with behavioral intent, while the others are weaker, yet significant.

A UTAUT study conducted using an online survey within a population of certified health education specialists (N=503) explored factors that determine acceptance of social media (Hanson et al., 2015). The survey instrument contained three major sections exploring performance expectancy (α=.83), effort expectancy (α=.85), and social influence (α=.79). These three factors explained 70.17% of the variance in behavioral intent to use social media applications at work (Hanson et al., 2015). Social influence

(β=.32, p<.001) and performance expectancy (β=.58, p<.001) were associated with increased intent to use social media, while effort expectancy had no significant effect. There was an interaction between age and effort expectancy (β=.47, p=<.01) and age and performance expectancy (β=-.56, p<.001). In participants over age 29, when social media tools were perceived as easy to use, behavioral intent increased. With increasing age, health educators may not attribute the use of social media as beneficial to their job performance (Hanson et al., 2015). Effort expectancy was not associated with intent to use among those aged 18-29. This was attributed to advanced technology skills among health educators aged 18-29 (Hanson et al., 2015).

Tosuntas, Karadag, and Orhan (2015) utilized a UTAUT survey (α=.89) to explore high school teachers' use of interactive whiteboards (N=158). They discovered that performance expectancy, effort expectancy, and social influence explained 68% of behavioral intent (R^2=.68, p<.01). Performance expectancy (β=.64, p<.001) and effort expectancy (β=.20, p<.001) were the strongest predictors of behavioral intent, while 41% of the variance (R^2=.41, F=55.29, p<.01) in use behavior was explained by behavioral intent (β=.45, p<.001) and facilitating conditions (β=.35, p<.001) (Tosuntas, Karadag, & Orhan, 2015). They also determined that when age was factored in, performance expectancy (β= -.05, p<.01) and effort expectancy (β= -.06, p<.01) affected behavioral intent. As age increased, performance expectancy and effort expectancy decreased. Tosuntas et al.'s (2015) findings indicate that with the increasing age of faculty, it is necessary to find ways to increase performance expectancy and facilitate the use of new technologies.

The review of literature supports that the UTAUT predicts a significant amount of the variance in use behavior, from a low of 27% to a high of 70%. Research results support the strong effect of effort expectancy on behavioral intent. While not all studies explored moderating variables, age and experience had a significant effect on one or more UTAUT variables. The outcomes of many studies were dependent on the specific population studied. In general, sampling practices were via survey, and distributed to a variety of faculty in single universities, or one educational system. No studies were discovered that utilized the UTAUT to explore variables affecting nurse faculty use of online teaching. The purpose of this study was to explore variables affecting nurse faculty use of online education using the UTAUT.

Theoretical Framework

This study was guided by the Theory of Acceptance and Use of Technology (UTAUT), a combined and parsimonious theory of technology acceptance. Although there are many competing models of technology acceptance, the UTAUT outperforms other technology acceptance models predicting nearly 70% of the variance in intent to use and use behavior (Venkatesh et al., 2003).

Figure 1 represents the UTAUT model developed and validated by Venkatesh et al. (2003). The model illustrates that behavioral intent and subsequent use of a system is predicted by four core variables: performance expectancy, effort expectancy, social influence, facilitating conditions and four moderating variables, gender, age, experience, and voluntariness of use. According to Wu and Zumbo (2008), moderating variables modify the direction of a causal relationships. Venkatesh et al. (2003) theorized that age,

experience and voluntariness affect behavioral intent, which predicts use behavior (Venkatesh et al., 2003).

The model tested by this research study is represented in Figure 2. Figure 2 displays the seven core variables tested by Venkatesh et al. (2003) prior to developing the final UTAUT model: performance expectancy, effort expectancy, social influence, facilitating conditions, attitude, self-efficacy, and anxiety. Also included are age, experience and voluntariness. Because there are no studies utilizing the UTAUT to examine factors affecting nurse faculty use of online education, all UTAUT variables were examined.

Conceptual and Operational Definitions

Ten independent variables (performance expectancy, effort expectancy, social influence, attitude, self-efficacy, anxiety, facilitating conditions, age experience, voluntariness), and two dependent variables (behavioral intent and use behavior) were defined and measured within with the study (Figure 2). The full survey can be found in Appendix C. All variables except age, experience and voluntariness were measured using the subscales identified in Appendix D. Subscale items were modified (with permission) to reflect the system of online teaching. Survey participants were asked to rate their level of agreement with each item, using a 7-point Likert response scale with the anchors (1) = strongly disagree to (7) strongly agree. Each variable was then evaluated using the sum total of four survey items, except the behavioral intent variable, which was measured by the sum total of three items. Age and experience were measured by ratio-scale questions, while the voluntariness scale item was adapted from Moore and

Benbasat (1991), with the anchors (1) = mandatory participation and (7) = completely voluntary.

Performance Expectancy

Performance expectancy (PE) is defined as, "the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (Venkatesh et al., 2003, p. 447). PE was measured by items 22-25 (Appendix C).

Effort Expectancy

Effort expectancy (EE) is defined as, "the degree of ease associated with the use of the system" (Venkatesh et al., 2003, p. 450). EE was measured by items 26-29 (Appendix C).

Attitude

Attitude (AT) is defined as, "an individual's positive or negative feeling about performing the target behavior" (Davis et al., 1989, p. 984). AT was measured by items 20-33 (Appendix C). Statement AT1 was negatively worded and required reverse scoring.

Social Influence

Social influence (SI) is defined as, "the degree to which an individual perceives that important others believe he or she should use the new system" (Venkatesh et al., 2003, p. 451). SI was measured by items 34-37 (Appendix C).

Facilitating Conditions

Facilitating conditions (FC) are defined as, "the degree to which an individual believes that organizational and technical infrastructure exists to support the use of the system" (Venkatesh et al., 2003, p. 453). FC was measured by items 38-41 (Appendix C).

Self-Efficacy

Self-efficacy (SE) is defined as, "the degree to which an individual believes that he or she has the ability to perform a specific task or job" (Venkatesh, 2014, para. 5). SE was measured by items 42-45 (Appendix C).

Anxiety

Anxiety (AX) is, "the degree of an individual's apprehension, or even fear, when he or she is faced with a specific task or behavior" (Venkatesh, 2014, para. 5). Anxiety was measured by items 46-49 (Appendix C).

Behavioral Intent

Behavioral intent (BI) is, "the degree to which a person has formulated conscious plans to perform or not perform some specified future behavior" (Venkatesh 2014, para. 5). BI was measured by items 50-52 (Appendix C).

Use Behavior

Use is defined as the action of using something ("Use," n.d.). The use behavior measured within the context of the UTAUT is online teaching. Online teaching is defined as, faculty delivered instruction via the Internet to include synchronous and asynchronous instruction (University of Massachusetts, 2002).

Hypotheses

Ha1: Among nurse faculty, performance expectancy, effort expectancy, social influence, attitude, self-efficacy, and anxiety have a significant direct effect on behavioral intent.

Ha2: Among nurse faculty, performance expectancy, effort expectancy, social influence, attitude, self-efficacy, anxiety, facilitating conditions and behavioral intent have a significant indirect effect on use behavior.

Ha3: Among nurse faculty, age, experience, and voluntariness significantly affect behavioral intent and use behavior.

Research Design

This descriptive, correlational study utilized a 54-item online Qualtrics survey (Appendix C). Demographic data and UTAUT survey items were used to study factors affecting the behavioral intent and subsequent use of online teaching within nursing education. Theory testing via multiple regression was used to evaluate the UTAUT model.

Methods

Sample

A purposive, non-probability sample of Southern Regional Education Board (SREB) nursing schools was used to recruit participants. SREB member schools include regionally accredited colleges and universities from 16 southern region states and the District of Columbia who offer associate, baccalaureate and graduate programs of study (SREB, 2016). The SREB (2014) nursing education membership list identified 114

schools of nursing from which to recruit participants (Appendix G). Each school of nursing's website was then accessed to obtain publicly available faculty e-mail addresses. Nine schools of nursing did not publish a faculty directory online. For those schools of nursing, the e-mail invitation was directed to the dean or department head and he or she was asked to distribute the request for participation. Approximately 4,000 SREB nurse educators were contacted via e-mail to request participation.

Included in the e-mail request for participation was the purpose of the research study, why they were selected to participate, how their contact information was obtained, a statement of voluntary participation, assurance of confidentiality, information regarding the incentive to participate, institutional review board approval, researcher contact information, and the direct link to the survey (Appendix C). Informed consent was presented upon first access to the survey. No participant could advance into the survey without consent. To encourage participation, a $100 VISA gift card incentive was offered. Participants who completed the survey and wished to voluntarily enter the incentive drawing were directed to an unlinked survey where they were asked to input their email address. Upon closure of the survey, Random.org was utilized to generate a random number associated with an e-mail address. The random participant was contacted by e-mail and the incentive was awarded in the summer of 2015.

