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Simulation in nursing education - international perspectives and contemporary scope of practice

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Abstract

This article provides insights and perspectives from four experienced educators about their approaches to developing, delivering and evaluating impactful simulation learning experiences for undergraduate nurses. A case study format has been used to illustrate the commonalities and differences of where simulation has been positioned within curricula, with examples of specialised clinical domains and others with a more generic focus. The importance of pedagogy in developing and delivering simulations is highlighted in each case study. A range of learning theories appropriate for healthcare simulations are a reminder of the commonalities across theories and that no *one* theory can account for the engaging and impactful learning that simulation elicits.

Clinical relevance: Creating meaningful and robust learning experiences through simulation can benefit students' performance in subsequent clinical practice. The ability to rehearse particular clinical scenarios, which may be difficult to otherwise achieve, assists students in anticipating likely patient trajectories and understand how to respond to patients, relatives and others in the healthcare team.

Keywords: simulation; undergraduate nurses; pedagogy; holistic practice; mental health; medical surgical

Introduction

There is a plethora of reports about the use of simulation for healthcare education particularly within undergraduate nursing curricula. The attraction of using simulation as an educational strategy arises from the ability to: incorporate multiple elements of practice within a learner centred activity; address national health priorities and; trigger participants' reflection on and about practice. At an individual level, simulation can enhance students' understanding of the roles and responsibilities of the registered nurse through, to use Bourdieu's (1990) expression, forming a habitus of perceptual acuity leading to skilled, embodied practice.

The intent of assembling the chosen case studies within one article is to highlight similarities internationally in the intent and approaches in developing meaningful simulation experiences. The fundamental importance of incorporating sound pedagogical design and relevant theories is demonstrated in each of the case studies. Details of the simulation delivery may not be explicit in all case studies, suffice to say that all four experienced simulation educators followed best practices (Arthur, Levett-Jones, & Kable, 2013; Jeffries, 2007, 2014). The

range of scenario topics highlights the flexibility of simulation as a learning approach, from understanding others' roles within the healthcare team (author 2); appreciating the salient aspects of post-operative patient care (author 3); increasing insight and empathy about mental health issues (author 4); and understanding how to manage critically ill patients within a team context prior to entering clinical practice (author 1).

What emerges from these case study examples is how simulation enables co-production of knowledge, and how insights from studies of other disciplines within and beyond health can inform and guide simulation practices.

Cast study 1: Low fidelity inter-professional ward simulation

At the University of XX in the United Kingdom (UK), we have offered an inter-professional health and social care curriculum since 2000 involving ten pre-qualifying professional programs. Evidence from internal (Pollard, Miers, & Gilchrist, 2005) and external (Salfi, Solomon, Allen, Mohaupt, & Patterson, 2012) studies reinforce the argument for including inter-professional education (IPE) in pre-qualifying curricula which is mandatory in the UK (Department of Health & Quality Assurance Agency, 2006). Given some of the challenges highlighted and conclusions drawn by Pollard et al. (2004) about students' perceptions of IPE, I was interested in discovering how simulation might enhance the delivery of IPE . IP simulation learning experiences are increasingly more common with a focus on enhancing non-technical skills, such as communication and collaboration (Reeves, Lewin, Espin, & Zwarenstein, 2010).

For health and social care students, it is essential that the impact of human factors and the importance of patient safety are addressed within the curriculum. This project embraces the recommendations of the "Shape of Caring" (Willis, 2015) and "The Better Training Better Care programme" (Health Education England, 2014) and recognises the need for healthcare and social care students to learn to work together through educational initiatives in order to deliver safe and effective care (Francis, 2013; Willis Commission, 2012).

The Project – an outline

The purpose of the project was to offer an inter-disciplinary simulation experience to final year nursing and medical students which focused upon patient situations that they would encounter in clinical practice. The simulation offered participants the opportunity to identify and prioritise patient care, manage and delegate clinical tasks and work together to ensure efficiency and patient safety.

