Original research

Incorporating peer-to-peer facilitation with a mid-level fidelity student led simulation experience for undergraduate nurses

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ABSTRACT

Background: The aim of this study was to evaluate peer-to-peer facilitated student led mid-level fidelity simulation experiences.
Methods: Second and third year nursing students (N = 637) were invited to complete a 16-item 6-point Likert scale questionnaire after the simulation experience.
Results: Students reported high self-confidence in their nursing skills (M = 4.14, SD = 0.92) and a high level of satisfaction in the learning they received during the peer-to-peer facilitated student led simulation experience (M = 4.42, SD = 0.93).
Conclusion: Using peer-to-peer teaching strategies during student led simulation experience is an effective approach for ensuring active engagement of all learners during midlevel fidelity group-based simulations and has the potential for broad applicability.

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1. Background

With the expanding demand on health care facilities by patients of higher acuity and with higher levels of nursing expectations, many believe that nursing students entering the clinical area should be competent in their skills before approaching a patient (Rielly and Spratt, 2007). This poses a challenge in clinical nursing education, to ensure that nursing students are embarking on clinical practicum experiences, feeling prepared and with adequate confidence (Alinier et al., 2006; Howard et al., 2011). The effectiveness of simulation-based learning experiences has been widely reported on in the literature (Cant and Cooper, 2010; Kardong-Edgren et al., 2008; Levett-Jones et al., 2011a,b; Merriman et al., 2014) as a result simulation has become a favoured pedagogy in the development of clinical skills acquisition in nursing (Jeffries et al., 2008).

Peer to peer learning is suggested in the literature as a successful teaching pedagogy when dealing with large cohorts of students in the nursing curricula (Stone et al., 2012). Stone et al. (2012) acknowledged difficulty in defining peer to peer learning, however concluded this pedagogical approach is student centred and involves the students learning from each other. Adult learning pedagogy in the tertiary setting is essential and with adult learners identified as mainly active learners (Knowles, 1980) the peer to peer approach enables learners to actively participate in each others scenarios. Biggs and Tang (2011) suggested students who were engaged with their learning are more likely to take responsibility for their learning and learn by doing rather than by watching. This ultimately resulted in increased critical thinking, skills development, reduced anxiety levels and students' engagement with learning through team work (Goldsmith et al., 2006; Blowers et al., 2003). Despite these benefits there is a lack of literature on peer to peer learning in the simulation environment. Valler-Jones (2014) found when nursing students wrote and developed scenarios using high fidelity simulation equipment they were more active learners while Haraldstein et al. (2016) reported nurse participants in a project using SimPad ® equipment were more engaged and interested in their learning because they were able to clearly identify their learning needs and influence the learning materials in the development of the simulation learning experiences.

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Simulation experiences are categorised in the literature according to fidelity. Fidelity is the extent to which the simulation experience approaches reality and is determined by a number of factors such as environment, simulation equipment and other resources (Borum, 2013). The three most common levels of fidelity are low-, mid- and high-level. Low-level fidelity experiences involve case studies, role-play, and using static mannequins to immerse students in a clinical situation. Mid-level fidelity experiences are those that have more realism than low-fidelity. These experiences are provided by computer-based, self-directed learning systems such as SimPad ® involving simulations in which the student relies on a focused experience to problem solve, perform skills and make decisions. High-level fidelity experiences use full-scale computerized patient simulators, Mask-Ed ® (KRS Simulation), virtual reality or standardized patients that are extremely realistic and provide a high level of interactivity and realism for the learner (Decker et al., 2013; Reid-Searl et al., 2011).

While high-level fidelity simulation has received consistently high student satisfaction scores in the literature (Alfes, 2011; Cant and Cooper, 2010; Levett-Jones et al., 2011a), evidence suggest that mid-level fidelity simulation are more cost effective requiring one-fifth of the cost of high-fidelity manikins to obtain the same effect on learning outcomes (Lapkin and Levett-Jones, 2011). In addition, high-fidelity simulation experiences require extensive teaching resources and typically have low educator/student ratios. This educator-intensive model leads to limited student exposure to simulation experience with resultant disengagement and poor learning outcomes for students. This is particularly relevant in nursing courses with hundreds of enrolled students (Meyer et al., 2014). Barriers such as these and increasing enrollments in nursing courses have necessitated the development of creative and innovative simulation experiences to allow for nursing leaders' increased demand for simulation experiences to be introduced into nursing curricula (Benner et al., 2010; Jeffries et al., 2008).

