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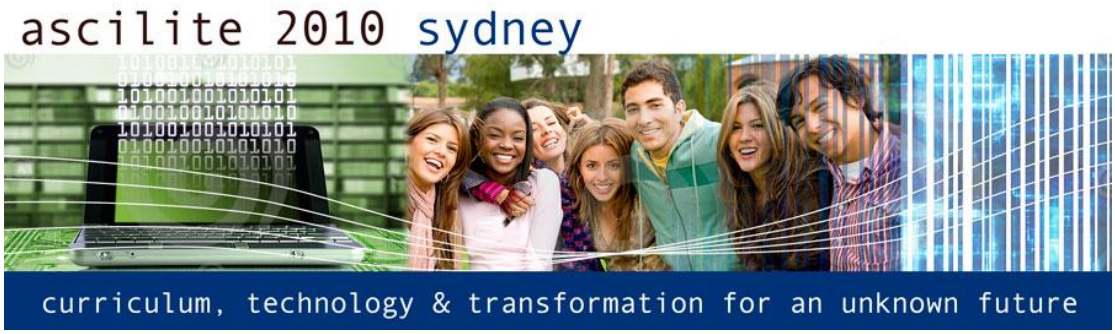

Media supported problem-based learning and role-play in clinical nurse education

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The introduction of a problem-based learning role-play into an undergraduate nursing degree has motivated and inspired students to take an active approach to learning. Practising the role of a registered nurse and working in a simulated patient environment were seen as valid preparation for future practice. Collaborating with peers and tutors provided students with confidence to solve authentic patient problems and motivated them to accept responsibility for preparation and active participation during lab sessions. Inclusion of digital recordings of expert demonstrations of clinical skills significantly enhanced students' skills development. Students' future colleagues working in health care, noted their preparedness, high level of confidence and ability to transfer theory and skills to the real world of nursing.

Keywords: problem based learning, undergraduate nursing education, clinical skills

Background

Prior to 2007, teaching methods utilised in the clinical laboratories within the Bachelor of Nursing (BN) at Southern Cross University (SCU) tended to be didactic. Typically, technical skills were demonstrated and students responded with a return demonstration unrelated to any authentic case study or context of practice. Students' contribution was task oriented, prior preparation minimal, and they often took little or no responsibility for their learning. During 2007 an authentic and multifaceted teaching and learning strategy was introduced within clinical nursing laboratories for second year BN undergraduate students. The introduction of this strategy utilising problem based learning (PBL), group work, role-play and tutor facilitation has dramatically altered students' perceptions of their abilities to work together, solve problems and be self directive. In 2008 the development of a demonstration DVD provided an integrated approach to clinical teaching. This innovation is referred to in this paper as the PBL group role-play.

While PBL is commonly identified as an approach at the whole-of-course level (Biggs & Tang, 2007) our initiative illustrates implementation of a PBL approach as key to developing the clinical skills in terms of the practice-based aspect of an undergraduate nursing program. The remaining aspects – principles, theories and discourses have continued to date, to be taught using established flexible learning approaches.

The innovation reported here is the consolidation of elements which in themselves may not be 'innovations'. Rather, as a result of an action research approach to improving practice, the integration of elements has occurred over time within the clinical teaching context. This paper considers the impact of individual component structures, namely the authentic PBL scenarios, role-plays, use of

supplementary media resources and tutor facilitation. In addition, it assesses the overall effectiveness of the integrated PBL group role-play innovation through both the student and staff viewpoints. It reports students' perceptions about the innovation, expectations as to the best method of learning psychomotor skills and their attitudes to small group role-plays. Future improvements are foreshadowed.

It is acknowledged that findings and discussion arising from this data collection and analysis are limited to four semesters over which changes were planned, implemented, observed and evaluated. The action research findings discussed in this paper have thus been derived through an iterative and reflective process that was guided by evaluation feedback from both the students and the teaching team. Results have been substantiated by the literature without as yet being also validated by further empirical research. However, given the importance of preparing students to be competent, safe and effective as registered nurse practitioners in accordance with the NSW Nurses' and Midwives' Board, the findings of this action research are presented here as a basis for further study in the higher education clinical teaching domain.

Review of the literature

Literature that informed the design, implementation and evaluation of the PBL group role-play includes theoretical foundations of PBL, authentic learning, group work in terms of its social constructivist aspects, and the novice to expert continuum of psychomotor skills acquisition in the professional discipline of nursing. The literature on action research methodology that informed the reflective cycles of pedagogical practice reported here, is not reviewed in itself since a most conventional approach was adopted.