The project took place in a simulated environment (a ward at night) at xx university with eight simulated patients (4 acting roles and 4 manikins). Each patient had a full history with a developing clinical picture as each of the three phases of the simulation unfolded. At each phase two medical and two nursing students ran the simulated ward together. Other students acted as observers or patients in the scenario. Facilitators took on roles as a patient's family member and as a ward manager and medical registrar. Verbal patient handovers were given to students at the start of each phase and between role changes. A maximum of twelve students took part in each half day session. Nursing students worked as newly qualified nurses managing the ward, assessing patients, delegating tasks, calling the doctor to raise concerns and initiating acute care. Medical students worked as the junior doctor on-call; triaging bleeps, undertaking a variety of ward jobs, and managing sick patients. At the end of each phase all students and facilitators left the ward and debriefing of the activity took place nearby. At each debriefing point experiences and issues that had emerged were discussed and suggestions, solutions and learning points were shared. All facilitators and students took part in the feedback and debriefing points which each lasted approximately 30 minutes.

Results

Students were asked to self-rate their confidence on: receiving handovers; prioritising tasks; communicating with medical and nursing colleagues and; calling for help; on pre-tested 10 point Likert scales, before and after the simulation. Students were also asked to rate the session (free text responses) compared to previous experiences within their curricula involving multidisciplinary team (MDT) learning.

Qualitative and quantitative data collected from participants convincingly suggested that the inter-disciplinary ward simulation offered a very effective way of improving confidence in prioritisation and on-call skills. It was also a preferred method of understanding the different and complementary roles of nurses and doctors, and how to support each other to promote patient safety.

One quote summarised the general consensus of students' opinions about the value of this activity for future practice experiences:

> *"The simulation itself really helped me to see how nursing and medical roles are so different but both vital in giving patients good care. The practical parts were long enough to really get into them and think about how best to prioritize patients. The debriefing sessions allowed us to share concerns and ask questions in a safe environment, it was really helpful to see how implementing*

the suggested changes made such a difference to the outcome of the shift each time. It was also quite comforting to know that newly qualified medical students are also just as scared as we are when we first start, which shows how much more we need to help each other!"

(Third year nursing student).

This project also showed the effectiveness of students acting as patients in the scenarios allowing them a fresh perspective of inter-disciplinary work, helped decrease running costs with greater student engagement, and was testament to my belief, often cited by students, that 'simulation learning is fun'. This in turn reduced some initial student anxiety and contributed to a friendly and positive learning environment in which participants reacted and responded authentically to the unfolding scenario.

Discussion

The Carnegie Foundation for the advancement of teaching in the USA has funded studies into the education of professionals (Benner & Sutphen, 2007; Foster, Dahill, Golemon, & Tolentino, 2005). The Foundation, drawing upon internal and external professional perspectives and cross-professional comparisons, sought to elucidate teaching and learning for professions practice.

According to Foster et al., (2005) professional education emphasizes the importance of 'professional identity, practice, commitment and integrity' (p.100). For clergy education, seminary students are encouraged to view themselves as part of the narrative of the profession. The ability to recognise, explore and interpret their own dispositions, beliefs, knowledge and skills is seen as essential to discernment and action in particular situations (Foster et al., 2005). This resonates with my vision of health care education and the need for students to learn to be self-aware professional practitioners able to contextualise a particular situation and act with integrity and advocacy for their patients. All of the Carnegie Foundation studies draw upon three high-level 'apprenticeships', knowledge, skill and ethical conduct, which they suggest are required for all professional practice. Through these 'apprenticeships' Shulman (in Benner et al., 2009) suggests that novices should be introduced to the meaning of integrated practice which incorporates all dimensions of the profession.

