Online Nursing Education:
Nurse, Student, Educator

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Abstract

To stay at the forefront of their profession, today’s nurses must have the knowledge and skills to practice in a technology-rich health care environment. A worldwide nursing shortage is expected to continue to evolve. As a result, online nursing education has grown and, must continue to grow exponentially. Many nursing educators never expected to be at the forefront of online education. Traditional nursing education consisted of classroom lectures based on textbook content. To achieve excellence in nursing education today’s nurse educator must be prepared to teach in technology-rich environments. Are nurse educators prepared to provide online education that upholds and maintains excellence in nursing education? How do students feel about online nursing education? What do nursing students expect from online learning? Do they feel prepared to learn in a technology-enriched environment? More importantly, do they feel prepared to enter the workforce as professional nurses? This paper will discuss some of these questions.
Introduction

Today’s nurse must have the “knowledge and skills to practice in a technology – rich health environment” (Thompson & Skiba, 2008). Since the 1970’s recommendations from nursing organizations have called for the integration of information technologies and competencies into nursing curricula (Simpson, 2000; Thompson & Skiba, 2008). Findings from a survey of 2000 nursing school faculty and administrators sponsored by the National League of Nursing (NLN) reasoned, nursing education is straggling behind in the world of technology. Of those surveyed, 15 percent reported offering a nursing course in informatics (Thompson & Skiba, 2008). Nursing informatics is nursing information and communication technology. A search of the web supported the survey results. Twenty nursing curricula posted online were reviewed by this author. One program offered a technology course. Furthermore, the programs reviewed had no prerequisites listed for technology skills.

Simpson (2000) argues, “Nursing’s future rests on nursing education’s response to a rapidly changing technological environment and it all starts in school.” Evidence suggests nurse educators are ill-prepared to teach technology to nursing students. In the same survey, sponsored by NLN, nurse educators describe themselves as novice to advanced beginners in educational technology and nursing informatics (Thompson & Skiba, 2008).

Are nursing students’ educational and technology needs being met? What do nursing students want or expect from online education? Are nurse educators prepared to teach educational technology? These are questions being asked in a
growing body of research. The following paper, guided by the learning theory of constructivism, will discuss online nursing education.

**Constructivism**

To enhance the knowledge and skills of nursing students in the current health system requires a theory-based curriculum (Kala, Isaramalai & Pothong, 2010). “The key points identified by students of how they learn online are congruent with a Constructivism Theory” (Ali, Carlton-Hobson & Ryan, 2004).

Central assumptions of constructivism include embedding learning in complex, realistic and relevant environments, thus providing students the opportunity to solve complex problems they may face in real life experiences (Can, 2007; Kala et al., 2010). Brandon & All (2010) emphasize that knowledge is construction instead of reproduced in meaningful environments such as real work settings or case-based learning. Tools such as web sites and virtual learning environments provide autonomy and embed learning in complex environments (Can, 2007).

Communication with others allows for multiple perspectives, greater understanding, and learning. “Through the process of questioning and discussion, students learn strategies that help them become experts. The process of active learning gives the student the ever-broadening skill of lifelong learning” (Brandon & All, 2010).

Curriculum designs should support multiple perspectives and learning styles. Students may need different experiences to advance to different levels of understanding. Educators act as guides who provide students opportunities to test the adequacy of their understanding (Kala et al., 2010; Ali et al., 2004).
Constructivism encourages ownership of one’s learning. Metacognition or self-monitoring and self-control of the learning process are emphasized (Ali et al., 2004; Brandon & All, 2010). Using the processes of assimilation and accommodation, students are able to build on an existing knowledge base (Ali et al., 2004; Kala et al., 2010).

Student-centered instruction involves learning experiences incorporated into curriculum that are important to the student, not solely to the instructor. The challenge is to change the locus of control for learning from the educator to the student (Ali et al., 2004).