The survey yielded a 24% response rate (N=968). Non-response cases were removed which reduced the sample size to 940. Participant demographics are presented in Tables 1 and 2. Ninety-five percent of the participants were female, with a mean age of 52.5 (SD=10.5). Participants were primarily married (77%), Caucasian (86%), and

non-Hispanic (94.6%). Nearly 80% were employed at a public university, had completed a master's (41.2%) or doctoral degree (52.3%), and held the academic rank of assistant professor (39.3%), instructor (21.5%), or associate professor (18.6%). Seventy-five percent of the participants had experience as a student in an online course and 52% have received specialized training to teach online. Participants reported that 34% of courses taught annually were fully online.

Data Collection

Invited participants received an e-mail containing the hyperlink to the survey. Three contacts were made with potential participants: the initial request, a reminder to participate within 7-10 days, and a final request for participation. Surveys were live for approximately five weeks (March-April, 2015). All data collected were stored electronically. Survey data did not contain any participant identifiers and was stored on a password-protected computer.

Instruments

The survey instrument consisted of 54 items: twelve demographic questions, nine items relating to training, experience, and personal opinions about online teaching, and 31 UTAUT statements (Appendix C). Other than a slight modification to the wording of the UTAUT statements to reflect the specific technology studied by this research (teaching online), no changes were made to the original instrument (Appendix D). Permission to use the UTAUT survey can be found in Appendix F. The reliability of the UTAUT subscales within the instrument was respectable: performance expectancy (α=.69), effort expectancy (α=.88), attitude (α=.89), social influence (α=.79), facilitating

conditions (α=.81), self-efficacy (α=.67), anxiety (α=.87), and behavioral intent (α=.99). The overall internal consistency of the UTAUT survey was α=.87.

Procedure

The online survey was closed after five weeks and data were then downloaded from Qualtrics and imported into Statistical Package for the Social Sciences (SPSS), version 23 (International Business Machines Corporation, 2015). Exploratory data analyses and evaluation of parametric assumptions were performed following the guidelines of Field (2013). Descriptive statistics such as age, gender, race, ethnicity, educational level, and academic rank were used to characterize the sample (Table 1). Items directly related to online teaching (experience as a student in an online course, specialized training, use of online learning platforms, and personal opinions about teaching nursing online were also evaluated (Table 2). Multiple regression was used to test the UTAUT model.

Results

Figure 2 (Research Model) displays all study variables. Figures three (Full Model) and four (Reduced Model) display the multiple regression findings. Regression coefficients are the beta (β) weights represented on the model. The model is read from left to right and represents causal ordering of the variables. A solid line indicates behavioral intent as the dependent variable and a dashed line represents use behavior as the dependent variable.

The full model (Figure 3) identifies the influence of eight variables on behavioral intent. Hypothesis one is only partially accepted. The most significant direct predictors

of behavioral intent were social influence (β=.21, p<.001), attitude (β=.31, p<.001), and anxiety (β= -.22, p<.001), while effort expectancy (β=-.04, p=.33), performance expectancy (β= -.10, p=.79), and self-efficacy (β=-.02, p=.42) were not significant.

To examine the use behavior model, facilitating conditions and behavioral intent were added as independent variables and use behavior became the dependent variable. Hypothesis two is also only partially accepted. The variables with a significant indirect effect on use behavior among the independent variables was performance expectancy (β= -.10, p<.01), social influence (β=.10, p<.001), attitude (β=.16, p<.001), anxiety (β=.11, p<.001), and behavioral intent (β=.34, p<.001). In addition, the direct effect of facilitating conditions (β=.08, p<.05) on use behavior was minor.

Hypothesis three examining the influence of age, experience, and voluntariness is partially accepted. Age did not significantly contribute to behavioral intent (β=-.02, p=.64); however, somewhat contributed to use behavior (β=.17, p<.05). Experience was significant to both behavioral intent (β=.09, p<.01) and use behavior (β=.16, p<.001). Voluntariness (β= .01, p=.67) was not significant to behavioral intent but both improved and became significant in use behavior (β= -.14, p<.001).

The full model with behavioral intent as the dependent variable predicted 36.7% of the variance (R^2=.367, F(8, 932) = 69.03, p<.001), although not all independent variables were significant. When facilitating conditions was added and use behavior became the dependent variable, 36% of the variance was explained (R^2=.359, F(10, 930) = 53.71, p<.001) and some previously non-significant variables became significant. The reduced model (Figure 4) removed non-contributing variables (effort expectancy and

self-efficacy), and variables with no direct effect on behavioral intent (performance expectancy and voluntariness) were only included in the use behavior model. The reduced model predicted 36.8% of the variance in behavioral intent (R^2 = .368, F(4,936) = 137.90, p<.001) and 36% of the variance in use behavior (R^2=.36, F(8,932)=67.03, p<.001) which is not significantly improved from the full model.

The differences in faculty who teach online (n=746) and those who do not (n=132) were also explored using independent samples t-tests. Significant differences existed among all UTAUT variables except performance expectancy (M=17.21, SD=4.58), t(193.63) =-1.79, p=.07). Data also revealed that those with experience teaching online have lower anxiety (M=9.25, SD=4.9), t(160.5)=7.38, p<.001, than those with no experience (M=13.1, SD=5.5), t(862)=8.02, p<.001.

Although not contributing to the validation of the UTAUT model, some survey items examined personal opinions about teaching online and allowed open response (Table 2). Eighty-one percent of survey respondents agreed that nursing courses should be taught online, recommending theory, research or courses in RN to BSN and graduate programs as most suitable for the online environment. Overwhelmingly, participants indicated that clinical courses should not be taught online.

When asked about specialized training, 52% had received training but indicated that it did not adequately prepare them to teach nursing online. On a scale of one to five, with the anchors of least helpful (1) and most helpful (5), participants ranked training as moderately helpful (M=1.9, SD=1.08). There were numerous responses to the biggest challenge experienced with teaching online but the most common were time, issues with

technology, loss of student interaction, the challenge of student engagement, lack of socialization, and academic integrity.

Flexibility was the primary response to what participants enjoy most about teaching online. Sixteen percent of those surveyed preferred teaching in the online environment, 37% in the face-to-face setting, and 47% equally enjoyed teaching both face-to-face and online. Six percent believe teaching online is easier than teaching face-to-face, 31% believe it is more difficult, and 46% identify teaching online as equally challenging as teaching a face-to-face course.

Discussion

Within this study, eight variables (experience, performance expectancy, social influence, attitude, voluntariness, anxiety, facilitating conditions, and behavioral intent) predicted 36.7% (R^2) of the variance in use of online education among a population of southern nurse educators (N=940). A model that predicts 36.7% of the variance is certainly respectable; however, the UTAUT has been more predictive in other studies involving faculty. Hanson et al.'s (2015) use of the UTAUT among a population of certified health educators (N=503) predicted just over 70% of the variance in intent to use social media. Tosuntas et al. (2015) and Wong et al. (2015) used the UTAUT to explore the intent to use interactive whiteboards among student teachers. Tosuntas et al.'s (2015) study (N=158) predicted 68% of the variance while Wong et al.'s study (N=159) predicted less at 59.6%. Birch and Irvine's (2009) study predicted only 29% of the variance within a population of Canadian pre-service teachers (N=85) and reported issues with multicollinearity and scale reliability. Similar issues were present in this study that

likely affected the predicted variance. Both the experience and behavioral intent variables violated the assumptions of normality despite using all methods of transformation recommended by Field (2013). The experience variable was highly skewed due to a poorly structured survey item. Participants included experience in a variety of programs rather than a single total number of years of experience. Venkatesh et al. (2014) defines behavioral intent as, "The degree to which a person has formulated conscious plans to perform or not perform some specified future behavior" (para. 5). Because most study participants were already involved in online education (Table 1), the data were skewed.

The most significant direct predictors of behavioral intent within the full research model (Figure 3) were social influence (β=.21, p<.001), attitude (β=.31, p<.001) and anxiety (β= -.22, p<.001). Performance expectancy (β= -.01, p=.79), effort expectancy (β=.04, p=.33), and self-efficacy (β=.02, p=.42) did not directly predict behavioral intent. Performance expectancy only became significant (β=-.10, p<.01) when use behavior became the dependent variable. These findings contrast with Taiwo and Downe's (2013) meta-analysis of 96 studies that identified performance expectancy (d=.54), effort expectancy (d=.44) and social influence (d=.42) as the strongest predictors of behavioral intent.

It is important to distinguish that this study explored all variables (except gender) that Venkatesh et al. (2003) found to be most significant amongst competing technology acceptance theories while developing the UTAUT: performance expectancy, effort expectancy, social influence, attitude, self-efficacy, anxiety, facilitating conditions, age,

experience, and voluntariness. Self-efficacy, attitude, and anxiety were included in this study; however, they were excluded from the UTAUT model because in previous research, they did not exhibit a direct effect on behavioral intent (Venkatesh et al., 2003). Additionally, the effect of attitude upon behavioral intent was inconsistent across technology adoption theories and only significant when variables such as performance expectancy and effort expectancy were not included (Venkatesh, 2000; Venkatesh et al, 2003). Self-efficacy and anxiety were fully mediated by effort expectancy (perceived ease of use) (Venkatesh, 2000).