Problem-Based Learning

When PBL is utilised as an integrated pedagogical approach, rather than a distinct method of teaching, it results in deep learning by students (Killen, 2003). Highly regarded as an example of an aligned teaching practice, PBL has the capacity to actively engage students by asking them to solve problems that relate to real practice (Biggs & Tang, 2007). The long term goals of PBL go beyond teaching foundational skills, knowledge or acquiring techniques for solving problem scenarios; rather, students are directed to explore real problems in order to learn new insights where there may be more than one correct answer (Killen, 2003). The proposed end result of the process is that students grasp the essential theoretical components and are able to make informed decisions before graduating as accredited professionals (Biggs & Tang, 2007).

Constructivism and group work

A constructivist pedagogy with students at the centre is considered to foster a deep approach to learning (Barraket, 2005; Biggs & Tang, 2007). Inherent within constructivist theory is the notion that students build or construct new knowledge by engaging in activities rather than having information transmitted to them (Biggs & Tang, 2007; Piaget, 1970). Furthermore, according to Phillips (2005) constructivism rather than instructivism should drive the design of all student centred learning environments within tertiary education.

Social constructivism is a particular theory of learning that emanates from the work of Vygostky (1978). Vygotsky's core tenet is that understanding is social in origin. This notion focuses not only on the centrality of students' active construction of knowledge but also on the role of social interaction as an extension of understanding. The interplay of language and culture play an important part in the development of expert knowledge and professional identity. Through dialogue and discussion learners can participate in the development of a shared understanding and thus co-construct their increasing knowledge base.

Where group work is required, the group composition, including individual skills and experiences of group work greatly influence success (Livingstone & Lynch, 2000). Students' attitudes and beliefs prior to the beginning of semester, or their ability to change their point of view once the 'power of collaboration' becomes evident (Fullan & Hargreaves in Chapman, 2006, p. 299) are equally critical to success.

Authentic learning

Authentic learning takes place through a process of performance-based activities by students in contexts that: (1) have real-world relevance, (2) are ill-defined, (3) are complex and extended, (4) allow for multiple perspectives, (5) provide opportunity to collaborate, (6) provide opportunity to reflect, (7) allow for integrated, applied and interdisciplinary outcomes, (8) integrate activities with assessment, (9) result in whole product rather than being a sub-part of something larger, and (10) allow for competing solutions (Herrington, Oliver, & Reeves, 2003). Reference to the clinical aspects of nurse education can be found throughout the literature, and recent articles (Feingold, Calaluce, & Kallen, 2004; Nehring, Ellis, & Lashley, 2001; O'Connor, 2007; Reilly & Spratt, 2007; Wellard, Woolf, & Gleeson, 2007) describe the extent to which authentic and practice-based learning designs are now commonplace in nurse education.

Acquisition and transference of psychomotor skills to authentic practice

Methods for teaching psychomotor skills to nursing students can include: PBL scenarios, ranging in level of complexity (Alavi, 2005, 1995); case based studies and; use of simulation technology (Feingold, et al., 2004; Reilly & Spratt, 2007). Using simulation technology with lifelike mannequins to promote learning is thought to be effective (Nehring, et al., 2001), but at the time, didactic methods – demonstration and return demonstration of technical skills provided by clinical experts (rather than academics) remained the established norm (Wellard, et al., 2007).

However, acquisition of clinically relevant psychomotor skills by student nurses is insufficient without consideration of patient characteristics, context and knowledge of principles, guidelines or best available evidence to implement the procedure. Furthermore, skills taught in labs need to be utilised by nursing students when caring for real patients during clinical placements (practicum) within the health care system. Competition for clinical placements for undergraduate health professionals is fierce. The number of days provided by universities for clinical practicum has been decreasing over recent years and there is currently a shortage of supervisory registered nurses (RNs) for students at all facilities, especially in rural and remote regions (Barnett, et al., 2008). Possibly, as a result of these and other environmental pressures there is an expectation that novice learners must be well prepared, safe and competent prior to commencing practicum.

In order to meet the changing demands of the workplace and student preparedness for practicum, a change in teaching and learning strategies was introduced into the nursing labs at SCU in 2007. This change was seen as a necessary shift of focus from technical skill acquisition to an approach that emphasises applied theoretical principles combined with opportunities to practice in a safe environment (Wellard, et al., 2007). Simulation using high fidelity mannequins was not an option at the time, thus the teaching team designed an innovation that focused on teamwork and interpersonal communication through role-play, ultimately supported by digital media resources within an appropriate pedagogical framework.

Methodology and data collection

The methodology employed for this integrated innovation was that of action research with its steps of Plan, Act, Observe, and Reflect (Carr & Kemmis, 1983; Dick, 2002; Kember & Kelly, 1993). This cycle was repeated for four semesters and is described in the following sections.