It is important to highlight that 'apprenticeship' in this context is not used as reference to where learners are employed and work alongside skilled practitioners. In the Carnegie studies, apprenticeship is used as a metaphor for the complex embodied, cognitive, skilful, ethical and experiential learning required in practice disciplines (Benner & Sutphen, 2007). The notion of

apprenticeship is useful in professional education. Learning a complex practice, in which knowledge is situated and socially embedded, demands practical reasoning, skilled know-how, perceptual acuity, relational and communication skills, and ethical conduct (Benner, Tanner, & Chesla, 2009). Such integrated practice is learned in formal programmes and also through experiential learning (Lave & Wenger, 1991). In nursing and medicine, knowledge, skill and ethical conduct must be integrated into all teaching and learning situations and can be more fully understood through the pedagogies of interpretation, formation, contextualisation and performance.

The different pedagogies provide a framework for developing an understanding about the impact of simulation upon learning for student nurses (Berragan, 2014). As an educator, I recognise that often we offer a linear or step by step approach to introduce students to clinical skills. This exemplifies what Benner and Sutphen (2007) call a narrow, technical rationality. In order to move away from this and engage with a broader version of 'rationality' where interpretation, understanding and relationship are key to engaging students and helping them to learn to be nurses and doctors, these pedagogies offer potential. They offer an expansive approach to learning and a means of interpreting and exploring the impact of simulation for learning key aspects of inter-professional care.

Learning together and understanding co-workers' roles, challenges and limitations, we hope to foster more effective interdisciplinary communication and in turn improve patient safety. This project demonstrates that on-call ward simulation is an effective and achievable way of delivering this.

Case study 2: post-operative simulation for Norwegian nursing students

Like many other countries, nurses in Norway are prepared to Bachelor level over 3 years at universities or regional colleges. Nursing curricula are based on national regulations with some variations at the institutional level in program delivery. All programs include theoretical and clinical learning components. Ten weeks (15 European Credit Transfer and Accumulation System) of the 3 years is for *training and reflection upon practical skills*, mostly worked on in the simulation laboratory (Ministry of Education and Research, 2008).

At the University of X, simulation-based learning (SBL) is the most applied pedagogical method for learning multiple nursing skills, for example to administer drugs intravenously, parenteral nutrition and post-operative skills. The method is recognised as student-centred, interactive and beneficial in preparing students for real-world patient care experiences (Cant & Cooper, 2010). The *didactic model of relation* (Hiim & Hippe, 1998) makes explicit the

most important factors for planning simulation activities, in this case the post-operative care course. Of particular importance is the interconnectedness between the six factors identified within the model. All factors are mutually dependent meaning that changes in one have consequences for the other factors (Figure 1).

Discussion follows about the planning for the post-operative simulation learning experience for students in relation to the factors within this model. Hiim and Hippe (1998) do not explicitly recommend which one of the factors to start with, but in their descriptions commence with *initial situation of the learner* and continue with *frameworks* and so on. Similarly, commentary about the application of the framework for this case example will follow the same steps.

Initial situation of the learner

A review of the *initial situation of learners* includes acknowledgement of their background and skills, experience, motivation, and if students see the benefit and have ownership of a particular course. Hiim and Hippe (1998) emphasise the importance of responding to the learner at their own level of experience. These considerations resulted in production of an electronic course booklet which students could access prior to the post-operative simulation activity.

Frameworks

Frameworks include all the conditions connected to the course design such as faculty background, competence and experience (Hiim & Hippe, 1998). In this respect, the faculty involved in the course have a background in nursing, education and facilitation of learning in academic and clinical settings. To ensure that the course has relevance to clinical practice, practicing nurses have reviewed and ratified the simulation scenarios. Attention to these types of frameworks provides a solid foundation for meaningful learning experiences.

Goals

The goals for the post-operative nursing course were to: a) be able to attend patients` reactions and the need for nursing care following surgical treatment, b) understand the most widely used therapies, with emphasis on surgical intervention and c) attend, observe, document and report signs and symptoms post-operatively that are important for patient safety and that can prevent inquiry. In addition, the learning objectives of the simulation scenario included *communication and working in teams*.

