Using simulation to promote nursing students
learning of work organization and people
management skills

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Abstract
Simulation is becoming more widely used in nurse education. However, reports concerning its use focus almost exclusively on describing experiences with high fidelity manikin simulation used to teach students a range of psychomotor skills and clinical procedures. Simulation has enormous potential as a learning tool and can provide much more than just a basis for safely learning clinical skills. Here a simulation exercise designed to develop work organization and people management skills is described, student evaluation given and discussed.

Keywords: Full-scale simulation, nurse education, work organization, people skills

Introduction
In recent years simulation has become widely used in nurse education (Jeffries 2007). The worldwide shortage of nurses has meant that nursing is becoming a more popular undergraduate pathway. With surging numbers of undergraduate students, clinical placements are becoming more and more scarce. In order to adequately prepare nursing students for clinical work, Universities have needed to become more innovative in Nurse Education delivery. Furthermore, there is medico-ethical requirement for universities to adequately prepare students for clinical placement and reduce the ‘patient as practise’ education model of the past. The use of clinical simulation throughout nursing courses has gone some way to address these needs.

Generally speaking, simulation can be said to be an activity which attempts to approximate, without necessarily replicating a real world setting, for the purposes of learning in a safe, controlled environment (Beaubien & Baker, 2004 p152.) Literature reporting simulation activities usually consider these in terms of their fidelity (Jeffries, 2007). High fidelity refers to those activities which most accurately reproduce life-like situations with e.g. a computer based manikin, programmed to provide visual, auditory cues and feedback, depending on student response. Low fidelity refers to less life-like simulation e.g. using a piece of foam to practice giving injections. Beaubien and Baker (2004) also discuss fidelity in terms of environment, equipment and psychology. When environmental fidelity is high the environment closely matches the real world. Simulation, using real world equipment, has high equipment fidelity. When psychological fidelity is high the simulation is so realistic the student is easily able to “suspend disbelief” (p152) in order to engage with the learning activity.

There is much established and emerging literature concerning use of high fidelity manikin simulation to teach a range of clinical skills to nursing students including emergency response (Freeman et al. 2001) critical care (Parr & Sweeney 2006), maternity nursing (Yaeger et al. 2004), decision making (Lasater 2007) and cardio-pulmonary resuscitation (Long 2005) to name but a very few. Even those reports describing lower fidelity simulations using human ‘patients’ still generally use simulation to
teach technical skills (Kneebone & Nestel 2005, Wiseman & Snell 2008) or clinical decision making (Cioffi, Purcal, & Arundal 2005). Hawkins, Todd and Manz (2008) recently described a “unique” simulation design in which they used a range of simulation devices include human and computer to teach nursing diagnosis and formulate care plans, but such simulations are rarely reported.

Seropian et. al (2004) point out that “full-scale” simulation, namely a simulation environment which is made to resemble the intended environment as closely as possible, is the “most recognized form of simulation used in health care” (p 168). Yet full scale simulation used to develop the kind of work organization and people management skills nurses need to function effectively in the workplace has not been reported. To bridge this gap this paper reports on a simulation workshop which has been designed to enhance learning of work organization and people management skills in a full scale simulation of a chaotic ward environment.

**Background**

The University of South Australia (UniSA) offers a three year nursing program. In first year (called stage one) the core nursing topics are aimed at developing a beginning understanding of what it means to be a health professional in terms of roles, responsibilities and relationships. In second year the program aims to develop students’ intervention skills. In particular this includes knowledge, skills and attitudes which inform professional nursing practices in promoting, detecting, assessing, implementing and evaluating health care in all age groups from babies through to older adults. In this stage the time spent in the skills laboratories is aimed at developing psychomotor skills and techniques such as learning to give injections and taking blood etc. In stage three the program develops and builds on skills acquired in stages one and two in order to develop knowledge for professional practice as a RN (UniSA 2009).

In keeping with this pedagogical progression a topic titled Systems and Organization of Nursing care (Nurs 3032) is offered in first half of stage three. The aim of the topic is to provide students with the knowledge, skills and attitudes required for the organization of safe, systematic nursing care (UniSA 2008-9).

Simulation is extensively used in the first and second year of UniSA’s nursing curricula. In first year, students practise skills like making beds and taking blood pressures. In second year, sophisticated mannikins are used to teach students clinical skills such as listening to heart sounds and cardio-pulmonary resuscitation, whilst lower fidelity apparatus such as sections of arms teach psychomotor skills like taking blood and giving injections.