**Nursing**

The role of nursing is constantly changing. Professional nursing requires a commitment to lifelong learning (Brandon & Hall, 2010). A nurse needs to be self-directed, have an ability to synthesize information, link concepts, and think critically. Constructivism supports this model of nursing. Main concepts of constructivism focus on active learning. Learners build on their own body of knowledge and individual experiences (Kala et al., 2010). The process of assimilation and accommodation link concepts and lead one to construct new schemas with critical thinking (Brandon & Hall, 2010).

Technology is integrated and used comprehensively in a nurse’s daily practice. A nurse’s portfolio should include “knowledge and skills in computer literacy, information literacy, and informatics” (Thompson & Skiba, 2008). The aim of nursing technology is to enhance productivity, provide increased nurse-patient contact time, and promote patient safety. Nurses spend as little as “15 percent of
their time doing direct patient care and approximately 50 percent of their day on documentation” (U.S. Department of Health and Human Services Health Resources and Services Administration [HRSA], 2004).

Technology tools are changing how a nurse works. Typically a home nurse sees five patients a day. Devices such as “telehealth” allow nurses to see up to 25 patients a day. Biometric authentication systems scan unique vein patterns in hands for accurate patient identification. Infrared technology is used for starting IV’s. Cardiac monitors the sizes of a PDA allow patients to remain mobile while their heart is monitored. Wireless mobile laptops permit nurses to do bedside charting. Stroud, Smith and Erekl (2009) reasoned PDA's support an evidence-based practice. With PDA drug reference software, drugs can be verified, promoting patient safety. Critical care monitors programmed to PDA's allow nurses to be in constant contact with patients.

Simpson (2000) argues, nurses have a responsibility to be at the forefront of technology and technology information systems. Otherwise, they risk returning “to the white-capped days of nurses as little more than a physician's side kick.” Nurse education needs to reflect the evolving technology needs of professional nurses, as well as training student nurses to be at the forefront of new technology in professional nursing.

**Student Nurses**

In the last few years, online nursing education has grown rapidly in an effort to meet the growing nursing shortage. Student nurses are very diverse in culture, in age, and in knowledge of technology. The average age of a nursing student is
Many students enter nursing as a second career. A review of online nursing students’ experiences with technology concluded that confidence, skill, and knowledge were essential for successful online learning (Mancuso-Murphy, 2006). Students cited the lack of essential technology skills as one of their greatest difficulties with online curricula (McNeil et al., 2003; Mancuso-Murphy, 2006; Ali et al., 2004). Technology education is essential for nursing students to develop strong technology skills in their preparation toward becoming a professional nurse (Thompson & Skiba, 2008; Willmar, 2007). Yet evidence demonstrates nursing schools have been slow to integrate technology into their nursing curricula (Brandon & All, 2010; Thompson & Skiba, 2008; Willmar, 2007).

Only a small percentage of nursing schools require a student nurse to demonstrate technology competence (McNeil et al., 2003; Thompson & Skiba, 2008; Willmar, 2007). In a survey of 132 nursing programs, less than 37 percent required students to be proficient in the use of the internet prior to starting a nursing program (McNeil et al., 2003). Technology tools such as PDA’s allow nursing students to be independent and develop critical thinking skills within a constructive paradigm. In two different surveys of nursing programs, less than 15 percent encouraged or required the use of handhelds as part of their nursing curricula.

Independent research findings by McNeil et al., (2003); Sitzmand & Leners, (2006); Mancuso-Murphy, (2006); Ali et al., (2004); Willmer, (2007); and Kala et al., (2010) corroborate student perceptions regarding technology-delivered instruction. Nursing students feel online instruction needs to be convenient,
flexible, and accessible. Courses should be well designed and easy to navigate. Courses were often considered overwhelming. This was frequently contributed to insufficient computer knowledge and skills (Mancuso-Murphy, 2006; McNeil et al., 2003; Kala, 2010) Students like the group dynamics offered by online classes. Asynchronous discussions offered the opportunity to learn about other students’ clinical practice, share information and learning, and to become familiar with various geographic locations and different backgrounds. Communication was considered critical but needed to be used effectively; in excess, it became overwhelming. Socialization occurring through active learning, timely feedback, and student faculty interactions was perceived as preparation for a caring, professional practice (Sitzmann & Leners, 2006).

