Increasing the Use of High Fidelity Simulation as a Clinical Learning Experience Alternative

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The principal goal of Nursing Education is focused on preparing nurses to meet diverse patients’ needs in complex and technologically advanced health care settings (IOM, 2011). According to the American Nurses Association (ANA, 2004) nursing “requires judgment and skill based on the principals of the biological, physical, behavioral, and social sciences” (p. 10). In addition to this knowledge, nurses are being required to have the capacity to function as leaders, providers of safe/quality care, and to work collaboratively within the healthcare environment in a variety of settings upon graduation (IOM, 2011; Scheckel, 2009; Stoke & Kost, 2009; The Essentials, 2008). Providing this education requires a healthy mix of both didactic and practicum teaching and learning techniques (Scheckel, 2009). These stringent educational requirements for the profession are a crucial contribution to the nursing shortage. According to the IOM (2011) nursing schools of all levels across the country turn away masses of qualified applicants each semester due to the lack of capacity. This lack of capacity is based on several barriers; however this paper will focus on a primary issue in nursing education: insufficient clinical placement opportunities.

Inadequate and insufficient clinical placement opportunities are a constant grind on both the education of nurses and the nursing shortage nationally. This problem is persistent in both urban and rural settings; however the lack of opportunities of the ideal variety and duration is especially present in rural areas where care facilities, healthcare professionals, and patients are limited (IOM, 2011; Scheckel, 2009; Stoke & Kost, 2009). The requirement of clinical hours varies widely from state to state and program to program; however as enrollment numbers increase so does the demand on current facilities. According to the IOM (2011) clinical partnerships and preceptor models have been one alternative; however “early studies suggest that the use of high-fidelity simulation (HFS) offers a potential solution to limited clinical experiences” (p. 189). This paper will define both nursing education and HFS simulation, as well as prescribe an alternative way of dealing with practicum experiences as the Academic Nurse Educator (ANE) implements Benner’s Nursing theory and transformational leadership in curriculum revision.
Nursing Education

Upon graduation nurses are increasingly required to care for complex patients, function as leaders, advance science, and deliver both safe and quality care, all while working collaboratively and effectively with other healthcare professionals (IOM, 2011; Scheckel, 2009; Stoke & Kost, 2009). The clinical learning environment, also referred to as practicum, traditionally allowed students methods to improve and demonstrate competency by placement across the continuum of care working with a variety of patients (Scheckel, 2009). Practicum experiences allow for insight into a diverse patient population as well as progress in level of difficulty throughout the curriculum, with a focus on developing and refining knowledge and skills. These experiences allow students to interact with patients and families to gain critical thinking, practice decision making, and applying psychomotor and affective skills. This learning increases the ability of nursing students to apply theory to practice and become socialized into the expectations of the employment setting and collegial interactions achieving the educational goals above (IOM, 2011; The Essentials, 2008). Ideally practicum experiences and the practice environment is supportive and conducive to learning; however the strain on employees in overused clinical settings and lack of faculty to advocate for students is making this an illusion. In addition to this, clinical hours may fail to expose students to little more than routine tasks which do not significantly contribute to advanced learning (IOM, 2011; Scheckel, 2009; Stoke & Kost, 2009).