The simulation workshop in Nurs 3032 aims to simulate a chaotic ward environment. It is situated at the beginning of stage three in order to draw all clinical skills together thus giving students the “big picture” in preparation for their clinical placements in third year.

The aim of this workshop is to facilitate student learning of concepts such as time management and other work organizational skills. Prior to the development of this topic, concepts such as these were taught merely as theory and the student was expected to make the links to practice themselves. However, this was recognized as out of step with the well known principles of experiential learning (Kolb 1975). The simulation was designed to allow the students the opportunity to practice principles of time management and work organization in a controlled simulated environment in order to learn these skills with a level of isolation from other distracters.
Simulation description

The simulation workshops occur in week 4 of the 8 week topic. Weekly subjects occurring before the workshop occurs include, collaboration and partnerships, nursing in teams, supported self care management of chronic conditions, models of care, time management, and conflict resolution. Students complete a range of weekly tutorial activities devoted to teaching the theoretical principles of each of these subjects. The students are expected to arrive at the workshop prepared to demonstrate their understanding of work organization principles when nursing patients with chronic conditions in an acute care setting.

The simulation workshop runs over the course of one day i.e. 6 hours. This workshop is high in all fidelity types as it is situated in the nursing skills laboratories, which are set up and fully equipped to simulate a 6 bed hospital ward. Furthermore, each simulation requires students to “suspend” disbelief in order to play their allocated role. Groups of 10-13 students undertake three simulation scenarios to enable each student to ‘play’ the role of nurse, patient and an “extra.” Each simulation scenario accommodates six ‘patients’ (all with a chronic condition such as asthma, diabetes etc.) and three or four ‘nurses,’ with the other students playing the part of an ‘extra’ which could include a Doctor, relative, or cleaner. Whilst the students do use clinical psychomotor skills during the simulations, such as setting up intravenous therapy, and drug administration, they understand that the primary purpose of the simulation is to require them to demonstrate how they manage their time, people and circumstances around them.

The students are allocated a ‘roster’ for the day. This roster is designed to give every student a role in each simulation. This roster is drawn on a large white board located at the end of the skills laboratory, so that each student can clearly see what they are doing for the day, as well as what role they play in the next simulation. A sample roster is given in Table 1, which shows, for example, in the first simulation ‘Kerry’ (student number 11) is playing the role of a nurse, an extra in the second and a patient in the final simulation. Following this final simulation she is asked to give peer feedback to the student playing the nurse, in this case ‘Eun’ (student number 5). The peer feedback involves circling criteria on a competency (novice to expert) based rubric (Benner 1984) and a provision of a justification statement to give a rationale for this assessment.

The simulation begins with all students listening to a taped ‘handover.’ This report gives detail of patient diagnosis, reason for admission, length of stay, current condition etc. Those students who are playing nurses then hold a short meeting to make a decision about work allocation. Just as they would in real life, they leave this meeting with a ‘cheat sheet,’ a prioritised list of things that they want to achieve during their ‘shift’. Meanwhile, those students playing patients don a patient gown, identification bracelet and get into a bed. Students playing the nurse then commence work as if they were in a ward environment. Depending on their prioritisation they may start a drug round, observe and record vital signs, begin preparing a patient for theatre etc. Each of the patients is given a cue card containing some background information as well as timed triggers. This may be simply to regularly call out “nurse nurse” or they may be given more detailed instructions eg “wait 10 minutes and then become very agitated and aggressive.” An example cue card from scenario one is given in Table 2.
Each simulation develops and builds on the other in ‘real time’ and requires the student nurse to respond differently to the patients depending on the circumstances. For example, a patient in the first simulation is being readied for discharge following surgery, so the nurse in this scenario is required to interview the patient in order to arrange a discharge plan and then write a discharge letter. In the next simulation the patient slips and falls reopening her wound, so the nurse in this scenario is required to call for help in order to get the patient back to bed, arrange for a pressure bandage to be placed on the wound, offer reassurance to the patient, contact the attending doctor, and file an incident report. In the last simulation this patient needs to be prepared for theatre to repair the wound. The nurse is required to complete the pre-theatre checklist and reassure the patient who is understandably upset. This progression avoids advantaging students who play the nurse in later simulations being forewarned by observing what happens in the simulation prior to theirs.