Content and material

The *content* refers to the theoretical components and intent of the course, both in subject matter and materials. In developing the 'what' aspect of the course, the following main topics were made explicit: post-operative observations and interventions, complications, pain, nausea, nursing skills and outpatient surgery. The course is structured in three steps comprising theory, skills proficiency and team-based simulation. In the first step, lectures on pre-, peri- and post-operative nursing are conducted. In the second step, the skills proficiency focuses on individual learning (with 1 facilitator overseeing 10 students), specifically on for example wound care and removal of sutures. The last step is the team-based simulation (6 students) where the scenario is based on a de-identified but real patient case to ensure clinical relevance.

The scenario addressed post-operative care of a 39-year old female patient, who has undergone a total hysterectomy and experienced a fall in blood pressure relating to hypovolaemia. When the scenario starts, the patient (manikin) has just arrived at the gynaecology unit and complains of pain and nausea. The patient has an abdominal incision covered by a wound dressing. She received one and a half litres of intravenous fluid during the operation with an estimated blood loss during surgery of half a litre. The patient was in the recovery unit for two and a half hours before admission to the gynaecology unit and had a urinary catheter insitu with approximately 200 mL in the urine collection bag. She received pain relief immediately prior to transfer from the recovery unit but did not have a patient controlled analgesia (PCA) regime in place because there was no pump available at the time.

Working processes and methods

In recognition of the benefits of SBL, pedagogical methods were chosen that focused on students as active participants in the learning processes. The methods included SBL in the skills proficiency and team-based simulation steps (described previously) where the latter comprised briefing, simulation scenario and debriefing (Husebø, 2012). Adequate staff training and understanding of how to facilitate these steps was ensured prior to delivering the learning activities.

Assessment

It was essential to determine what was to be assessed, how to assess it and the rationale for the assessment choices (Hiim & Hippe, 1998). Evaluation can be seen as having two interrelated functions, i.e. formative and summative evaluation. The objective of formative

assessment is to monitor student learning to provide ongoing feedback that can help students identify their strengths and weaknesses and target areas that need work; and help faculty recognize where students are struggling so that problems can be addressed immediately (Mahara, 1998). With this in mind, during the skill training and simulation scenario, faculty provide ongoing feedback to support achievement of students' learning objectives. Reflection on and about performance is a central part of the training sessions and students should be encouraged to provide feedback of their SBL experiences (Husebø, O'Regan, & Nestel, 2015).

The students undertook summative assessment in the simulation laboratory before entering their surgical clinical practice. The goal of summative assessment is to evaluate student learning at the end of an instructional unit by comparing it against some standard or benchmark. To evaluate performance of nursing skills, the Model of Practical Skill Performance by Bjørk (1999), which consists of 1) substance and sequence, 2) accuracy, 3) fluency, 4) integration and 5) caring component was applied to the assessment criteria.

The *didactic model of relation* is a structured, easy-to-follow didactic model, which appears to be applicable in most simulation-based courses in nursing education. The model emphasizes several critical components for learning with the intent of optimizing student performance during clinical practice.

Case study 3: Collaboration for Practice: a hearing voices simulation workshop for Australian nursing students

Mental health is recognised as an integral component of a person's overall health (World Health Organisation, 2015). However, the concept and experiences of mental illness can be confronting for nursing students. One approach to prepare students for collaborative practice with healthcare consumers is to engage consumers of mental health services - those with lived experience of mental illness and mental health services and who are experts by experience – as curriculum consultants and as academics. The reported benefits of this approach include: increased awareness of recovery from mental illness, reduction in stigma and positively influencing attitudes (Byrne, Platania-Phung, Happell, Harris, & Bradshaw, 2015).

Increasing nursing students' understanding of voice-hearing can also be achieved by including consumers' lived experiences in learning and teaching approaches. Voices that are distressing or difficult to cope with may be experienced by some consumers of mental health services. To prepare students for practice, a hearing voices simulation (HVS), developed by Deegan (2006), an academic and consumer with lived experience, has been used in a number

of nursing programs. The benefits of the HVS include awareness of voice-hearing experiences (Hamilton Wilson et al., 2009), decreased negative attitudes about people who have schizophrenia (Sideras, McKenzie, Noone, Dieckmann, & Allen, 2015) empathy for those who hear voices (Orr, Kellehear, Armari, Pearson, & Holmers, 2013).