The attributes of a successful online student were identified as the ability to be autonomous, self-directed, motivated, and self-disciplined. An online student should assume responsibility for his or her own learning, possess time management skills, and should not procrastinate (Mancuso-Murphy, 2007). When describing technology needs, students want technology to be reliable, accessible, and user-friendly, supporting the productive use of time. Students addressed the need to be skilled and comfortable with computers, as well as the need for technical support. Many students reported increased confidence and proficiency with computers after completing online classes. Students felt technology tools such as PDA’s should be supported in nursing curricula. Students expected instructors to be proficient in leading conversations. Instructors needed to be experts in their subject matter and teaching strategies
that promoted online learning (Willmar, 2007; Ali et al., 2004). Instructors’
knowledge in the delivery of online instruction was identified as crucial (Kala et
al., 2010).

Online instruction benefits from a theory-based design. “Technology alone will
not promote effective teaching-learning outcomes” (Glen, 2005). Students must
be able to use theory to make decisions related to complex practice problems
with many variables (Sandstorm, 2006). Online instruction, designed and guided
by constructivism, establishes goals that include reasoning, critical thinking,
reflection, exploration, information sharing, and uses of resources (Ali et al.,
2004). Learning activities are built on prior learning with the acknowledgement
that each student is an individual. Activities such as case studies, creation of
graphics, quality web links, small group activities, mind mapping, blogs, and
technology tools—such as PDA's that support exploration and research—are
supported by constructivism and perceived by students as effective learning
tools. “Constructivism helps in the education of nurses by improving critical
thinking skills and encouraging rapid adaptation to changes in evidenced-based
practice” (Brandon & All, 2010). “Nurses who are equipped to think critically are
more effective than those who memorize data without exploring the context of
learning information” (Brandon & All, 2010).

Nurse Educators

Nurse educators are being asked to rethink and reshape their teaching
philosophies (Johnson, 2008). Online nursing programs around the country have
emerged expeditiously in the last ten years. They are often touted as the solution
to a growing nurse and nurse educator shortage (McNeil et al., 2003; Ali et al., 2004). “New advances and developing electronic courses could potentially hasten the departure of many highly qualified faculty members from schools of nursing” (Axley, 2008) thus having the opposite effect of what online education hopes to achieve.

Research findings reported by McNeil et al. (2003), “only 2 facilities identified their nurse faculty as experts in teaching and using information technology”

Online nursing is a fact of nursing education’s future. According to Allen and Seaman (2007), “Nearly twenty percent of all U.S. higher education students were taking at least one online course in the fall of 2006” nursing education cannot be an exception. Nurse educators need to be at the center of educational technology, taking an active role in shaping online nursing education. It is paramount that nurse educators be skilled in educational technology, delivery of online instruction, and the use of emerging technology tools designed to support nursing and nursing education (Thompson & Skiba, 2008; McNeil et al., 2003).

To achieve nursing excellence in nursing education, there is a tremendous need to provide technology education for nursing faculty (Axley, 2008; Johnson, 2008). For educators, to move to an online teaching format, “an infrastructure must be in place that includes policies, technology partnership and support systems for facility” (Axley, 2008).

“Many nurse educators continue to teach as they were taught” (Brandon & All, 2010). Content-laden curriculum leaves little room for clinical interventions based on assessment, planning and credible evidence, critical thinking, and clinical
reasoning (Candela, Dalley & Benzel-Lindley, 2006). Bevis and Watson (1989) state lectures have traditionally been the pedagogy of choice in nursing classes. They describe the information provided in lectures as sanitized, organized, and oppressive by nature, providing training rather than learning and knowledge. Students are little more than passive recipients of information.