This study determined that self-efficacy did not have a significant effect on behavioral intent (β=.02, p=.42), however anxiety (β= -.22, p<.001) attitude (β=.31, p<.001), and social influence (β=.21, p<.001) were significant direct predictors of behavioral intent. The anxiety variable exhibited a negative effect upon behavioral intent indicating that when apprehension and fear increase, behavioral intent decreases. Attitude exhibited a strong positive effect on behavioral intent indicating that positive feelings toward online teaching are associated with increased use. Social influence (β=.21, p<.001) exhibited a positive effect on behavioral intent. When people of importance are supportive and encourage the use of online teaching methods, intent to use increases. Wong et al. (2013) identified the importance of considering level of voluntariness when evaluating social influence. Within this study, the level of voluntariness was measured on a seven point Likert scale with the anchors (1) mandatory and (7) completely voluntary. Participants in this study were neither mandatory nor

completely voluntary (M=3.75, SD=2.82). Level of voluntariness had a negative effect on use behavior (β= -.14, p<.001).

Variables that demonstrated an indirect effect on use behavior were experience, performance expectancy, social influence, attitude, voluntariness, anxiety facilitating conditions, and behavioral intent. When use behavior became the dependent variable, the experience variable improved (β=.16, p<.01), and performance expectancy (β= -.10, p<.01) and voluntariness (β= -.14, p<.001) both improved and became significant. The direct effect of facilitating conditions (β=.08, p<.05) on use behavior was very minor. Age did not significantly contribute to behavioral intent (β=-.02, p=.64); however, somewhat contributed to use behavior (β=.17, p<.05). Birch and Irvine (2009) found that with increasing age, behavioral intent decreased and Hanson et al. (2011) found that older health educators reported higher effort expectancy (p<.001), and lower performance expectancy (p<.01). The mean age of the study participant was 53 years, consistent with the average age of current U.S nurse faculty, yet age was not determined to be a significant moderating variable.

Experience had a small, yet significant direct effect on behavioral intent (β=.09, p<.01) and an even stronger indirect effect on use behavior (β=.16, p<.01). There was a difference in faculty who teach online (N=746) and those who do not (N=132). Those with experience teaching online have lower anxiety (M=9.25, SD=4.9) than those with no experience (M=13.1, SD=5.5). Experience significantly influenced all UTAUT variables except performance expectancy t(876) =-1.79, p=.075. The Wong et al. (2013) study demonstrated the moderating effect of experience on effort expectancy and behavioral

intent. Effort expectancy or ease of use is more important to those with limited experience compared to those with some experience. Wong et al. (2013) identifies the need to facilitating ease of use among early users (Wong et al., 2013).

The full model (Figure 3) explored all variables within the study and explained 36.7% of the variance in behavioral intent, and 35.9% of the variance in use behavior. The reduced model (Figure 4) removed non-contributing variables and the variables with no direct effect on behavioral intent were only included in the use behavior model. The reduced model predicted 36.8% of the variance in behavioral intent and 36% of the variance in use behavior, which is not significantly improved from the full model. Although the predicted variance is somewhat less than other studies conducted in faculty populations, significant variables affecting nurse faculty intent and use of online education were discovered.

Recommendations

The UTAUT model has predicted up to 70% of variance in use behavior, however in this study predicted a modest 36.7%. There were no studies discovered that used the UTAUT to explore variables affecting nurse faculty use of online teaching, therefore this research study should be replicated to validate findings. Prospective researchers should consider improving the performance expectancy (α=.693) and self-efficacy (α=.673) subscales, and the measure for behavioral intent should be modified with the goal of increased variability.

The full model (Figure 2) included attitude, self-efficacy, and anxiety variables, yet Venkatesh et al.'s (2003) UTAUT model excludes these because prior research

studies did not support a direct effect on behavioral intent. Future research should test the Venkatesh et al. (2003) UTAUT model of four core variables (performance expectancy, effort expectancy, social influence and facilitating conditions), and four moderators (gender, age, experience, and voluntariness). Additionally, because anxiety and attitude were significant in this study, testing additional technology acceptance theories and models that include these variables is recommended.

Technology acceptance studies conducted within faculty populations can reveal variables that influence faculty use of various technologies. Within this study, experience, social influence, attitude, and anxiety all had significant direct effects on behavioral intent. Knowledge of these and other variables affecting faculty use of technology use can be used to plan faculty development and training activities and potentially develop interventions to influence use. The effect of these interventions could then be tested and evaluated within longitudinal studies.

Strengths and Limitations

The use of an online survey with an incentive fostered the recruitment of a large, representative sample of southern U.S. nurse educators. The sample (N=940) was primarily Caucasian (86%), non-Hispanic (95%), and female (95%) with a mean age of 53, all of which are characteristic of the average age, race, and ethnicity of current U.S. nurse faculty (AACN, 2014; AACN, 2015). There was no cost involved to generate the survey and data was easily collected, stored, and secured.

Survey item number seven (Appendix C) addressing experience was poorly structured leading participants to reflect number of years teaching in multiple programs

of study. The total number of years of teaching experience would have been ideal, omitting the option for number of years in each program of study; however, a summed teaching variable was created to represent experience. Important to the UTAUT model was the behavioral intent variable, which violated normality. All methods of transformation recommended by Field (2013) were used but the variable could not be transformed to meet the assumption of normality. A new use behavior variable was created summing years of online experience with number of online courses taught in one year. Despite the violation of the assumption, behavioral intent performed well in regression.

Summary

National surveys indicate faculty resistance to online teaching is present in higher education, yet few research studies empirically explore variables that influence use. A substantial number of nursing students and faculty engage in online education; therefore, it is important to explore this issue within nursing education. This study explored theoretical variables associated with the UTAUT within a population of southern U.S. nurse educators. An online survey enabled the researcher to reach a large representative sample (N=940). The influence of performance expectancy, effort expectancy, social influence, attitude, self-efficacy, and anxiety on behavioral intent and use behavior, and the direct influence of facilitating conditions on use behavior were explored within the study. Also explored were the effects age, experience, and voluntariness. Multiple regression was used to test the UTAUT theory.

The most significant predictors of behavioral intent within the full model (Figure 3) were social influence (β=.21, p<.001), attitude (β=.31, p<.001) and anxiety (β= -22, p<.001). When use behavior become the dependent variable, the experience variable improved (β=.16, p<.001), and performance expectancy (β= -.10, p<.01) and voluntariness (β= -.13, p<.001) both improved and became significant. Overall, the full model with behavioral intent as the dependent variable predicted 36.7% of the variance (R^2=.367, F(8,932) = 69.03, p<.001) although not all the independent variables were significant. Thirty-six percent of the variance in use behavior (R^2=.359, F(10, 930) = 53.71, p<.001) was explained with the addition of facilitating conditions although in this model some previously non-significant predictors were predictive. The reduced model removed the non-contributing variables of effort expectancy and self-efficacy (Figure 4). The reduced model predicted 36.8% of the variance in behavioral intent (R^2 = .368, F(4,936) = 137.90, p<.001) and 36% of the variance in use behavior (R^2=.36, F(8,932)=67.03, p<.001) which is not significantly improved from the full model.

Eighty percent of participants agreed that nursing courses should be taught online; however, opinions exist about which classes are most suitable for the online environment. Concerns abound regarding the loss of student interaction and socialization, increased workload, technology problems, academic integrity issues, and how best to promote student engagement in online courses. Many of these concerns are supported in the literature and likely influenced the variables explored within this study.

While the UTAUT is a parsimonious model, findings suggest that factors surrounding technology adoption and use are complex. The findings of this study support the need to

facilitate experience by teaching and learning online. Positive attitudes should be promoted, the anxiety associated with teaching online must be addressed, and performance expectancy must be developed. No previous research studies were discovered that utilized the UTAUT to explore factors affecting nurse faculty use of online education, therefore this study fills a gap in nursing science. The UTAUT and other technology acceptance theories and models should be utilized to explore variables affecting nurse faculty use of online education.

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Chapter 5

Without the convenience of online education, fewer students have access to instruction and the need for more nurses may go unmet. As the demand for online education continues to grow, nurse educators must be prepared to deliver nursing education in the online environment. This can be challenging given the profession of nursing is rooted in human contact. In addition, perceptions about online teaching are not always positive or accurate, and faculty resistance is a concern. The exploration of factors unique to teaching nursing online is important to facilitate the continued growth in online teaching and promote positive nurse faculty adaptation.

Overview of Findings

The first article, *Online Nursing Education: A Perspective on Faculty Resistance and Variables That May Influence Faculty Use* presented prominent faculty concerns associated with teaching online and introduced the concepts of resistance and change. The introduction of online education has significantly affected the nurse faculty role requiring an increase in technology skills and a change in educational pedagogy. Knowledge of instructional design and collaboration with technology experts are critical to online teaching. Given that amount of skills and transition required, faculty workload is a significant concern. While online nursing education is well established, quality and consistency are not. No regulatory agency endorses a specific set of online quality standards; however, there are best practice recommendations and organizations that certify course quality.