Collaboration and Development of the Hearing Voices Simulation Workshop

The HVS workshop developed by xx et al (year) was initially implemented at the University of xx for 80 final year nursing students undertaking an elective subject in mental health nursing. It is a unique collaboration between mental health nursing academics and consumer consultants who were trained in the use of the HVS by Patricia Deegan. Mp3 players were purchased for program delivery to students, and the simulated voices audio-recording was copied onto the mp3s by the consumer consultants.

To complement the HVS, the consumer consultants developed a 50-minute presentation on voice-hearing experiences and coping strategies, and an overview of the aims of the HVS workshop. This presentation was A-V recorded for students to view prior to the HVS. Evaluation of this HVS workshop revealed it had increased students' awareness of voice-hearing experiences (authors, year). Consequently, approval and funding was forthcoming from management to embed the HVS workshop in the core, final year mental health nursing subject for approximately 600 nursing students.

Implementing the Hearing Voices Simulation Workshop in a Large Core Subject

The workshop was conducted during one week in the scheduled tutorials in the final year mental health nursing subject. There were approximately twenty tutorials to manage and staffing for each tutorial was increased to two academics, who were also mental health nurses. Consumer consultant-led training in the use of the HVS was organised for academic staff prior to the student workshops.

In the tutorial prior to the HVS, students viewed the A-V recording on consumers' experiences, discussed the issues raised, and the academics addressed students' questions and concerns. In the following week's tutorials, the HVS workshop was conducted. The mp3s were distributed and the students were instructed on the use of the equipment. To create a life-like experience, students were asked to: use earpieces and set the volume so that the voices were intrusive; suspend their disbelief and imagine that they were actually hearing voices; resist the urge to discuss their voices with each other during the simulation; and listen to the voices until they finished. The students were instructed to seek the assistance of one of the two academic staff members if they felt distressed during the simulation

The students listened to the simulation for 45 minutes whilst completing everyday activities in and outside the tutorial room. The recordings comprised sounds and voices, including derogatory comments. Initially all students completed a reading comprehension exercise in the tutorial room, then the group was divided into two, to carry out the remaining activities such as: interacting with others at a café on the campus, asking for information from the library or student centre; phoning a friend who was not aware that they were participating in the HVS; and participating in a discussion group in the tutorial room.

On completion of the simulation, all students returned to the tutorial room and the two academic staff facilitated a 40-minute debriefing supportive of the students' experiences of the simulation. Each student had an opportunity to reflect on the simulation, with particular focus on how they felt and reacted during the range of activities. Discussions then focused on how the experience could inform their future nursing practice with consumers who hear voices, particularly the communication strategies that they might use.

Kolb's Experiential Learning Theory and the Hearing Voices Simulation

Kolb's (1984) theory of *Experiential Learning* (EL) underpins the student learning that takes place during the HVS workshop. Learning by experience is central to Kolb's (1984) theory, and the key components of the HVS workshop are consumers' experiences of voice-hearing and student learning through the experience of a hearing voices simulation. The cycle of learning described by Kolb (1984) includes four stages: a concrete experience; reflective observation; conceptualisation; and active experimentation. The stages as applied to the HVS workshop are summarised below:

i. a concrete experience, which comprises the consumer-led presentation on voice-hearing experiences followed by engaging in the hearing voices simulation whilst undertaking everyday activities;
ii. reflective observation, which occurs during the large group debrief whereby the students review their experiences of the simulation and consider how they were affected emotionally, physically, cognitively and behaviourally.;
iii. conceptualisation whereby students analyse the reflective experience and form conclusions by considering what new ideas were learnt, and consider what they might do differently when interacting with consumers who hear voices;
iv. active experimentation whereby the students apply their learning to practice during 80 hours of subsequent facilitated mental health nursing clinical placement.

