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Simulated experiences: Nursing students share their perspectives

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SUMMARY

In an attempt to address a shortage of clinical nursing placements, the rising complexity of care and to increase preparedness of students entering clinical settings, the provincial government of Ontario invested significant funding for the purchase of simulation equipment in undergraduate Schools of Nursing. What students believe about simulation and learning can influence how it is used and can also provide faculty with a better understanding of how it can best be implemented. This study explored nursing students' viewpoints about the use of simulation in their nursing programs. Q-methodology was the research approach used. In total, 24 students from 17 universities and colleges participated in the study. Although all students felt that simulated experiences could support learning overall, four groups of students were identified who had differing viewpoints. Described as reflectors, reality skeptics, comfort seekers, and technology savvies, these four groups of students require unique approaches to better engage them in learning with simulation. This study provides recommendations for faculty to consider, taking into account these varied viewpoints regarding simulation in nursing education.

Introduction

Nursing students must have many opportunities to practice their clinical skills and to apply their theoretical knowledge in order to become a safe, competent practitioner. In the past, clinical learning centers have augmented the real life clinical experience. These centers, situated in Schools of Nursing, have offered many opportunities to practice skills without causing harm to patients. Opportunities have included interacting with standardized patients, models of body parts, hospital equipment, and interactive activities involving other students and faculty. The newest addition to many clinical learning centers is simulation equipment in various levels of fidelity (life-likeness, degree of realism). As with any new initiative, it is important for educators to develop a strategic plan that provides students with numerous opportunities to engage with the technology, to ensure that the right equipment is used for the right task, to meet the right objectives and that the right outcomes are achieved and correctly evaluated. To ensure that technology is embraced and utilized appropriately, it is important to understand how nursing students perceive the use of this new technology as it is integrated into their nursing curriculum. This paper will provide the results from a study that used Q-methodology to determine students' perceptions and feelings surrounding the use of simulation in their respective nursing programs.

Background

Nurse educators are faced with many obstacles in providing safe clinical experiences for students. Some of the obstacles include increasing enrollment, nursing faculty shortages, a lack of physical space, and fatigued clinical settings. Hospital units that traditionally have provided these opportunities are now faced with nursing shortages and attrition coupled with patients who are acutely ill. Nurse educators are faced with a steady increase in the number of clinical experiences required for their students at a time of decreasing numbers of acute care opportunities. These obstacles have led to creative alternatives to ensure that nursing students receive the necessary experiences to develop and practice their clinical skills – simulation technology. Simulators range from low fidelity (interactive CD-Roms, models of body parts) to high-fidelity simulators that include full mannequins capable of reproducing life-like characteristics and physiological responses to stimuli), such as SimMan®.

A small body of literature identifies how students feel about using simulation equipment in their nursing education. This work

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clearly states some strengths and limitations of its use, along with some personal benefits and challenges. One study found that students feel that the optimal use of simulation is in conjunction with lectures and not in isolation of the other (Bantz et al., 2007). Through the use of simulators, especially intermediate and high-fidelity simulators, students and faculty describe an improvement in patient care and an elevation in the student's self-confidence in clinical skills, their ability to make decisions and to act in a manner that will benefit the patient (Bantz et al., 2007; Reilly and Spratt, 2007; Schoening et al., 2006). Additional skills acquired by students, who participate in simulations and use high-fidelity simulators, are self-reported by students as an increase in critical thinking, knowledge, decision making (Lasater, 2007; Nehring and Lashley, 2004; Reilly and Spratt, 2007; Schoening et al., 2006), and the ability to blend theoretical and practice learning (Lasater, 2007). Students also report their enjoyment of working in a team, working together to solve problems and learning how to effectively communicate (Schoening et al., 2006). Students have stated that they feel engaged in their learning because it reflects reality (Lasater, 2007; Nehring and Lashley, 2004; Reilly and Spratt, 2007).

Several challenges are described in the literature and should be considered when determining how and when to utilize this teaching modality. It is evident that simulation activities and the use of simulators may not be suitable for all. Some students have described uneasiness when interacting with a lifeless mannequin and have suggested that they would prefer to talk to a 'real' person. Bantz et al. (2007) also reported that students felt uncomfortable talking to a mannequin and would have preferred to talk to a 'live' individual. What is interesting to note is that even though students recognize that they are not dealing with a live patient, they do, at times, find the simulations so realistic that they are frightening, stress invoking (Childs and Sepples, 2006) and at times traumatizing (Reilly and Spratt, 2007). Although some students have found the scenarios to be lifelike, others find that the skills that they learn are not transferable to the real clinical environment (Feingold et al., 2004; Parr and Sweeney, 2006).