Faculty resistance to online education is a major challenge that impedes institutional efforts to expand online course offerings (Green, 2010). Despite the advancements in online education, faculty acceptance of online education has not shown a significant improvement in over a decade (Allen & Seaman, 2015). Evidence of nurse faculty resistance to online education is unclear, yet significant barriers identified within the literature may promote resistance or affect use. To prepare a sufficient number of nurse educators to teach online, it is essential to explore what may facilitate or inhibit the use of online teaching. The subsequent research study explored some of these factors.

The research study, *Utilizing the UTAUT to Explore Factors Affecting Nurse Faculty Use of Online Teaching,* reports the findings of a study conducted among 940 nurse faculty members from the southeastern United States. The study tested a theory via regression to examine theoretical variables associated with the UTAUT and their influence upon behavioral intent and use of online teaching. The most significant predictors of behavioral intent within the full model (Figure 3) were social influence (β=.21, p<.001), attitude (β=.31, p<.001) and anxiety (β= -.22, p<.001). When use behavior became the dependent variable, the experience variable improved (β=.16, p<.001), and performance expectancy (β= -.10, p<.01) and voluntariness (β= -.13, p<.001) both improved and became significant. Overall, the full model with behavioral intent as the dependent variable predicted 36.7% of the variance (R^2=.367, F(8,932) = 69.03, p<.001) although not all the independent variables were significant. Thirty-six percent of the variance in use behavior (R^2=.359, F(10, 930) = 53.71, p<.001) was explained with the addition of facilitating conditions although in this model some

previously non-significant predictors were predictive. The reduced model removed the non-contributing variables of effort expectancy and self-efficacy (Figure 4). The reduced path model predicted 36.8% of the variance in behavioral intent (R^2 = .368, F(4,936) = 137.9, p<.001) and 36% of the variance in use behavior (R^2=.36, F(8,932)=67.03, p<.001) which is not significantly improved from the full model.

Additional findings revealed that there was a difference in faculty who teach online (N=746) and those who do not (N=132). Those who teach online had higher mean scores among all UTAUT variables except anxiety. Those with experience teaching online have lower anxiety (M=9.25, SD=4.9) than those with no experience (M=13.1, SD=5.5). Significant differences existed among all variables except performance expectancy t(193.63) =-1.79, p=.075. The study also revealed that 81% of the participants support online nursing education, yet have opinions of what courses should (theory, research) and should not be taught online (clinical). It also appears that training to teach online is somewhat inadequate. Of importance is that 16% preferred the online environment, 37% preferred teaching face-to-face, and 47% equally enjoyed teaching both face-to-face and online.

From the study findings, nurse educators support the use of online nursing education, however, there are some concerns identified within the literature and confirmed by the theoretical model. It is imperative to include experience, develop performance expectancy, promote positive attitudes to affect social influence, and address the anxiety associated with teaching online. Online nursing education is here to stay. Preparing enough nurse educators to meet the needs of online students is a priority for

years to come. Studies such as this improve the dissemination of knowledge about online teaching and knowledge and can build a desire for change. Appropriate faculty development about online teaching has the potential to decrease resistance, improve acceptance, and promote satisfaction among nurse educators.

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Appendix A

Tables

Table 1

Participant Demographics

	Subcategory	Participant Totals	Participant Percentage
Gender	Female	891	95%
	Male	47	5%
Age	Total Participants	Range 25 – 82 Years	M = 53 Years
Race	White	807	86%
	Black or African American	90	10%
	American Indian or Eskimo	3	null
	Asian	11	1%
	Hawaiian or Pacific Islander	1	null
	Two or More Races	16	2%
	Other	9	1%
Hispanic	Yes	50	5%
	No	883	95%
Marital Status	Single	71	8%
	Married or Partnered	726	77%
	Separated	12	1%
	Divorced	106	11%
	Widowed	24	3%
Academic Rank	Instructor	202	21%
	Assistant Professor	370	39%
	Associate Professor	175	19%
	Professor	114	12%
	Visiting Professor	4	Null
	Other	76	8%
Highest Degree	Associate	1	Null
	Baccalaureate	9	1%
	Masters	388	41%
	Doctorate	493	52%
	Post-Doctoral	51	5%
Years of classroom (face-to-face) teaching experience:	Total Participants	Range 0 – 2516* *Reflects cumulative total of years teaching in multiple programs	M = 15 Years
Years of online teaching experience:	Total participants	Range 0 – 40* *Reflects cumulative total of years teaching in multiple programs	M = 6 Years

Appendix A (Continued)

Table 2

Participant Demographics Related to Online Teaching (N=943)

	Subcategory	Participant Totals	Participant Percentage
Percentage of courses taught annually that are fully online:	Total Participants	Range 0 - 100%	Average = 34%
Experience as a student in an online course:	Yes	701	75%
	No	229	25%
Had specialized training on how to teach online:	Yes	480	52%
	No	450	48%
Online learning platform currently used within school of nursing:	Angel	0	Null
	Blackboard	448	49%
	Desire2Learn	105	11%
	Moodle	144	16%
	Sakai	66	7%
	Other* *Canvas	158	17%
Should nursing courses be taught online?	Yes	734	81%
	No	173	19%
Statement that best describes opinion of online teaching:	It is more difficult to teach online than face-to-face.	280	31%
	It is easier to teach online than face-to- face.	53	6%
	It is equally challenging to teach online and face-to-face classes.	418	46%
	I do not currently teach online.	158	17%
Statement that best describes teaching preference:	I prefer teaching in an online environment.	141	16%
	I prefer teaching in face-to-face environment.	331	37%
	I equally enjoy teaching online and face-to-face courses.	426	47%

Appendix A (Continued)

Table 3

Listwise Correlation of the Variables (N=940)

Variable	2	3	4	5	6	7	8	9
1. Behavioral Intent to Use	.13***	.30***	.40***	.39***	.51***	.10***	.17***	-.45***
2. Sum Teaching Experience	--	-.20***	-.03	.09**	-.03	.05	-.00	-.13***
3. Performance Expectancy	-.20***	--	.56***	.33***	.61***	.08**	.12***	-.20***
4. Effort Expectancy	-.03***	.55	--	.30***	.61***	.12***	.18***	-.48***
5. Social Influence	.09**	.33***	.30***	--	.35***	.02	.17***	-.21***
6. Attitude Toward Technology	-.03	.61***	.61***	.35***	--	.20***	.22***	-.47***
7. Voluntariness	.05	.08**	.12***	.02	.20***	--	.02	-.08**
8. Self-Efficacy	-.00	.12***	.18***	.17***	.21***	.02	--	-.19***
9. Anxiety	.12***	.20***	-.48***	.20***	.47***	-.07***	-.19***	--
Note. *p <.05 **p <.01 ***p <.001								

Appendix A (Continued)

Table 4.1

Full Model Summary (Behavioral Intent as Dependent Variable)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.61	.37	.367	4.71	.37	69.03	8	932	.000

Note. The dependent variable was Behavioral Intent to Use.

Table 4.2

Full Model ANNOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	12247.93	8	1530.99	69.027	.000
Residual	20671.40	932	22.18		
Total	32919.33	940			

Note. The dependent variable was Behavioral Intent to Use.

Table 4.3

Full Model Coefficient Table

	Unstandardized Coefficients		Standardized Coefficients		
Model 1	B	Std. Error	Beta	T	Sig.
Sum Teaching Experience	.033	.010	.093	3.426	.001
Performance Expectancy	-.013	.049	-.010	-.263	.792
Effort Expectancy	.041	.043	.035	.971	.332
Social Influence	.301	.040	.214	7.478	.000
Attitude Toward Technology	.367	.045	.314	8.100	.000
Voluntariness	.027	.065	.011	.420	.674
Self-Efficacy	.034	.041	.022	.814	.416
Anxiety	-.264	.038	-.223	-7.006	.000

Note. The dependent variable was Behavioral Intent to Use.

Appendix A (Continued)

Table 4.4

Full Model Summary (Use Behavior as Dependent Variable)

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.61	.37	.36	31.79	.37	53.71	10	930	.000

Note. The dependent variable was Use Behavior.

Table 4.5

Full Model ANNOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	542659.77	10	54265.98	53.71	.000
Residual	939568.07	930	1010.29		
Total	1482227.84	940			

Note. The dependent variable was Use Behavior.