The HVS workshop provided students with the opportunity to develop knowledge about voice-hearing experiences and how it affects those who hear voices, enabling them to further develop the skills of therapeutic responding, necessary for graduate nursing practice.

Evaluation and Impact on Learners

The HVS workshop embedded as a learning activity within a core mental health nursing subject, was evaluated by the current cohort of students. This voluntary and anonymous university-based evaluation was completed by 40% of students enrolled in the subject. Students identified that overall the simulation increased their understanding of voice-hearing experiences, captured how it felt to hear voices, offered insight they had not previously acquired and encouraged them to talk with consumers about their voice-hearing experiences during clinical placements.

Case study 4: Trauma simulations - discerning important elements of practice and interrogating pedgagogies

For several years, students undertaking a critical care elective subject towards the end of their degree program, have been offered a simulation experience focussed on assessing and managing a trauma patient. The intent of the specific scenario was to combine all elements of skills practice, and clinical experiences of students who had undertaken the practicum, into a holistic rehearsal of caring for a trauma patient. Student numbers across five tutorial classes ranged from 20 to 25, comprising a total of approximately 125 students.

Simulation preparation and format

To orient the students to trauma management, a lecture followed by discussions of an in-class case study which focussed on a patient in a car crash occurred the week prior. The subsequent simulation scenario connected to the preparatory work and featured a 30 year old male who was riding the motor cycle (featured in the case study) which crashed into the car. Students were provided with preliminary patient information: burn injuries to the right side, sternal bruising, lacerations and injuries to the left and right side of the body, helmet insitu, and that he was found 100 metres from the motor bike. After treatment at the scene, the motor cycle patient was transferred and admitted to an emergency department where the simulation commenced. Up to eight students could participate in 'active' roles (see Table 1) while the remaining 18 or so were asked to observe the simulation. The practicalities of delivering the simulation resulted in the observer students being in the same room, separated visually by partitions. To enable observation of the simulation, live video feed (without audio) was set up.

The simulation commenced with the triage nurse (student) providing handover to a team of three registered nurses (RNs) [students], one in a team leader (TL) role. Students then performed a secondary patient assessment and proceeded to provide preliminary care. An academic took on the role of the medical officer (MO) and determined when to enter the scenario based on students' progression in the simulation. The intent was to allow students to advance unaided through a head-to-toe but focussed assessment, influenced by the 'patient's' vocal responses (another student – in the control room). In addition, the primary RN had to work with the TL and other RNs to manage the entire situation including prioritising and delegating tasks, gaining further information to assist with patient management whilst also engaging and communicating with the team, patient and relatives.

As the scenario progressed, the patient reacted to medications, deteriorated and required advanced life support measures including endotracheal intubation, the latter performed by the MO (academic).

After approximately 15 minutes, the scenario ended, students 'de-roled' and a 25 – 30 minute facilitated debriefing began using open-ended questions to trigger reflection about practice, communication and leadership. Another phase of simulation followed, with other students taking on roles to care for the same patient after transfer to the intensive care unit (ICU). Similar issues with patient deterioration unfolded; students had to again prioritise patient care, whilst working as a team, responding to the 'patient' and interacting with the relatives.

This scenario was offered (and refined) over a number of years and students reported they felt engaged in the learning, were able to 'walk in the shoes' of the nurse or relative and could appreciate the time critical nature in recognising and responding to a patient who was deteriorating (author, year).

Collaboration with other disciplines for greater insights about pedagogy

In 2013, I invited four colleagues from the Faculty of Education to view these simulations to provide additional perspectives about the pedagogical approaches in use. These colleagues provided different and broader viewpoints about what and how students might be learning in simulation, and the applicability for practice. At this time, the pedagogy of simulation was an emerging area of interest. The opinions from experts in other disciplines both corroborated and tested assumptions about student learning in simulation. A simple yet critical first question put to the researcher group was "What is being simulated?" (authors, year). From this platform, other problematics arose which elicited rich discussion and thought about what was occurring and for whom in the simulations. Particular focus was directed to two

elements: the large and culturally diverse student cohorts; and the experience for those observing simulations.