In an effort to increase preparedness of students entering clinical settings and to overcome challenges in providing student nurses with sufficient clinical experiences, the Ontario Ministry of Health and Long-term Care provided provincial colleges and universities with more than 20 million dollars in funding to supply schools with simulation equipment, between 2003 and 2005 (Ministry of Health and Long-Term Care, 2005). This study sought to explore students' perceptions of the use of simulation in nursing schools across Ontario.

Ethics

Ethical approval was received from the McMaster University Ethics Board and from each of the universities that participated. Participants received an information letter that summarized the project and their potential role in it. Students had an opportunity to ask questions of the research assistant or the principal investigator and if there were no questions or concerns an informed consent was signed. Students were each offered a copy of the consent for their records.

Methodology

In this study we used Q-methodology to explore student perceptions on the use of simulation and to identify common viewpoints of students who had exposure to simulated learning experiences in their educational programs. This research method has been used in many areas of health science research including evaluation of job satisfaction (Chinnis et al., 2001), patients' viewpoints about health and rehabilitation (Ockander and Timpka, 2005), use of research information in clinical decision making (McCaughan et al., 2002), exploring nursing attitudes towards health promotion (Cross, 2005), faculty development (Akhtar-Danesh et al., 2007), and evaluation of web-conferencing in teaching (Valaitis et al., 2007).

Q-methodology was introduced by William Stephenson in 1935 (Stephenson, 1935a,b) and only employed sporadically until recently emerging as a more widely used method, mainly because of advances in the statistical analysis component (McKeown and Thomas, 1988). This method is used to identify unique as well as commonly shared viewpoints, and it is particularly valuable in research that explores human perceptions and interpersonal relationships (Dennis, 1986). It mixes qualitative and quantitative methods. In a Q-methodology study the goal is to uncover different patterns of thought rather than their numerical distribution among the larger population. In other words, the number of participants is not the important issue; rather it is the representation of different points of view about the topic of study (Brown, 1993).

Q-studies typically use small sample sizes and low response rates do not bias results. In such studies the primary objective is to identify a typology, not to test the typology's proportional distribution within the larger population (Brown, 1993). Brown (1980) recommends that having 4–5 persons would be enough to define each factor. Therefore, a factor with at least four subjects and an eigenvalue greater than one would be considered a significant factor.

The test–retest reliability of Q-sorting has been found to be 0.80 or higher in some contexts (Dennis, 1988, 1992). Content validity of the statements can be assessed by literature review and a team of domain experts. The face validity of the statements is assured by using the participants' exact wording of the statements with slight editing only for grammar and readability. It also can be assessed in a pilot testing (Akhtar-Danesh et al., 2008).

Different statements about the use of simulation in nursing education were collected by reviewing data from another study involving focus groups, which was part of this larger program of research. Focus groups were conducted with faculty and students in four colleges and three universities. One hundred and four statements were compiled into one dataset (the concourse). To have a representative Q-sample we used an inductive process as there was no theoretical hypothesis or framework involved. The concourse statements were classified into six domains that emerged from the statements including: teaching and learning, access/reach, communication, technical features, technology set up and training, and comfort/ease of use with technology. Following an iterative consensus process, three members of the research team independently considered how the statements might be combined, rephrased, or deleted for the sake of clarity and avoidance of redundancy. Several group meetings, to achieve consensus regarding the final list of statements, followed this process. The final set included 49 statements which represented key ideas from each domain about the use of simulation in nursing education.

Two student volunteers agreed to pilot test the tool which resulted in minor edits to clarify some statements.

Invited participants were then asked to sort the randomly numbered final statements onto a Q-sort grid (Fig. 1), scoring each statement between −4 and +4, where negative scores indicate disagreement, until all blanks on the grid were completed. The grid was constructed such that participants could only assign two statements a score of −4 and two statements a score of +4. Three statements could get a score of −3 and three could score +3, and so on. Detailed instructions were mailed to participants by post. The Q-sort grid was completed by each student independently and returned. Participants were also asked to complete a short survey