Table 4.6

Full Model Coefficient Table

	Unstandardized Coefficients		Standardized Coefficients		
Model 1	B	Std. Error	Beta	T	Sig.
Sum Teaching Experience	.366	.065	.157	5.675	.000
Performance Expectancy	-.918	.332	-.101	-2.763	.006
Effort Expectancy	-.008	.309	-.001	-.027	.979
Social Influence	.937	.284	.099	3.305	.001
Attitude Toward Technology	1.260	.318	.161	3.966	.000
Voluntariness	-2.218	.440	-.135	-5.036	.000
Self-Efficacy	-.317	.280	-.031	-1.130	.259
Anxiety	-.895	.265	-.112	-3.373	.001
Facilitating Conditions	.657	.301	.083	2.184	.029
Behavioral Intent to Use	2.302	.222	.343	10.359	.000
Note. The dependent variable was Use Behavior.					

Appendix A (Continued)

Table 5.1

Reduced Model Summary (Behavioral Intent as Dependent Variable)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.61	.37	.37	4.70	.37	137.90	4	936	.000

Note. The dependent variable was Behavioral Intent to Use.

Table 5.2

Reduced Model ANNOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	12206.62	4	3051.66	137.90	.000
Residual	20712.70	936	22.13		
Total	32919.33	940			

Note. The dependent variable was Use Behavior.

Table 5.3

Reduced Model Coefficient Table

	Unstandardized Coefficients		Standardized Coefficients		
Model 1	B	Std. Error	Beta	T	Sig.
Sum Teaching Experience	.032	.009	.093	3.533	.000
Social Influence	.306	.039	.217	7.805	.000
Attitude Toward Technology	.386	.036	.330	10.695	.000
Anxiety	-.279	.035	-.235	-7.916	.000

Note. The dependent variable was Behavioral Intent to Use.

Table 5.4

Reduced Model Summary (Use Behavior as Dependent Variable)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.60	.37	.36	31.77	.37	67.03	8	932	.000

Note. The dependent variable was Use Behavior.

Table 5.5

Reduced Model ANNOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	541369.30	8	67671.16	67.03	.000
Residual	940858.55	932	1009.51		
Total	1482227.84	940			

Note. The dependent variable was Use Behavior.

Table 5.6

Reduced Model Coefficient Table

	Unstandardized Coefficients		Standardized Coefficients		
Model 1	B	Std. Error	Beta	T	Sig.
Sum Teaching Experience	.37	.06	.16	5.72	.000
Performance Expectancy	-.90	.32	-.10	-2.82	.005
Social Influence	.92	.28	.10	3.24	.001
Attitude Toward Technology	1.23	.31	.16	3.96	.000
Voluntariness	-2.20	.44	-.13	-5.0	.000
Anxiety	-.88	.26	-.11	-3.40	.001
Facilitating Conditions	.61	.28	.08	2.19	.028
Behavioral Intent to Use	2.3	.22	.34	10.35	.000

Note. The dependent variable was Use Behavior.

Appendix B

Figures

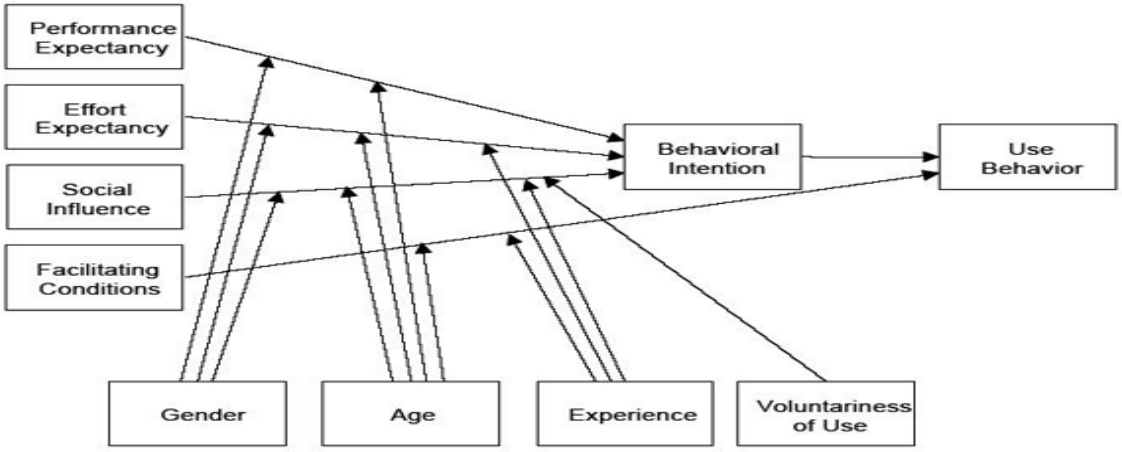


Figure 1. UTAUT Model

(Venkatesh, V., Morris, M., Davis, G.B., & Davis, F.D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27*(3), 425-478).

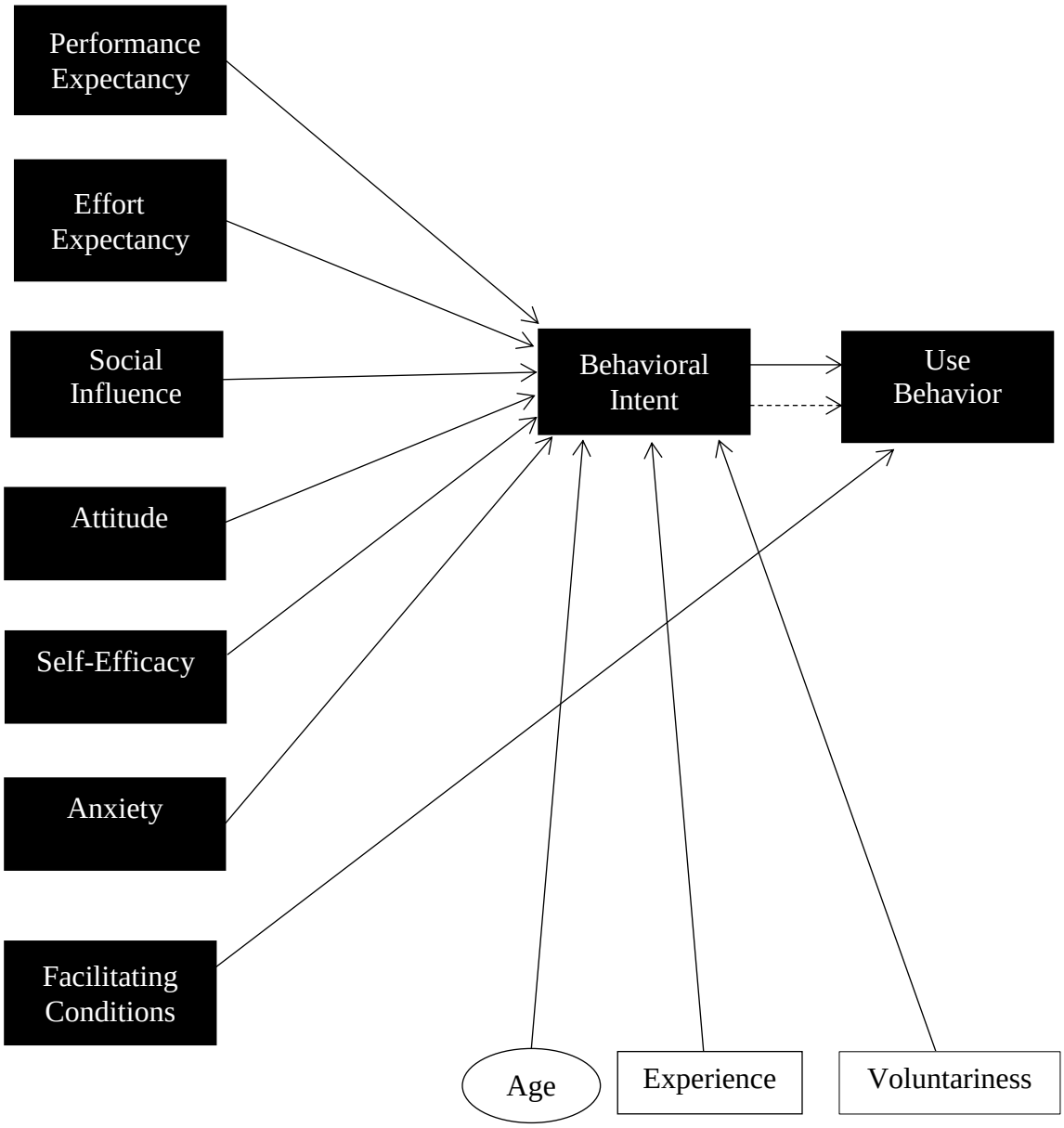
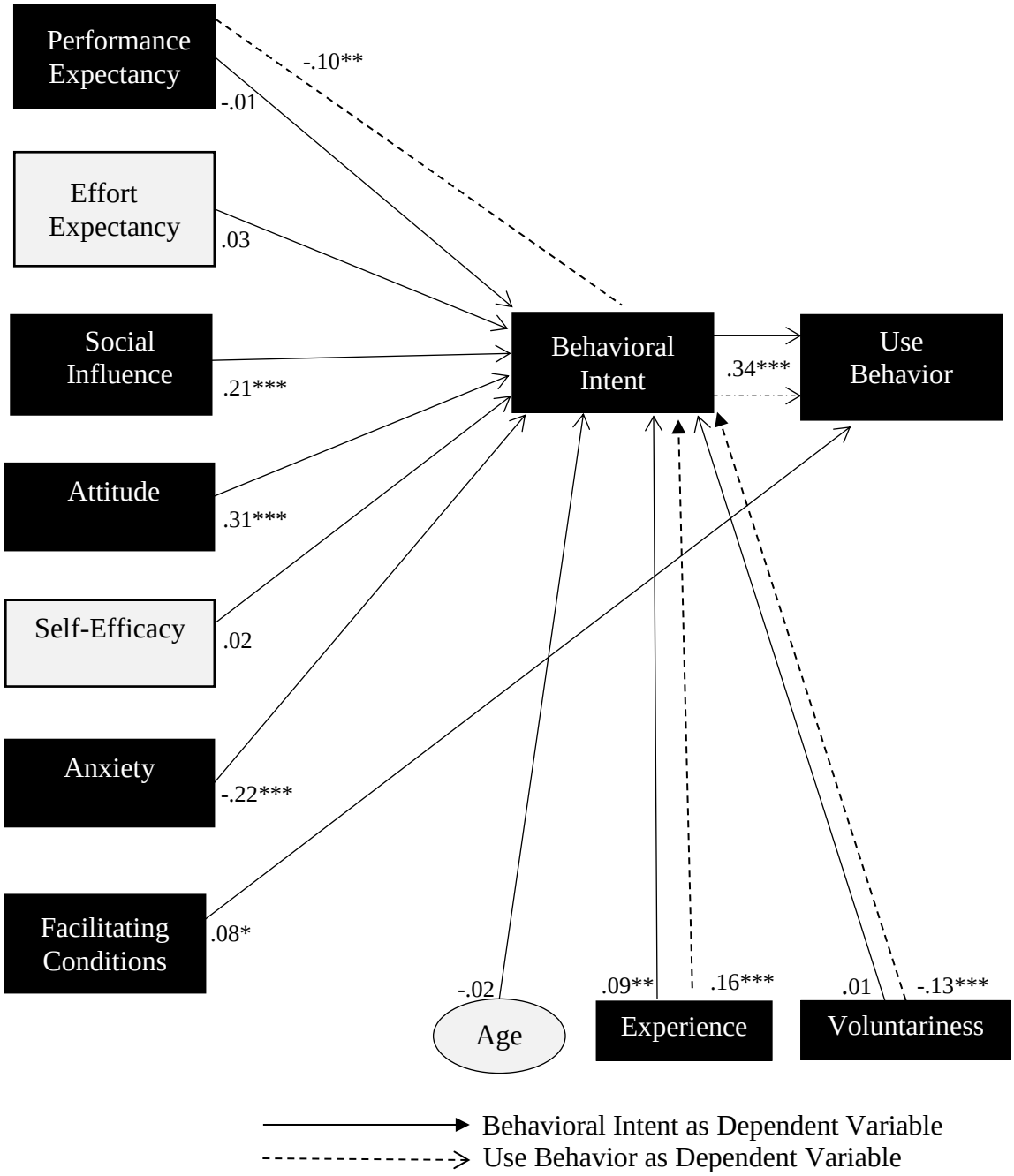