Simulation

Simulation can most basically be described as, the depiction of behavior or attributes of one system through the use of another system (Larew, Lessans, Spunt, Foster, & Covington, 2006; Schiavenato, 2009). Simulation has been used in nursing education, expanding clinical learning, in the form of static mannequins, role playing, and case studies for centuries; however the introduction of high-fidelity simulation (HFS) allows possible transformation of the educational process (AACN, 2008; Scheckel, 2009). HFS is defined as, the use of advanced technology full-body mannequins programmed to provide physiologic responses based on the learner’s actions that provide multifaceted, genuine, and interactive experiences (Decker, Sportsman, Puetz, & Billings, 2008; Scheckel, 2009). HFS is currently
used in nursing education because of demands for increased clinical complexity based on the intensity of patient acuity and technology in acute care settings (Larew, et al., 2006; Schiavenato, 2009; Scheckel, 2009). Proper implementation of HFS must be combined with the development of clear, specific outcomes to serve as guidelines and determine learning outcomes. Advantages of HFS include: measurement of the cognitive, affective, and psychomotor learning domain in one setting, increased patient safety, enhanced student confidence, an increase in opportunities for students to experience rare but critical clinical presentations, and the increased awareness that comes from the combination of self and instructor evaluation that debriefing provides (Bambini, Washburn, Perkins, 2009; Decker, et al., 2008; Elfrink, Kirkpatrick, Nininger, & Schubert, 2010; Larew, et al., 2006). HFS allows for structured learning environmental settings that can change the context of how knowledge and skills must be implemented based on skill level competency. Students are also give the opportunity to experience high risk situations and management of crisis events that otherwise wouldn’t be available to them as patient safety maintains priority over learning experiences (Decker et al., 2008). HFS allows mimicry of real patient situations in which key characteristics or behaviors can be represented without the negative risk associated with actual patient care (Scheckel, 2009). Simulation opportunities integrate feedback and guided reflection which facilitates the link between theory and practice. As these experiences are obtained and recorded students and faculty are able to visualize performance of psychomotor skills and focus on deficits in order to enhance performance. The audio and video recordings used in HFS allow for objective evaluation of performance based on dimensions including communication, prioritization, teamwork, skill performance, and critical thinking by both student and faculty (Decker, et al., 2008). Simulation has been a valuable element in practicum experiences and could provide an alternative pathway for educating increasing numbers of nurses (IOM, 2011; The Essentials, 2008). Currently, no clear guidelines exist on the amount of clinical experience simulation can replace; and research is currently insufficient; however using professional and educational standards of practice faculty can design, implement, and evaluate focused simulation experiences that can contribute to advanced learning where the environment is engaging and student centered.
Rural challenges

According to the U.S. Census Bureau (2011) rural areas are defined by the lack of urban area qualification. An urban area is “all territory, population, and housing units located within an urbanized area (UA) or an urban cluster (UC)” (U.S. Census, 2011, para. 2). A UA and UC are defined as: “a core census block group or blocks with a population density of at least 1,000 people per square mile and surrounding census blocks that have an overall density of at least 500 people per square mile” (para. 3). Rural areas can then be defined as: “territory, population, and housing units located outside of UAs and UCs (para. 3). The U.S. Census Bureau (2011) lists the total population of Idaho as: 1,567,582. With an approximate land mass of 82,751 square miles that averages out to nearly 19 people per square mile, easily qualifying Idaho as a largely rural State. All rural health care professionals face additional challenges and issues that differ from their urban counterparts which can be specifically addressed using simulation (MacLeod, Lindsey, Ulrich, Fulton, & John, 2008; McCoy, 2009). Issues explicitly within the profession of nursing are basically compounded in the isolated rural environment. Clinical placement opportunities are no exception to this rule.

Implementing Simulation

This author suggests implementing HFS as a curricular revision for an alternative to a substantial amount (greater than 25%) of clinical practicum experiences. For the purpose of illustration and comprehension a defined clinical practicum curriculum labeled Smith School BSN (SSBSN) will be presented along with the potential changes.

Currently the Smith School BSN (SSBSN) program consists of two years, or four semesters of undergraduate study work in the nursing program, as students enter the junior and senior years of college. These semesters are labeled according to level, Junior Semester 1 (J1), junior semester 2 (J2), senior semester 1 (S1), and senior semester 2 (S2). Within each level all curriculum, including clinical practicum experiences advance in difficulty; however the practicum hours for each level are set at 220. Currently the SSBSN utilizes HFS for less than ten percent of clinical practicum hours, which includes three eight hour shifts with seven students in each group. These simulation experiences are considered
traditional in that students perform in groups of two, while peers observe using audiovisual equipment. Simulations scenarios are standard patients and run for approximately 30 minutes followed by a debriefing according to National League for nursing standards (NLN, 2011).

What this author proposes is that simulation take place at least twice as often throughout the curriculum, which would decrease the need for experiences in acute care settings. Simulation experiences could remain traditional, or consider alternative models such as utilizing other health profession students, providing care for more than one patient at a time, or providing patient care in a floor setting with several students simultaneously working as a team. Utilization of the simulation facility in this manner would decrease the amount of hours necessary at alternate clinical sites as well as potentially free faculty in these rotations. This type of simulation could be one in which several undergraduate programs utilized one facility for all simulation housing the technology and equipment in one facility additionally increasing each program or partner’s resources. Potential alternate partners include local paramedics, and emergency medical technicians, as well as acute, long term, and rehabilitation care facilities.

