



Original research

Simulation debriefing based on principles of transfer of learning: A pilot study

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ABSTRACT

Upon completion of undergraduate nursing courses, new graduates are expected to transition seamlessly into practice. Education providers face challenges in the preparation of undergraduate nurses due to increasing student numbers and decreasing availability of clinical placement sites. High fidelity patient simulation is an integral component of nursing curricula as an adjunct to preparation for clinical placement. Debriefing after simulation is an area where the underlying structure of problems can consciously be explored. When central principles of problems are identified, they can then be used in situations that differ from the simulation experience. Third year undergraduate nursing students participated in a pilot study conducted to test a debriefing intervention where the intervention group (n=7) participated in a simulation, followed by a debriefing based on transfer of learning principles. The control group (n=5) participated in a simulation of the same scenario, followed by a standard debriefing. Students then attended focus group interviews. The results of this pilot test provided preliminary information that the debriefing approach based on transfer of learning principles may be a useful way for student nurses to learn from a simulated experience and consider the application of learning to future clinical encounters.

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1. Introduction

A goal of undergraduate nursing education is to produce a graduate able to transfer their learning from the university setting to the healthcare environment. While there is an expectation that new graduates are able to seamlessly transition into the clinical work environment by applying theoretical knowledge to the patient encounter, evidence suggests otherwise (Parker et al., 2014; Theisen, 2013). The expected levels of clinical performance are not demonstrated and graduates often struggle to proficiently perform both technical and non-technical skills (Missen et al., 2016). High acuity patients requiring complex care are the norm in the current health care environment and graduate nurses may enter this workforce lacking both experience and knowledge which informs judicious recognition and response to patient problems and prevention of adverse patient outcomes (Della Ratta, 2016;

Herron et al., 2016). There is evidence to suggest that high fidelity patient simulation in healthcare education can assist in the preparation of practitioners who can effectively function in the workplace (Buckley and Gordon, 2011; Kelly et al., 2014; McCaughey and Traynor, 2010). High fidelity simulation in healthcare refers to simulation experiences which are realistic and provide a high level of interactivity and realism for the learner (Lopreiato et al., 2016).

While the practical experience afforded during the simulation is a component contributing to the development of requisite knowledge, the debriefing element of the simulation is critical in the facilitation of learning (Royle and Hargiss, 2015). The debriefing component of simulation is described as a collaborative and reciprocal learning experience (Mariani et al., 2014). This provides an opportunity whereby facilitators and learners re-examine the simulation experience for the purpose of moving toward assimilation and accommodation of learning to enable the transfer of learning to new situations (Lopreiato et al., 2016). An effective debriefing can maximise the learning opportunity afforded by simulation. Nurse educators must constantly strive for the development of debriefing methodologies which are not only effective in the structured learning environments of the university setting, but

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also assist students to transfer learning to real practice in the unpredictable and unstable healthcare environment (Herron et al., 2016; Missen et al., 2016). A paucity of studies relating to effective debriefing methods which best support students' ability to transfer learning from simulation to future practice underpins the need for this study. Such research will inform and support faculty and facilitators in developing strategies for the transfer of learning through reflection in post-simulation debriefing.

2. Background

Despite the increasing use of simulation in undergraduate education, research in the area of transfer of learning from simulated to clinical setting is relatively limited. Research indicates that students are able to transfer the knowledge and skills learned after participating in simulated learning, to human patients (Alinier et al., 2006; Kirkman, 2013; Rutherford-Hemming, 2012) however, these studies focus on the simulation per se, rather than the debriefing process component of the simulation. The espoused importance of debriefing belies the lack of theoretical groundwork in the area of debriefing (Husebø et al., 2013; Raemer et al., 2011) with few research studies examining the effectiveness of debriefing to enhance learner performance in healthcare (Cicero et al., 2012; Kuiper et al., 2008b; Shinnick et al., 2011).