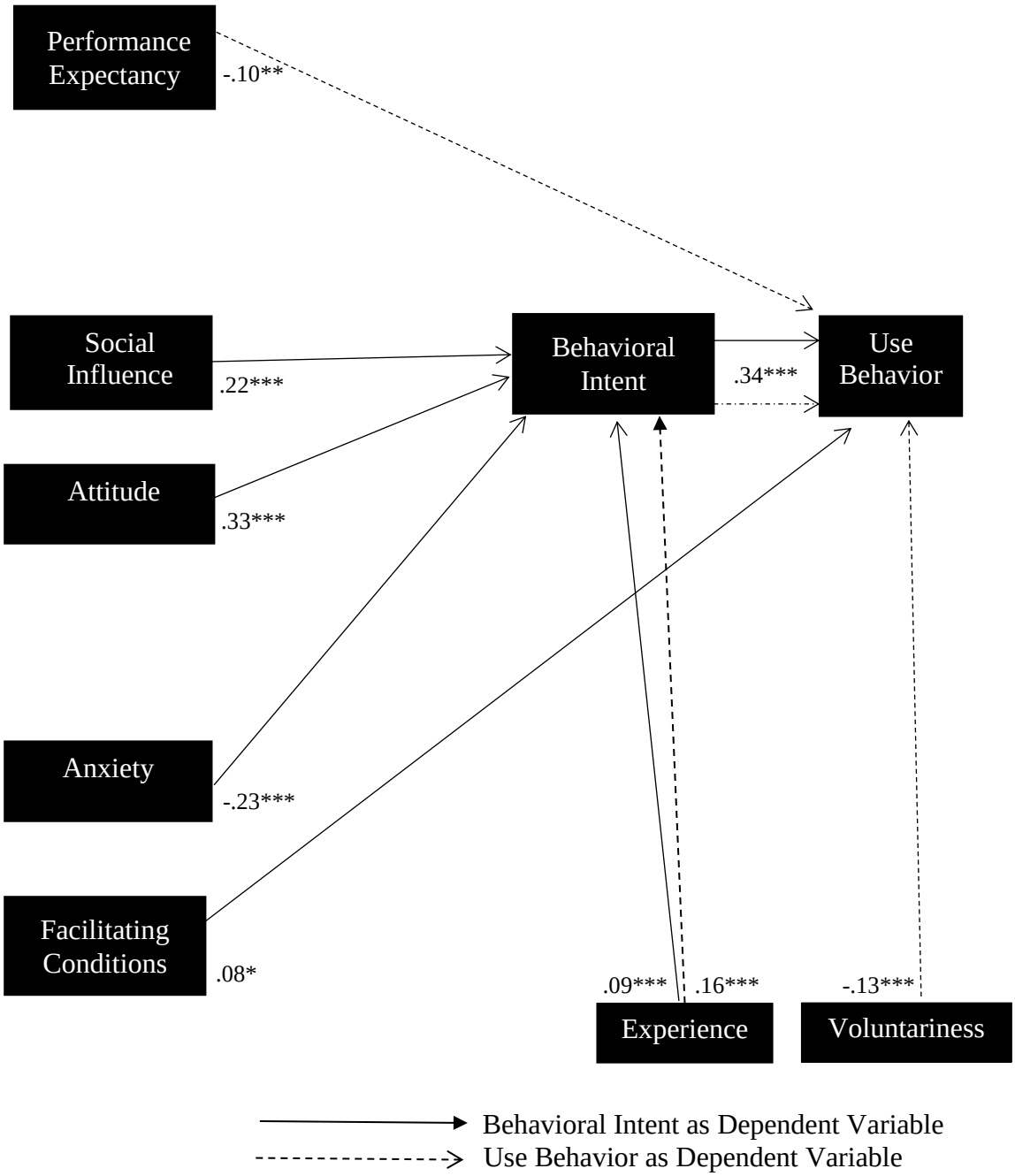
Figure 2. Research Model

Appendix B (Continued)



*p <.05
**p <.01
***p <.001

Figure 3. Full Model



*p <.05
**p <.01
***p <.001

Figure 4. Reduced Model

Appendix C

Survey

Cover Letter

Dear Colleague,
I am a doctoral student at the University of Texas at Tyler conducting a dissertation research study on nurse faculty acceptance and use of online teaching. The knowledge generated from this research may help other nurse faculty, academic officers, institutions, and organizations understand the use and acceptance of online nursing education to potentially design interventions to aid faculty who are or plan to teach online.

As a nurse faculty member, I request your participation in my study. Your email address was obtained online from your school of nursing website; however, no information is asked about where participants teach. Participation in this study is voluntary and you may withdraw at any time without penalty. Your responses to survey items are confidential and anonymous through alphanumerical code assignment. The online survey should take no more than 15 minutes of your time and will remain open for one to two weeks. As a token of appreciation, I am offering a chance for one random participant to win a $100 VISA gift card. All participants who complete the survey and wish to be entered into the random drawing will be redirected to an external survey where you will be asked to enter your e-mail address. Your e-mail address will NOT be linked to survey data and will not be shared. It will only be utilized to contact you should you be the winner of the gift card.

If you have any questions about this study, you may contact the principle researcher Lisa Harless, or, if you have any questions about your rights as a research participant, you may contact the Chair of the University of Texas at Tyler Institutional Review Board, Dr. Gloria Duke at gduke@uttyler.edu, or 903-566-7023. This study was granted IRB approval on March 9, 2015 (IRB#Sp2015-64). Results from the study will be available in the summer of 2015. If you would like information about the results, please contact me via e-mail. Thank you for your time and participation in this study.