Nurses new to online teaching find it difficult to let go of lecturing and miss the face-to-face contact with students (Johnson, 2008; Shovein, Huston, Fox & Damazo, 2005). “Stressing nursing isn’t just about content; it is also about caring and independent thinking” (Shovein et al., 2005). Teachers feel lost and uncomfortable with the lack of well-defined content and a shift of control to the learner. Nursing’s future rests on nursing educators’ willingness to adapt and respond to a changing technological environment (Johnson, 2008).

Nurse educators must embrace a learning theory to provide teaching strategies that are self-directed and involve content and learning activities directly related to real issues faced in practice (Kala et al., 2010). According to the theory of constructivism, nurse educators have a critical role in facilitating learning and creating an environment conducive to learning (Kala et al., 2009). A constructive environment is one that uses a variety of technologies to facilitate nursing students to engage in their learning, creating new knowledge for themselves (Kala et al., 2010). A constructive paradigm for course design contains a minimal amount of lecture and instead utilizes active learning strategies. Active learning strategies include questions developed to stimulate exploration of a topic in contrast to delivering information, small group activities, evaluations of self and
peers, attending classrooms in virtual worlds, working simulations in real life examples, mind mapping, reflective blogs and research. Online nurse educators using constructivism as a model for course design felt nursing students benefited from self-directed, relevant learning activities. They reported a higher caliber of discussion in an asynchronous environment, and improved analytical skills (Johnson, 2008). Furthermore, nurse educators found they could “transfer newly learned web-based strategies to the classroom” (Johnson, 2008). Online nursing education based on constructivism “challenges nurse educators to design effective learning environments… and facilitates students to become competent professionals” (Kala et al., 2010).

Axley (2008) said, “Teaching with technology is a learned skill and it involves more than knowing how to use a computer.” Given the isolation that can arise from online learning, fostering an online atmosphere with vibrant interaction among students and between instructors is critically important. Discussions must be interesting issues. “They cannot be no brainers that 30 people have the same answer to and post similar answers” (Lewis & Adul-Hamid, 2006). Two-way communication is paramount to ease the fears, frustration, and anger that may be experienced in online learning (Mancuso-Murphy, 2006). Lewis and Adul-Hamid (2006) found, “Providing prompt and substantive feedback… is well supported in the literature”. Providing students with individualized feedback about how they are doing at every stage of the course encourages students regardless of skill levels (Lewis & Adul-Hamid, 2006). Online instructors must
balance supporting students while still challenging them. Online course designs should be well organized and interactive.

**Conclusion**

Technology is here to stay; rapid growth in medical technology is expected to continue. The use of technology by and for nurses increases daily. Technology tools such as PDA's are considered essential to decrease medical errors and increase patient safety (McNeil et al., 2003). In a survey of 133 nurses, 59 % reported using a PDA in their daily practice (Stroud et al, 2009). PDA's are a nursing standard. They are effective in helping to establish an evidence-based practice, yet only a small percentage of nursing programs encourage the use of or require PDA's as part of their programs. “Effective decision making using information technology to support practice must be integrated into nursing program curricula to prepare graduates for nursing practice” (McNeil et al., 2009).

Magnusson (2003) argues that many “nursing students feel unprepared to enter the nursing profession.” Student nurses, when describing online learning needs, want meaningful environments that include communication, feedback, group dynamics, and technology tools that support learning and expertise in faculty. The basic assumptions of Constructivism are supportive of student learning needs. Kala et al. (2010) asserts, “Failure to use a learning theory when designing an online learning experience could affect the outcomes of student learning”
The role of nurse educator has changed tremendously. Nurse educators are asked to use simulators, design courses in online instruction, incorporate PDA’s, and make decisions for computer requirements with little or no training. The days of text-laden classroom lectures are over. In the classroom, as well as online, nurse educators must begin to adapt to a world of nursing technology, and integrate it into nursing curricula to prepare nursing students for a technology-rich work environment. Nurses need to be tech savvy, be able to think critically, and provide evidence-based care. To do so, nurse educators must become more than novice to advanced beginners in online technology. They must become experts.

References