Benner (2015) stressed that nurse educators must focus on teaching for a lifetime of practice nursing with a 'less is more, deeper learning is better than presenting a lot of materials' approach and focus on teaching for transfer. This was the impetus for this study which involved the development and pilot testing of a debriefing strategy based on Salomon and Perkins (1989) transfer of learning theory. Seminal work by educational psychologists Salomon and Perkins (1989) described the a method of teaching for 'high road' transfer, that is, the ability to generalise learned skills and transfer these to different situations, which in nursing, underpins the delivery of safe and appropriate nursing care. High road transfer does not occur automatically and Perkins and Salomon (1988) suggest specific active strategies to facilitate this—metacognitive guidance, mindful abstraction of concepts, backward and forward reaching strategies, and bridging techniques. The intentional mindful abstraction of the encountered problem in preparation for from one context and application into a new context (Perkins and Salomon, 1988). When an individual learns something and abstracts it in preparation for other applications, a forward reaching transfer strategy has been utilised. Conversely, the use of a backward reaching technique results when an individual finds themselves in a problematic situation and reaches backwards into their own experience for matches (Perkins and Salomon, 1988). Regardless of whether the transfer is via forward or backward reaching methods, high road transfer always involves making connections from one context to others. This is postulated to be fostered by an additional technique known as 'bridging' (Nelms and Dively, 2007; Perkins and Salomon, 1988). Essentially, rather than having the expectation that students will achieve transfer of their own accord, the educator guides the process of abstraction and making connections (Delclos et al., 1985; Zigmont et al., 2011a). The abstraction process, which involves breaking down and rebuilding information, assists students to recognise the applicability of the knowledge learned in one situation to another (Ruggenberg, 2008).

The purpose of this pilot study was to explore students' perceptions of a debriefing strategy based on the principles of the transfer of learning. Specifically, the research questions were:

1. Do undergraduate student nurses' ratings of their ability to apply clinical reasoning skills to practice change following a

structured simulation debriefing based on the principles of the transfer of learning?

2. Does a structured debriefing session enhance undergraduate nursing students' perceived value of clinical simulation as a teaching-learning experience in preparation for transferring clinical reasoning skills to future practice?
3. In what ways do the quantitative and qualitative findings converge?

This paper will report on a convergent parallel mixed methods pilot study, where undergraduate nursing students participated in pre-test surveys, received a structured debrief aimed at enhancing the transfer of learning, and completed a post-test survey. Students then participated in semi-structured focus group interviews aimed at eliciting the usefulness of the structured debriefing as a teaching modality.

3. Research design

This pilot study used a convergent parallel mixed method design; the quantitative phase used a pre-test, post-test survey design; and the qualitative phase used semi structured focus group interviews (Fig. 1).

3.1. Setting and sample

The study was conducted at a Clinical Simulation Centre in a School of Nursing at a large metropolitan university in Australia. The university is one of the largest in Australia and offers a three-year Bachelor of Nursing (BN) program in addition to a range of four-year double degrees combining nursing with psychology, paramedic science, and public health. The Clinical Simulation Centre has been designed to simulate an acute clinical care ward area and includes a fully computerised high fidelity human patient manikin. A viewing room is attached to the simulation room, whereby students and academic staff who are observers can watch the scenario. The simulation room also has an adjacent control room with one-way glass where the facilitator of the scenario is located. The centre has purpose-built rooms for the conduct of pre-briefing and debriefing phases of the simulation scenario.

The sample was a convenience cohort sample of all third year students ($n = 664$) enrolled in a final year clinical practice subject in the Bachelor of Nursing degree in Semester 2, 2014.

3.2. Intervention

Students in the intervention group ($n = 7$) received structured debriefing post the simulation experience (Table 1). The structured debriefing was designed using strategies based on Salomon and Perkins (1989) high road knowledge transfer theory. The application of key concepts of this theory required the facilitator to use the specific techniques of asking backward reaching questions, deconstructing problems into abstract concepts and posing forward reaching questions to guide the discussion. The debriefing began with the opportunity to express feelings and generally discuss the simulation. This phase also provided the opportunity to examine the students' understanding of the patient's underlying problem of acute respiratory distress related to a kinked intercostal catheter, by identifying and correcting performance gaps. The facilitator posed backward reaching questions by asking students to think back to previous experiences during clinical practice to match key characteristics of the problems encountered in the current situation. The facilitator mediated the process of making abstract concepts of the patient's underlying problem. Forward reaching questions allowed the facilitator to deliberately ask the students to consider

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