Data collection was ongoing, with each step informing design details for the next delivery version. Through the two year period of innovation, the Clinical Teaching Team was engaged in a process of reflective practice, not only of changes to their own teaching approach but also of the students' responses. As suggested by Hounsell (2003) self reflection alone is rarely sufficient to reveal insights into teaching and learning practices. A process of cyclic reflection, consistent with Ashwin and Trigwell's (2004) model for scholarship of teaching was thus conducted by the Clinical Teaching Team over four semesters. Data informing how the innovation was to be further developed was collected using several inputs that included reflections upon teaching and learning, discipline based literature, Unit Feedback Questionnaires at the end of each semester, student evaluations of the tutors, teaching team weekly meetings, and collegial peer review of a lab session by an educational advisor from the Teaching and Learning Centre.

Planning

The plan in 2007 was to embed PBL group role-play in two subjects i.e. units – Clinical Nursing III (CNIII) in semester one and, with a few modifications, in Clinical Nursing IV (CNIV) in semester two. Assessment focussed on students' demonstration of knowledge, psychomotor nursing skills, communication and documentation within specific practice domains. Both units had a compulsory end of semester clinical practicum. Our design of PBL group role-play took account of the characteristics of authentic learning as defined by Herrington et al. (2003) and all ten characteristics are evident in our innovation.

The Clinical Teaching Team needed to support the cohort of 210 students spread across SCU's southern campuses at Lismore, Coffs Harbour and Port Macquarie. The team, all experienced RNs, was comprised of two permanent academics, six sessional tutors and two technical officers.

The known challenges the Clinical Teaching Team originally faced were that: (1) PBL was being introduced in the second year of the BN program, so it was new to both students and the teaching team, and (2) students expected that psychomotor skills would be demonstrated by an RN as in prior 1st year units. To address these challenges at the outset, lab technicians developed a simulated patient environment. The unit assessor developed an instructive weekly guide and applied a formal structure to lab sessions.

Simulation set-up, lab session and resource development

Each week technical officers dressed the mannequins; ensured props were in situ (e.g. oxygen masks, intravenous lines etc); and prepared the patient charts, pathology reports, X-rays and supporting documentation. A typical lab session would include – a short introduction by the tutor, enactment of the role-play by students and a debriefing or feedback section. Tutors were instructed to act as facilitators by encouraging groups to: work together to solve the problems; attempt to link the theory delivered in lectures to their nursing roles; and utilise pre-reading material or texts to solve the patient problems. Tutors provided formative assessments of the students' performance during a debriefing session.

A comprehensive instructional lab manual was developed to orient students to the nature and purpose of PBL, and detail methods to achieve effective group work namely, writing a group contract and defining a conflict resolution process. It describes in full the weekly lab session activities for each member of the team. Further exposure to common workplace documents and expertise is provided through inclusion of recommended pre-readings, complex scenarios not found in textbook case studies, medical terminology, nursing, medical and pathology reports. Students are required to engage with this resource through answering questions on the scenario and thus augment the integration of theory and lab activities.

PBL group role-play

The authentic scenarios developed for the innovation were based on real patients' episodes within an acute care facility and provided sufficient complex problems for the students to solve. The scenarios were comprehensive in that they provided information relating to the context, the patient's medical/surgical history, presenting symptoms, pathology reports, clinical observations and any other necessary data.

Group role-play was considered beneficial to the learning process as it encourages students towards self-direction and because it resembles the professional RN environment where teamwork is the norm (Garling, 2008). During the first lab session, students were broken into small groups of 4 or 5 then instructed to allocate each member to a role, either leader, RN, patient or relative for all lab sessions during the semester. Enacting within a role-play afforded students the opportunity to practise as an RN without fear of failure, supported by their peers' contributions within an authentic setting. The RN was required to educate the patient, perform a technical skill or assessment and document their actions. At any time during the role-play students could interrupt the performance to ask their group members for advice or direction. Activity and practice within group settings are thus at the heart of the PBL group role-play design.

Results from cycle to cycle

Four action research cycles occurred during the period reported in this paper. In this time, elements of the PBL group role-play initiative impacted on students' learning in various ways. Each of these elements was therefore reviewed and the insights gained were used to inform adjustments that were undertaken over time. The most notable of these were: the need to develop additional resources to support learning of psychomotor skills; dissatisfaction with group structure; need for a clear definition of roles; additional tutor support; and increased time for debriefing sessions. Details that follow report on the outcomes from each element, while the Additional Findings section provides a more holistic overview of outcomes.

Lab manual and supplementary readings

The lab manual was initially seen as a useful resource, but a bit 'hard' (Student, 2007 semester 1) as questions were too numerous and pre-readings difficult to locate. After reducing the number of questions and providing direct links to readings online, the lab manual was more fully used by students.