Initial seed funding through Education enabled some of these questions to be interrogated through observational research methods. During simulations in the following year, the four research colleagues, positioned at different viewpoints in the simulation lab, described how students in their various roles engaged in the activities. A number of theoretical frameworks to account for student learning were raised during subsequent discussions and analysis of the research data.

To start, authors (year) advocated that simulation enabled learners to engage in socio-material (Schatzki, 2012) as well as socio-cultural performances (Gherardi & Perrotta, 2014). For example, students initially considered the manikin as a *technical* or plastic person, prodding the arm to determine how real it felt. As the scenario unfolded, interactions with the manikin became *clinically* based as in giving medications and assessing pupil responses, to finally taking on a *human* patient body as students demonstrated therapeutic touch while offering empathic responses (authors, year). Such examples illustrate how simulation can trigger emotional engagement in the learning as participants interact with each other and with materials or environmental artifacts. Further, as the simulation unfolded and students become immersed in the scenario, the manikin moved from being a plastic person in the bed to a patient which students interacted with in meaningful ways. Vocal responses from the manikin were key to this relationship building process. Without voice, the plastic body may remain just that – rather than being incorporated into the doings and sayings of (simulated) practice.

Further discussions amongst the research group presented the notion that simulation, through embodied performances, can help novice nurses adapt and respond to the changing nature and demands of work (within the scenario), in effect to become agile learners – to seek out opportunities to learn and make judgements about their learning (R et al. anonymised for blind review). This in turn may enable agile learners to become agile practitioners upon graduation, engaging in socially established and recognised actions, sayings and doings (R et al.).

Areas for further investigation

One further area of interest for this research group relates to those who observe simulations. As noted earlier, due to large student cohorts and the pragmatics of providing simulations within existing resources, students may be in the observer role for a substantial part of the

time. While the learning potential in observing simulations is acknowledged (O'Regan, Watterson, & Nestel, in press), many are now focusing on ways to maximise engagement for these participants so they become agile observers may become more attuned to the professional roles and responsibilities of the Registered Nurse. A critical component in assisting students to make sense of simulation events for clinical practice is linking the connections during the debriefing. The expertise of the debriefer and the debriefing approach are important in this regard as students highly rated these components of simulation in the context of making clinical judgements about patient care (authors, year).

Overall discussion

The rapid uptake of simulation in the preparation of entry level practitioners is testament to the powerful impact of this learner-centred approach to understanding practice. The journey of becoming a healthcare practitioner is amplified after graduation as nurses begin to fully contextualise their course experiences with episodes of patient care. The transformation from novice to advanced beginner (Benner, 1984) requires clinical experiences that change the student's capacity to act in complex situations. The aims are to shift the typical predominant focus on skill formation towards noticing the salient features of situations and responding and relating to patients and each other in meaningful ways. Students are required to learn skills of perception and action and form what Merleau-Ponty (1969) called a style of comportment in which they learn to adjust to the dynamics and possibilities of a particular situation. The actions and responsibilities of being a nurse or a doctor form a habitus (Bourdieu, 1990) of skills, expectations, perceptual acuity and nursing actions, which, over time, create the foundation for skilled, embodied nursing and medical practice (Merleau-Ponty, 1969).

Simulation presents an opportunity for students to begin to learn and develop a nursing habitus or medical habitus, enabling them to rehearse the 'skilled know-how' required for competent practice. The opportunity to experience and act in a range of complex clinical situations through simulation enables healthcare students to rehearse and refine the skills and holistic practices of their discipline. Simulation also facilitates the development of an understanding of a clinical situation requiring specific responses and professional interactions whilst fostering the growth of professional identity.