To begin the survey, please click on the link below or copy and paste the link into your browser. The informed consent page will be displayed prior to beginning the survey:

https://uttyler.az1.qualtrics.com/SE/?SID=SV_37AX2iv0CdIt1Y1

Sincerely,
Lisa Harless MSN, RN, CNE
PhD Candidate at the University of Texas at Tyler
lharless@patriots.uttyler.edu

Informed Consent

You have been invited to participate in a research study. The purpose of this research study is to explore nurse faculty acceptance and use of online teaching. Participation in this study is completely voluntary and you may withdraw at any time without penalty. Your responses are confidential and anonymous through alphanumerical code assignment. If you agree to participate in this study, you will be asked to do the following: Complete an online survey. This survey should require no more than 15 minutes of your time.

We know of no known risks to this study other than possibly becoming tired of answering survey items, or that survey items may cause you to recall a negative, or untoward experience associated with online teaching. If this happens, you are free to take a break and return to the survey later, or choose to discontinue participation without penalty. The potential benefits of this study include generating knowledge that may help other nurse faculty, academic officers, institutions and other organizations become aware of and potentially design interventions to aid faculty who are or plan to teach online. Additionally, one random participant will be awarded a $100 VISA gift card. Participation in the random drawing is OPTIONAL and is not linked to survey data.

I have been informed of this research study. I know if I need to ask questions about this study that I may contact the principle researcher, Lisa Harless at lharless@patriots.uttyler.edu. Should I have questions about my rights as a research participant, I know that I can contact the Chair of the UT Tyler Institutional Review Board, Dr. Gloria Duke at gduke@uttyler.edu or 903-566-7023.

I know that my responses are confidential and anonymous. I know that my choice to participate in this study is voluntary. If I choose not to take part in the study, nothing will happen to me. I have read and understood what has been explained to me. If I choose to participate, I will click "Yes" below and proceed to the survey. If I choose not to participate, I will simply exit the survey.

□ Yes, I choose to participate in this study.

Survey Questions

1. What is your age? Please enter a number.

2. What is your gender?
- ❍ Male
- ❍ Female

3. What is your race?
- ❍ White
- ❍ Black or African American
- ❍ American Indian or Alaskan Native
- ❍ Asian
- ❍ Native Hawaiian or Pacific Islander
- ❍ Other
- ❍ Two or more races

4. Are you Hispanic?
- ❍ No
- ❍ Yes

5. What is your marital status?
- ❍ Single
- ❍ Married or Partnered
- ❍ Separated
- ❍ Divorced
- ❍ Widow

6. What is your place of employment?
- ❍ Community College
- ❍ Private University
- ❍ Public University
- ❍ School of Nursing not associated with a college or university

7. What type of nursing programs have you taught in by years? Please enter "0" or other round number.

_____ Associate Degree Program (AD)
_____ Baccalaureate Degree Program (BS)
_____ RN to Baccalaureate Degree Program (RN to BS)
_____ Master's Degree Program (MS)
_____ Doctor of Nursing Practice/Science (DNP/DNS)
_____ Doctor of Philosophy (PhD)

8. What is your highest degree of education?
- ❍ Associate
- ❍ Baccalaureate
- ❍ Master's
- ❍ Doctorate
- ❍ Post Doctorate

9. What is your academic rank?
- ❍ Instructor
- ❍ Assistant Professor
- ❍ Associate Professor
- ❍ Professor
- ❍ Visiting Professor
- ❍ Other (Please specify) _____

10. How many years of classroom (face to face) teaching experience have you had? Please enter "0" or other round number.

11. How many years of online teaching experience have you had (to include asynchronous, synchronous, and hybrid/mixed technology)? Please enter "0" or other round number.

12. What percentage of the courses you teach annually are fully online?

0% ⟺ 100%

13. Have you been a student in an online course?

- ❍ No
- ❍ Yes

14. Have you had any type of specialized training that taught you how to teach online?

- ❍ No
- ❍ Yes. Please describe (formal course or continuing education): _____

15. If you received specialized training, do you feel it adequately prepared you to teach nursing courses online? The specialized training I received was:

Least Helpful (1) ⟺ Most Helpful (5)

16. What online learning platform is used within your school of nursing?

- ❍ Angel
- ❍ Blackboard
- ❍ Desire2Learn
- ❍ Moodle
- ❍ Sakai
- ❍ Other, please identify: _____

17. In your opinion, should nursing courses be taught online?

- ❍ No. Which nursing courses do you feel are not appropriate to teach online? _____
- ❍ Yes. Which nursing courses do you feel are most appropriate to teach online? _____

18. What is the biggest challenge that you experience (or anticipate) with teaching online?

19. Which statement best describes your opinion of online teaching?

- ❍ It is more difficult to teach online than face-to-face.
- ❍ It is easier to teach online than face-to-face.
- ❍ It is equally challenging to teach online and face-to-face classes.
- ❍ I do not currently teach online.

20. What do you enjoy most about teaching online?

21. Which statement best describes your teaching preference?

- ❍ I prefer teaching in an online environment.
- ❍ I prefer teaching in a face-to-face environment.
  I equally enjoy teaching online and face-to-face classes.

Appendix C (Continued)

22-52. Please indicate your level of agreement or disagreement with each statement.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
I find online teaching useful as a nurse educator.	❍	❍	❍	❍	❍	❍	❍
Teaching nursing courses online enables me to accomplish tasks more quickly.	❍	❍	❍	❍	❍	❍	❍
Teaching online increases my productivity as a nurse educator.	❍	❍	❍	❍	❍	❍	❍
Teaching nursing online increases my chances of getting a raise.	❍	❍	❍	❍	❍	❍	❍

Appendix C (Continued)

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
My interaction with online teaching in nursing is clear and understandable.	❍	❍	❍	❍	❍	❍	❍
It is easy for me to become skillful at teaching nursing courses online.	❍	❍	❍	❍	❍	❍	❍
I find that teaching nursing courses online is easy to accomplish.	❍	❍	❍	❍	❍	❍	❍
Learning to teach nursing courses online is easy for me.	❍	❍	❍	❍	❍	❍	❍

Appendix C (Continued)

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Teaching nursing courses online is a bad idea.	❍	❍	❍	❍	❍	❍	❍
Teaching nursing courses online makes work more interesting.	❍	❍	❍	❍	❍	❍	❍
Teaching nursing courses online is fun.	❍	❍	❍	❍	❍	❍	❍
I like teaching nursing courses online.	❍	❍	❍	❍	❍	❍	❍

Appendix C (Continued)

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
People who influence my behavior think that I should teach nursing courses online.	❍	❍	❍	❍	❍	❍	❍
People who are important to me think that I should teach nursing courses online.	❍	❍	❍	❍	❍	❍	❍
University administration is supportive of online teaching in nursing education.	❍	❍	❍	❍	❍	❍	❍
In general, teaching nursing courses online is supported.	❍	❍	❍	❍	❍	❍	❍

Appendix C (Continued)

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
I have the resources necessary to teach nursing courses online.	❍	❍	❍	❍	❍	❍	❍
I have the knowledge necessary to teach nursing courses online.	❍	❍	❍	❍	❍	❍	❍
Online teaching in nursing is compatible with other aspects of my work.	❍	❍	❍	❍	❍	❍	❍
A specific person is available for assistance with online teaching difficulties.	❍	❍	❍	❍	❍	❍	❍

Appendix C (Continued)

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
I could teach nursing online if there was no one around to tell me what to do as I go.	❍	❍	❍	❍	❍	❍	❍
I could teach nursing online if I could call someone for help if I got stuck.	❍	❍	❍	❍	❍	❍	❍
I could teach nursing online if I had a lot of time to complete the job.	❍	❍	❍	❍	❍	❍	❍
I could teach nursing online if I had built-in help for assistance.	❍	❍	❍	❍	❍	❍	❍

Appendix C (Continued)

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
I feel apprehensive about teaching nursing online.	❍	❍	❍	❍	❍	❍	❍
It scares me to think that I could lose a lot of information by hitting the wrong key.	❍	❍	❍	❍	❍	❍	❍
I hesitate to teach nursing online for fear of making mistakes I cannot correct.	❍	❍	❍	❍	❍	❍	❍
Teaching nursing online is somewhat intimidating to me.	❍	❍	❍	❍	❍	❍	❍

Appendix C (Continued)

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
I intend to teach nursing online next semester.	❍	❍	❍	❍	❍	❍	❍
I predict I will teach nursing online next semester.	❍	❍	❍	❍	❍	❍	❍
I plan to teach nursing online next semester.	❍	❍	❍	❍	❍	❍	❍

53. If you currently teach online, is it voluntary?

Level of voluntariness:

Mandatory 0 ◄——————► 7 Completely Voluntary

54. Has anything happened recently that you believe influenced your responses within this survey?

Appendix D

Original UTAUT Questionnaire

Original UTAUT survey items were adapted (with permission) to reflect the system of online education. Adapted survey items are in Appendix C, items 22-52.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

Performance Expectancy (PE)

- PE1 I find the system useful for the course.
- PE2 Using the system will enable me to accomplish tasks more quickly.
- PE3 Using the system will increase my productivity.
- PE4 If I use the system, I will increase my chances of getting a high grade.