Table 1: Sample Roster for 12 students

<table>
<thead>
<tr>
<th>Name</th>
<th>Simulation 1</th>
<th>Simulation 2</th>
<th>Simulation 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Role</td>
<td>Assessing</td>
<td>Role</td>
</tr>
<tr>
<td>1 Alison</td>
<td>P</td>
<td>7</td>
<td>N</td>
</tr>
<tr>
<td>2 Belinda</td>
<td>P</td>
<td>8</td>
<td>N</td>
</tr>
<tr>
<td>3 Cindy</td>
<td>P</td>
<td>9</td>
<td>Extra</td>
</tr>
<tr>
<td>4 David</td>
<td>P</td>
<td>10</td>
<td>P</td>
</tr>
<tr>
<td>5 Eun</td>
<td>P</td>
<td>1</td>
<td>N</td>
</tr>
<tr>
<td>6 Fred</td>
<td>P</td>
<td>2</td>
<td>N</td>
</tr>
<tr>
<td>7 Gus</td>
<td>N</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>8 Hsiao</td>
<td>N</td>
<td>Extra</td>
<td>P</td>
</tr>
<tr>
<td>9 Isabelle</td>
<td>N</td>
<td>P</td>
<td>11</td>
</tr>
<tr>
<td>10 Jan</td>
<td>N</td>
<td>P</td>
<td>12</td>
</tr>
<tr>
<td>11 Kerry</td>
<td>Extra</td>
<td>N</td>
<td>P</td>
</tr>
<tr>
<td>12 Lily</td>
<td>Extra</td>
<td>N</td>
<td>P</td>
</tr>
</tbody>
</table>

Each simulation generally ‘runs’ for around 30-45 minutes. Faculty observes and notes student performance for assessment purposes and if necessary can “freeze the scene” (Moss 2000) a technique which allows faculty to intervene with one or more students in order to facilitate critical thinking and problem solving and/or offer suggestions if required. Typical questions asked during the freeze are:

- How are you feeling right now?
- Why do you think you are reacting this way?
- Why do you think you are in this situation?
- What do you think you can do to improve your situation?
- What would you like to see happen now? (Telesco 2006)

When it is apparent that the simulation has run its course, faculty call a formal stop and gather the students together for a 30-40 minute debrief. This consists of standard debriefing type questions (Fritzsche, Leonard, Boscia, & Anderson 2004) e.g. “What do you feel went well? What didn’t go so well?” and What would you do differently next time? Additionally, as the focus of the simulation is on work organization and people management skill development, questions about this are...
specifically asked e.g. “Did you feel it was appropriate for the nurse to sedate you just because you were feeling anxious?” “Did you get time to complete the theatre checklist before the orderly came to take the patient to theatre?” etc. Potential solutions and possible alternate actions are raised and discussed. This immediate feedback is both valuable and important to reinforce the learning which has just occurred (Goldenberg, Andrusyszyn & Iwasiw 2005).

Table 2: Example cue card: “Extra” from simulation scenario one

<table>
<thead>
<tr>
<th>THE CLEANER</th>
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<tbody>
<tr>
<td><strong>Background:</strong></td>
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<tr>
<td>You are the ward cleaner. You emigrated from Europe when you were 15. You speak 5 languages. You really enjoy talking to people as you work. You are new to this ward.</td>
</tr>
<tr>
<td><strong>Scenario</strong></td>
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<tr>
<td>Commence the simulation by doing some damp dusting (use the cloth and water bottle provided). As you are cleaning start talking to patient asking questions like “What are you in for dear?” and “When are you going home love?” If one of the other patients speaks another language engage them in conversation (this doesn’t have to be a real language it can be gobbledegook) The nurses should ask you to stop. Become quite offended and upset when they do. When something starts happening with one of the other patients be curious and get in the way.</td>
</tr>
</tbody>
</table>

Following this debrief students are given the opportunity to write a reflective statement, give a handover report to faculty (this checks understanding), complete peer feedback and have a break before the next simulation starts. At the commencement of the next simulation the students swap roles according to the roster and different cue cards are given out to the patients. A different taped handover is given which gives a short update to students on the current state of play and the simulation runs again for another 30 minutes or so. Following another debrief, paper work and break the final simulation runs. This one generally lasts a slightly shorter time as students become familiar with the process and what they are expected to do.