Theoretical Application

Simulation as a practicum experience whether in relation to curriculum or as an individual teaching and learning technique is the ideal fit to utilize with Patricia Benner’s theory: *From Novice to Expert* (Utley, 2011). Benner’s theory delineates five levels of competency representing skill performance. It is inherently appropriate to apply to a simulation in the curriculum that advances with each level of learner, such as the SSBSN program. The Five levels: Novice, Advanced Beginner, Competent, Proficient, and Expert, represent the progression of skill enactment (Utley, 2011). The progression through each level allows the learner to evaluate the situation through knowledge, skills, experience, and perspective. When used as the curricular framework for HFS this theory allows the student to progress through the BSN program experiencing increasingly complex simulations to encourage and develop change at the appropriate level.

One aspect of simulation that makes it an ideal learning method is the debriefing component. The ANE can enhance both the teaching and learning environment exponentially if debriefing is used to its
full potential. As an ANE, leadership is inherent in daily functions. This leadership occurs as the role of teacher in the classroom and role model in practicum experiences, especially HFS. According to Utley, (2011) leadership is central to building and maintaining the structure and function of a profession, advancing knowledge, and achieving outcomes. One of the most appropriate leadership theories to apply to HFS and the debriefing process is a transactional theory, which focuses on the relationship between the leader and follower (Utley, 2011). Debriefing will be most effective if Transformational Leadership Theory (TLT) is employed. TLT is outcome focused and allows the ANE to guide by moral versus functional outcomes which are reflected through the discussion and emotions in the debriefing process. TLT appeals to the values and beliefs of students and stimulates vision and a change as alternative views are comprehended. The leader in TLT is proactive and purposeful, which allows others to sense the importance of the task and focus on set outcomes. Using TLT higher order needs can be met.

Role Integration

The role of the ANE according to Utley (2011) is defined by core competencies broken into three major areas defined as: teacher, scholar and collaborator. To effectively function as an educator in an academic setting requires integration of these roles. The purpose of this project is curriculum design and development, which involves each role of the ANE. Although the project proposal for curriculum revision is not utilizing a new teaching or learning strategy, it is clear that the healthcare needs of both the community and society have been addressed in the rural setting as a solution to inadequate clinical placement is presented. The roles of the ANE are performed in a continuous circular motion with planning, development, implementation, and evaluation as the project is carried out.

The ANE assesses learning needs, styles, and applicable and appropriate theories. Learning objectives are established and the plan can be developed organizing content and creating HFS activities that address the objectives using interpersonal skills, clinical knowledge and educational technology to the fullest. The use of HFS requires communication skills, critical thinking and self-reflection, as well as role modeling which the ANE is exquisitely prepared for. In developing simulations for each level of student the ANE will establish objectives specific to the student and simulation. The debriefing process
ensures teaching and leadership strategies tailored to the unique attributes of learners in each situation. Dedicated HFS and a central facility can allow the ANE the ability to implement diverse teaching strategies and create a positive learning environment during each and every interaction.

Scholarship for the ANE includes discovery, integration, and dissemination of information. Upon program development completion and implementation the collaborator will evaluate evidence and outcomes, present findings and disseminate data both locally and nationally.

**Outcomes and Evaluation**

The lack of high quality evidence was the initial hesitancy in pursuing this topic. Currently there is not adequate research to make the proposed recommendation based on Evidence Based Practice; however the literature that does exist suggests this approach as feasible as this paper presents. According to Issel (2009) there are criteria that constitute a useful intervention without strong supportive evidence. The criteria suggest that the intervention “be targeted to the population, conducive to gains, manipulable, technologically and logistically feasible, of reasonable cost, politically feasible, and address a social priority” (p 188-192). Essentially all of these factors describe HFS as an alternative to clinical practicum placement.

The current lack of evidence makes evaluation and outcomes measurement of this project imperative. It is only upon implementing this curricular change that data can be collected in the form of student surveys, employer surveys, and NCLEX pass rates. This information is similar to what is used now in determining accreditation for schools of nursing and will reflect evidence of teaching and learning strategies within the curriculum. Evaluation should include the utility, feasibility, propriety, and accuracy of HFS so that positive alterations can be implemented (Issel, 2009).

Although there are many factors in play that contribute to the nursing shortage in rural areas, insufficient clinical placement opportunities should not be one of them. As programs are asked to increase enrollment, turning away qualified students is an indignity as the profession is supported via educational and government opportunities and funding. Although not currently a proven strategy for practicum experiences, high fidelity simulation has been effective as both a teaching and learning
strategy. It is the aspiration of this author to be involved in the collection and dissemination of simulation research as it is implemented and evaluated to guide future Academic Nurse Educators in curriculum revision attempts.
References