Effort Expectancy (EE)

- EE1 My interaction with the system will be clear and understandable.
- EE2 It will be easy for me to become skillful at using the system.
- EE3 I find the system easy to use.
- EE4 Learning to operate the system is easy for me.

Attitude Toward Using Technology (AT)

- AT1 Using the system is a bad/good idea.
- AT2 The system will make work more interesting.
- AT3 Working with the system is fun.
- AT4 I like working with the system.

Social Influence (SI)

- SI1 People who are important to me think that I should use the system.
- SI2 People who influence my behavior think that I should use the system.
- SI3 The instructor of this course has been helpful in the use of the system.
- SI4 In general, the university has supported the use of the system.

Facilitating Conditions (FC)

- FC1 I have the resources necessary to use the system.
- FC2 The system is not compatible with other systems I use.
- FC3 I have the knowledge necessary to use the system.
- FC4 A specific person (or group) is available for assistance with system difficulties.

(Venkatesh et al., 2003)

Self-Efficacy (SE)

I could complete a job or task using the system:

- SE1 If there was no one around to tell me what to do as I go.
- SE2 If I could call someone for help if I got stuck.
- SE3 If I had a lot of time to complete the job for which the software was provided.
- SE4 If I had just the built-in help facility or assistance.

Anxiety (AX)

- AX1 I hesitate to use the system for fear of making mistakes I cannot correct.
- AX2 It scares me to think that I could lose a lot of information using the system by hitting the wrong key.
- AX3 I feel apprehensive (anxious) about using the system.
- AX4 The system is somewhat intimidating to me.

Behavioral Intention to Use the System (BI)

- BI1 I plan to use the system in the next <n> months.
- BI2 I predict I would use the system in the next <n> months.
- BI3 I intend to use the system in the next <n> months.

(Venkatesh et al., 2003)

Appendix E

Institutional Review Board Approval

Office of Research and Technology Transfer
Institutional Review Board

March 9, 2015

Dear Ms. Harless,

Your request to conduct the study: *Utilizing the UTAUT to Explore the Acceptance and Use of Online Teaching within Nursing Education, IRB# SP2015-64,* has been approved by The University of Texas at Tyler Institutional Review Board as a study exempt from further IRB review. This approval includes a waiver of signed, written informed consent. In addition, please ensure that any research assistants are knowledgeable about research ethics and confidentiality, and any co-investigators have completed human protection training within the past three years, and have forwarded their certificates to the IRB office (G. Duke).

Please review the UT Tyler IRB Principal Investigator Responsibilities, and acknowledge your understanding of these responsibilities and the following through return of this email to the IRB Chair within one week after receipt of this approval letter:

- Prompt reporting to the UT Tyler IRB of any proposed changes to this research activity
- **Prompt reporting to the UT Tyler IRB and academic department administration will be done of any unanticipated problems involving risks to subjects or others**
- Suspension or termination of approval may be done if there is evidence of any serious or continuing noncompliance with Federal Regulations or any aberrations in original proposal.
- Any change in proposal procedures must be promptly reported to the IRB prior to implementing any changes except when necessary to eliminate apparent immediate hazards to the subject.

Best of luck in your research, and do not hesitate to contact me if you need any further assistance.

Sincerely,

Gloria Duke, PhD, RN

Gloria Duke, PhD, RN
Chair, UT Tyler IRB

Appendix F

Permissions

To:vvenkatesh@vvenkatesh.us;
Fri 11/14/2014 1:35 PM
Sent Items

Dr. Venkatesh:

Hello. I am a doctoral nursing student at the University of Texas at Tyler. I plan to conduct research within a population of nurse educators guided by the UTAUT model, and would like to request the use of your UTAUT model questionnaire as represented in your 2003 publication, *User Acceptance of Information Technology: Toward a Unified View*.
Thank you for your consideration.

Lisa Harless MSN, RN, CNE
PhD Candidate in Nursing
University of Texas at Tyler

To:Lisa Harless;
Sun 11/16/2014 11:50 AM

Thanks for your interest. I am sorry for the delayed response which is due to a hectic travel schedule. You have my permission.

You will find the paper(s) you requested and other related papers
at: http://vvenkatesh.com/Downloads/Papers/fulltext/downloadpapers.htm
You may also find my book (that can be purchased for a significant student discount and faculty member discount) to be of use: http://vvenkatesh.com/book
Hope this helps.

Sincerely,

Viswanath Venkatesh
Distinguished Professor and George and Boyce Billingsley Chair in Information Systems
Walton College of Business
University of Arkansas
Fayetteville, AR 72701
Phone: 479-575-3869; Fax: 479-575-3689
Email: vvenkatesh@vvenkatesh.us
Website: http://vvenkatesh.com
IS Research Rankings Website: http://vvenkatesh.com/ISRanking

Appendix G

Participant Colleges and Universities

Alcorn State University
Arkansas State University
Arkansas Tech University
Armstrong Atlantic University
Auburn University
Barry University
Baylor University
Brenau University
Charleston Southern University
Clayton State University
Clemson University
Cleveland State University
Coahoma Community College
College of Coastal Georgia
Coppin State University
Cumberland University
Delta State University
East Carolina University
Eastern Kentucky University
Emory University
Faulkner State Community College
Florida Atlantic University
Florida International University
Florida State University
George Mason University
Georgia Baptist College of Nursing of Mercer University
Georgia College and State University
Georgia Regents University
Georgia Southern University
Georgia State University
Greenville Technical College
Hampton University
Harding University
Hinds Community College
Howard University
James Madison University
Jones County Community College
Kennesaw State University
Kentucky State University
Louisiana State University Health Sciences Center
Marshall University
McNeese State University
Medical University of South Carolina
Middle Georgia State College Middle Tennessee State University
Mississippi College
Mississippi University for Women Morehead State University
Nicholls State University
North Carolina Central University
Northwestern State University of Louisiana
Oakwood University
Old Dominion University
Our Lady of Holy Cross College
Our Lady of the Lake College
Patty Hanks Shelton School of Nursing
Piedmont College
Prairie View A&M University
Samford University
Shenandoah University
Southeastern Louisiana University
Southern Adventist University
Southern West Virginia Community and Technical College
Southwest Tennessee Community College
St. Petersburg College
State College of Florida, Manatee-Sarasota
Texas A&M University – Corpus Christi
Texas Christian University
Texas Women's University
Towson University
Troy University
Tuskegee University
University of Alabama
University of Alabama at Birmingham
University of Alabama at Huntsville
University of Arkansas for Medical Sciences
University of Central Arkansas
University of Central Florida
University of Delaware
University of Florida
University of Kentucky
University of Louisiana at Lafayette
University of Louisiana at Monroe

(SREB, 2014)

University of Memphis
University of Mississippi Medical Center
University of North Alabama
University of North Carolina at Chapel Hill
University of North Carolina at Charlotte
University of North Carolina at Greensboro
University of North Carolina at Wilmington
University of North Florida
University of Oklahoma Health Sciences Center
University of South Alabama
University of South Carolina Aiken
University of South Carolina Columbia
University of South Florida
University of Southern Mississippi
University of Tennessee at Knoxville
University of Tennessee at Martin
University of Tennessee Health Sciences Center, Memphis
University of Texas at Arlington
University of Texas at El Paso
University of Texas at Tyler
University of Texas Health Science Center at Houston
University of Texas Health Science Center at San Antonio
University of Texas Medical Branch at Galveston
University of Virginia
University of West Georgia
Valdosta State University
Virginia Commonwealth University
Walters State Community College
West Virginia University
Western Kentucky University
William Carey College

(SREB, 2014)

BIOGRAPHICAL SKETCH

NAME: Harless, Lisa Michelle

eRA COMMONS USER NAME (credential, e.g., agency login):

POSITION TITLE: MSN, RN, CNE

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	MM/YYYY	FIELD OF STUDY
University of Arkansas, Fort Smith AR	AD	05/1999	Nursing
Arkansas Tech University, Russellville AR	BS	05/2000	Nursing
University of Central Arkansas, Conway AR	MS	05/2004	Nursing
The University of Texas at Tyler, TX	PhD	Candidate	Nursing

A. Personal Statement

I have been involved in nursing education for approximately 16 years and have experience teaching both online and face-to-face. The goal of my dissertation research was to explore variables influencing nurse faculty use of online education. I plan to continue my program of research focusing on faculty issues associated with teaching online.

B. Positions and Honors

Positions and Employment

2005-Present. Assistant Professor of Nursing. Arkansas Tech University, Russellville, AR.
2004-2005. Visiting Assistant Professor of Nursing. Arkansas Tech University, Russellville, AR
1999-2004. Pediatric Staff Nurse. Sparks Regional Medical Center, Fort Smith, AR

Other Experience and Professional Memberships

American Nurses Association
Arkansas Nurses Association
National League for Nursing
Sigma Theta Tau International Honor Society