One Australian regional university with multiple campuses encountered challenges related to teaching simulation to large with minimal high-fidelity equipment available. This lack of equipment was a barrier to meeting the repeated requests by hospital nursing management for increased offerings of simulation experiences to undergraduate students. To overcome these challenges simulation experiences were developed incorporating creative and innovative approaches including peer to peer learning and mid-level fidelity equipment. The aim of this study was to evaluate peer-to-peer facilitated student led mid-level fidelity simulation experiences. This simulation learning experience will be referred to as a mid-level fidelity student led simulation experience for the remainder of the paper.

2. Methods

2.1. Design

A single group post-test design was used to evaluate student self-confidence in their clinical nursing skills and satisfaction with the mid-level fidelity student led simulation experience. Ethical approval for the study was obtained from the university ethics committee. Confidentiality was provided for the student participants since they were not required to put any identifying information on the questionnaire and the data was analysed on a group basis. All participants provided written informed consent. Data were collected between June and July 2014.

2.2. Sample

The study was carried out at a regional University in Australia.

All second year and third year undergraduate Bachelor of Nursing students (N = 637) enrolled in three clinical courses, across four campuses were eligible to participate. The courses included two third-year courses (critical care nursing and professional nursing practice) and one second-year course (patient centred chronic care).

2.3. Setting

The SLSE took place in simulation-designated laboratories across four campuses using mid-level fidelity human patient simulators SiM Anne® (Laerdal Medical, 2012) and appropriate technology. The manikins with realistic anatomical structures had the capacity to mimic diverse parameters of human anatomical physiological patient parameters, including vital signs, ECG recordings, organ and patient sounds. These manikins can be manipulated by a SimPad ® system featuring an intuitive, interactive handheld touchscreen, enabling simulations to be run easily and effectively by the students themselves.

2.4. Instrument

A 16-item 6-point Likert scale (1 = strongly disagree to 6 = strongly agree) simulation questionnaire adopted from two validated instruments was used to collect data (Levett-Jones et al., 2011b; Jeffries, 2005). The satisfaction questions were designed to measure participant's level of satisfaction with the simulation experience and were adapted from satisfaction with simulation scales developed by Levett-Jones et al. (2011b). The Cronbach's alpha is 0.94 for this subscale.

Self-confidence in learning was measured by determining how confident the students felt about the nursing skills performed in the scenarios. The questions were adopted from the Self-Confidence in Learning Scale (Jeffries, 2005) with a reported Cronbach's alpha 0.87 for the Self-Confidence subscale. The questionnaire also surveyed four demographics, gender, courses enrolled in, previous experience with simulation and role(s) played in the simulation.

2.5. Procedure

The SLSE formed a component of routine teaching activities in clinical courses. The scenarios in the SLSE utilised content relevant to each subject and included skills students were expected to develop for that particular clinical course before attending clinical placement. This included communication, hand hygiene and various assessments of the patient condition. Scenarios were written and developed by members of the research team in collaboration with Course Coordinators to ensure included skills were appropriate. The resources used in the scenarios were posted on the online student learning platform at least two weeks prior to the simulation experience. Prior to the simulation sessions students watched an instructional video featuring volunteer students participating in a similar scenario, and then the lecturer provided information about the learning objectives of the mid-level fidelity student led simulation experience, time keeping rules and the roles participants would undertake. The students were reminded that the focus of the mid-level fidelity student led simulation experience was to encourage learning rather than for assessment.

The SLSE allowed groups of up to 25—30 students at one time, to work through four different clinical scenarios in small teams of 4—5 with six work stations made to simulate a six bed ward. The lecturer remained in the laboratory to create a safe environment, facilitate scenarios and assist with trouble shooting of equipment. The lecturers' role then was largely supervisory. Stone et al. (2012)