**Student evaluation**

The workshops were developed as part of curriculum re-development in the later part of 2008 and were delivered for the first time in ‘summer school’ 2008/9. As it was the first time the workshops had been offered student feedback was sought on two occasions; immediately following the completion of the workshop in February 2009 and 2 months later (April 2009), once the students had been out on their clinical placement.

At the end of the 2 day workshop the students were given a paper-based evaluation survey to complete. This survey met UniSA guidelines for an evaluation activity undertaken without need for formal ethics approval. Under these guidelines students were informed that their participation was voluntary and their contribution would be anonymous both verbally and by way of the following statement heading each survey form:
Data collected through this survey will be used to improve the quality of teaching and learning at UniSA and could also be used in external publication and presentation. Individual responses will remain confidential and no individuals will be identified. (Mikilewicz 2008 p 9)

The survey consisted of questions concerning student perception of the value of the workshop and including asking for their opinion regarding the assessment undertaken at the workshop (not included in this paper). Five point Likert scales (strongly agree-strongly disagree) as well as qualitative responses were used. There was a 92% response rate (n=115/125). Students were asked to give their response to the following statements:

1. The simulations in the skills laboratory assisted me in my understanding of systems and organization of nursing care (Likert scale response)
2. Please give an example of how this workshop has prepared you to give safe, systematic nursing care? (room for comment provided)

Student response to the first question is given in table 3. Of the 115 respondents, 77.4 % (n=89) agreed or strongly agreed with this statement. Thus the vast majority of the students felt the simulations assisted them in gaining understanding of systems and organization of nursing care.

Student comment regarding how the simulation had prepared them to give safe, systematic nursing care included:

The skills laboratory made me realise how important it is to be as organised as possible at the beginning of the shift. It also made me realise how quickly a client’s health can deteriorate and how you need to constantly reassess clients’ needs and time manage.

The simulation activities pointed out key points eg time management, teamwork, prioritising strategies.

They were fun, helpful and important in understanding time management skills in a ward.

It has taught me that anything can go wrong on a shift and to focus on whatever comes. Keeping your cool helps greatly. The simulations helped me use all the skills I have learnt and build on them as well as find issues or holes in my learning to repair.

The follow up survey was administered electronically. An email inviting students to participate in further evaluation of the workshop was sent to all students who had undertaken the workshop. The email contained a link to the electronic survey. In order to comply with UniSA ethics requirements this survey was also headed with the same statement as given above (Mikilewicz 2008).

The survey consisted of 2 statements

1. Undertaking the simulation workshop has helped me with my work organizational skills on my clinical placement
2. Undertaking the simulation workshop has helped me with my people skills on my clinical placement

Five point Likert Scales were used with 20 students agreeing or strongly agreeing with the first statement and 17 agreeing or strongly agreeing with the second. There was also room for qualitative ‘comment’ responses. As there was only a 37% response rate (n=46/125) to this electronic survey, little can be surmised from the Likert scale responses. The qualitative responses are reported here.
Qualitative responses to Question 1 included:

I found that being able to experience what may happen when we go out to our placement, enabled me to feel more confident and orientated to a situation that could change.

Taking the role of a Registered Nurse in response to different situations (e.g. in the ward setting) has made me realise the value and importance of ‘time management’ and setting ‘priorities’

The roles of the staff (e.g. TL, RN's, EN's, cleaner etc) that I came across in the hospital I could link back to the simulation.

Qualitative responses to question 2 included:

All activities offered during the workshop were strongly focused upon working as a team and helped me to develop conflict management skills.

Being able to practice with speaking to patients has given me pointers while I have been on placement.

Discussion

In 2004 Beaubien and Baker stated that they considered it unfortunate that the terms simulation and high fidelity simulation were being used almost synonymously in the literature. Since this statement was made there has been a massive burgeoning of literature reporting the use of high fidelity manikin simulation to teach a range of clinical skills with very little published on the use of other types of simulation used for other educational purposes. Further, a recent systematic review of simulation activities conducted by Kaakinen and Arwood (2009) suggests that simulations are most often used to teach nursing skills rather than facilitate learning of concepts. This suggests that there is a place in nursing education for the type of simulation activities described in this paper.

It is well known that well designed simulation activities engage learners in situated professional knowledge-building (Jeffries 2007). Further, there is little doubt that the instructional methodologies used in simulation-based learning are well in line with the tenets of adult learning (Feingold, Calaluce & Kallen 2004). There is therefore no reason to think that the benefits of simulation have to be confined only to high fidelity manikin simulation. Indeed requiring the learner to engage with the wide range of professional skills necessary to successfully complete the simulation described in this paper, is fundamentally important to the delivery of safe, effective nursing care. Whilst the simulation reported here has not been formally evaluated in terms of outcomes, the student evaluation was generally positive and will be discussed further.