Commonalities across the four case studies include the collaborative processes used to develop and ratify scenarios through the engagement of educators with clinicians and

consumers; and basing case studies on actual patient experiences. Simulation offers specific opportunities for participants to develop or refine therapeutic and other communication skills regardless of the scenario context and content. Experiential learning and learning by experience underpins each of the case studies, as students are afforded opportunities to become attuned to their professional roles through activities which closely align with practice. Understanding what may be expected of them in the clinical setting and anticipating what may happen next in patient 'situations' is highly valued by students and novice nurses (Kelly et al., 2014). Ensuring simulation scenarios are informed by relevant pedagogical frameworks ensures a solid foundation for learning experiences which have meaning and high impact on subsequent practice and patient care.

Conclusion

Irrespective of the context or country, the case studies described in this paper reflect the commitment of each author to enabling co-production of knowledge with students through simulation by engaging with peers and consumers, and basing scenarios on authentic cases. The importance of embedding relevant pedagogical frameworks into the planned simulation experience and articulating with preparatory materials offers students opportunity to engage in more meaningful ways in learning about their own and others practice.

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Clinical Resources

The Australian Society for Simulation in Healthcare
http://www.simulationaustralasia.com/divisions/about-assh

The Society in Europe for Simulation Applied to Medicine http://www.sesam-web.org/

The Association for Simulated Practice in Healthcare http://www.aspih.org.uk/

The Society for Simulation in Healthcare http://www.ssih.org/

Pat Deegan – Hearing voices curricula; Common Ground (recovery from mental health)
https://www.patdeegan.com/

Keepwell Ltd – Arana Pearson, Director and Principal Trainer – Hearing Voices Program,
http://www.zoominfo.com/p/Arana-Pearson/257833992

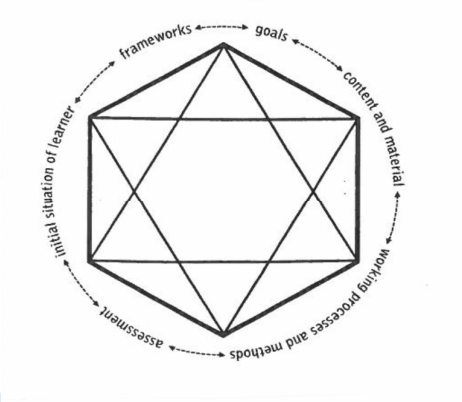

Figure 1. The didactic model of relation, modified after Hiim and Hippe (1998, p. 99). Reproduced with permission.

Table 1: Roles and scope of actions in the critical care trauma simulation

Participants	Actions and scope of role
MO (academic)	Guides the sim and unfolding events giving directions to rest of the team Students commence the simulation by themselves. You gauge when to enter the scenario
Patient voice Student 1 in control room	Patient responses / vocals; Responds to questions from MO and nurses. E.g. *Can't remember much about the crash*. Lucid but in pain (score 8/10). Sore everywhere. Feels better after morphine given. Groans & anxious when they roll you onto the side to check your back 1 minute after administration of the antibiotic, you start to "*feel funny*"; "*it's hard to breathe*". Stops talking when appropriate
Student 2 in control room	Observes and assists the sim technician (engineering student) with scenario progression/ clinical input to parameter changes etc. Answers phone if required - respond within context of conversation eg: *"blood results not available yet";* *"Potassium is … other results pending"* *"blood cross match not completed yet"*
Triage nurse	Gives handover to the team then leaves (no more involvement)
RN1	Assigned as primary care giver for Mr Lucas Commence secondary survey Can delegate tasks and ask for help from other team members, TL and MO
RN2	Assists RN1 and MO with delegated tasks. Administers IV medications (morphine and antibiotic BOLUS IV PUSH) into left peripheral cannula; completes documentation as required
Team Leader (TL)	Deals with any issues of relatives, other patients Available for advice and support to RNs 1-2 and assists with any delegated tasks including liaison with other hospital departments; completes documentation as required
Wife / Sister or daughter (up to 2 roles)	Arrive 10 minutes into the sim. Wife **very, very** upset about the situation, sister trying to calm her down & make sense of what's happened. Provide information about the patient's health & social background to staff. (can ad lib with information but **stay in role & don't overact**)
Observers (all other students)	Watch the AV of the sim. Make notes about the team's performance and patient care. Would you do similar or different things?