One important aspect of teaching and learning is student engagement. It is well known that students are more likely to engage with a learning activity if it is assessed (Biggs & Tang, 2007). It is outside the scope of this article to delve into how the assessment for this workshop was undertaken. However, the simulation activity was weighed at 15% of the marks available for the topic. The grade students achieved for this activity was decided upon by faculty taking into consideration the peer feedback, as well as the students own reflective statements. The fact that the simulations were assessed helped the students participate, as this student admitted:

How the simulation activities were organised and self-assessed made me participate more and take an active role in my learning.
This type of simulation can meet the needs of a variety of different students. For example, the students in this course had a range of different backgrounds in nursing. Some students had come to this nursing course straight from school, others already had extensive experience in nursing, as nurse assistants and the like. Both of these kinds of students said that they benefited from the simulation, thus confirming that a wide variety of students thought it was valuable.

I brushed up my time management and teamwork skills. It reminded me again of the importance of teamwork in the workplace.

I found it fun. It's the first time in the whole degree I feel like a nurse. I have NO nursing background and it was good to do it just to see what it feels like to be on a ward.

It is important that students were able to temporarily suspend belief in order to fully engage in and benefit from the simulation. The students did appreciate that the simulation was life-like: “It was excellent! The first simulation that was a truly organised ‘hospital like’ scenario and executed effectively”. However, this did come at a cost, with some students reporting that they actually experienced a sense of panic: “I felt like a chicken without a head”. Whilst others felt that the simulations were “demanding but very appropriate”. Spending time adequately and effectively debriefing immediately following each simulation was therefore very important for all students and is, of course, integral to any simulation activity (Jeffries 2007).

Literature discussing simulations where students play the role of a patient recognize that this can be problematic because students may feel inadequate in their ability to “act” (Jeffries 2007) This issue was addressed in a pre-brief session given by faculty, during which it was acknowledged that the students were nursing students first and foremost and that no-one was expected to win an academy award! It was also pointed out to the students during the pre-brief, that spending a little time in a patient’s shoes, particularly if they had never been hospitalised, would also assist them to build empathy. Furthermore, playing the role of a patient with a chronic condition also provided them with an opportunity to demonstrate understanding of disease process and knowledge acquisition of the psychological impact of chronic disease gained from the course. Whilst a few students made comments in both their immediate workshop evaluation and follow-up surveys that they would have preferred actors to be used, by and large the students were observed to readily engage in the roles they played for both their own and their peers’ benefit, with many saying that playing the roles was “fun”.

Ultimately the main aim of any simulation is to safely prepare students for a real life clinical setting. The ability of students to consolidate skills learnt and transfer these from the simulation into the clinical setting is therefore imperative (Kneebone & Nestel 2005). This simulation arose as part of curriculum development rather than from a research agenda and as such the intention was not to control for or measure outcomes, but to provide a descriptive report. Nevertheless, student responses both in the survey and later suggest that they felt the skills they learnt could be transferred into their workplace.

A few weeks after the simulation and prior to the second evaluation request being sent, an email was received from a student who was reflecting on her experiences whilst on clinical placement. She reported that during the simulation day she had thought the kinds of things that occurred in the simulation were unlikely to happen in real life until she subsequently had encountered a chaotic day in her workplace. At this point she recognised the value of the workshop. Her email suggests that students can and do draw on the learning that took place in the workshop when out in the real world.
It was a very busy and I learnt a lot through this experience. It reminded me of the stimulation exercise that we did in a workshop for systems and organization. Throughout the workshop I thought “this situation would never happen”... well it did!, we even had random visitors walking around asking questions that we needed to see to as well! (personal communication)

**Conclusion**

The use of high fidelity mannikin simulation is only one way of using simulation in nurse education. Simulations which are high in environmental, equipment and psychological fidelity can also provide an excellent learning opportunity for student nurses. Student engagement with this simulation and their feedback suggests that skills obtained during the simulation are transferable into and valuable for their clinical placements. Whilst full scale clinical simulation used for the purposes of teaching work organization and people management skills can never replace experience gained in the clinical setting it may provide a worthwhile supplement to clinical based learning.

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