Students who did manage to locate all the pre-readings in the library databases developed their information literacy skills and gained valuable insights into the patients' problems and clinical needs compared to those who made little or no effort to access these supplementary resources. Students found the pre-readings 'fantastic' and 'helpful' (Student, 2008 semester 1; Student, 2008 semester 2) as preparation for the group work and written assignments. Such development of critical reading skills encourages deep learning and has the potential to lay the foundation for evidence-based approaches to future professional practice. Sourced from peer reviewed journals, practice guidelines, clinical based pathways, health department policies and websites, the readings provided exemplars for critical approaches to evidence based nursing practice:

> I really liked the way we are directed to health websites and resource references that apply to work place practices…good for when we are working. This is a really good unit to bring theory and practice together (Student, 2008 semester1).

Preparatory reading thus guides students through the skills to be demonstrated in role play, and helps them to elucidate a rationale for their assessments or interventions. During debriefing students can evaluate the relevance of readings, and critically reflect on links between theory and practice (Parker & Myrick 2010).

Authentic scenarios and role-plays to prepare for practice

During engagement with the PBL scenarios, students valued the RN role above all other roles: 'In my opinion the only person who may have learned anything… is the person who was role-playing as the RN for the week' (Student, 2007 semester 1). Comments such as these led the Clinical Teaching Team to add a Student RN role to the scenario. A collegial peer review of a lab session by an educational advisor in semester 2 2007 highlighted the continued lack of clarity in role descriptors, especially for the leaders and Student RN (Dunn, 2007). The student RN role was eventually supplemented by a second RN role, thus allowing members to work together more effectively. In semester 2, 2008 an observer role was introduced to provide more extensive opportunities to critique performances during debriefing sessions.

In many instances it was difficult for students to see the positive benefit of their PBL activities until they had attended practicum and were enrolled in their second clinical unit for the year:

> The theory was… reinforced in… labs, the setting of the scenario is great because it allows you… to put yourself in that situation in your mind and to critically think about issues or potential issues or why that person is presenting as they are… in a safe environment we can't actually hurt anyone, this is real valuable preparation for us [for practicum] (Student, 2007).

After the first iteration, comments forwarded to the Clinical Placements Director indicated that the PBL group role-play was positively affecting students' performance during practicum. At this time, Clinical Teachers praised the preparedness and skill level of semester1 2007 students noting:

> … there has been a definite shift in the caliber of students. They were well prepared for practicum and demonstrated more advanced skills than other 2nd year groups that we have facilitated (unsolicited email from Clinical Placements Director, 22/08/07).

After semester 1 2008, students were considered to be 'a credit to SCU', 'very professional and mature for 2nd year students', having an 'increased level of confidence in their clinical skills' and showing 'great ability to link theory with practice' (Clinical Placements Director 2008 semester 2).

Group work

Students in these units worked in groups during lab sessions and for a related written assignment. They commented 'group work in labs is a great idea, group assessment on the other hand totally sucks' (Student, 2007 semester 1). A diverse mix of group members (both those with and without a nursing background) and poor contributions from some, were among the more common concerns. Group work was thus redesigned in accordance with student feedback and in alignment with a critique of the literature. The changes were to limit group size to four, allowing students to self-select group members and the inclusion of self and peer assessment as an evaluation tool of the group process (D'Souza & Wood, 2003; Griffiths, 2003; Kriflik & Mullan, 2007; Livingstone & Lynch, 2000). Overall key findings were that group work typified real world environments where students worked together to complete tasks. Both positive and negative experiences of group work were seen as beneficial, and conflict when handled well was thus viewed as a learning process. Opportunities to debrief must be factored into this learning strategy, hence the decision to further develop and implement self and peer assessment in this context. Currently this assessment forms a percentage of the students' overall mark. 5% is derived from the student and 15% from the tutor assessment.

In semester 1 2007 the Clinical Teaching Team was impressed by students' engagement, preparation and interaction during lab sessions. An experienced tutor, having taught in clinical labs for many years, noted:

> By and large, my impression is that group work has resulted in students being more knowledgeable, pro-active in communication, better able to problem solve and think critically than those in previous years (email from CNIII tutor, 17/06/07)

It was apparent that some student groups were adapting well to the changes in teaching approach as evidenced by their acceptance of responsibility and accountability for learning. They gained confidence in their problem solving through utilising their skills in collaboration and information literacy with less dependence on their tutor. These key findings support Ericsson (2000 in Cormier, Pickett-Hauber, & Whyte, 2010) in that the development of expert cognitive processes became evident through students' engagement with the problems presented. Parker and Myrick (2010) also highlight the importance of critical discourse with peers during debriefing. Students in our case worked towards gaining expertise in identifying a patients' problem and making clinical decisions. Right or wrong, their actions were critiqued by group members, or the observer and reviewed in the debrief to refine critical thinking and actions:

> … group members and I debated… the best nursing practice. We found ourselves consulting the literature for answers, which we had never done before (Student, 2008 semester 1).
>
> There were problems pretty much every week and we solved them independently 90% of the time, with guidance from our tutor on other occasions, which really assisted in developing critical skills (Student, 2008 semester 1).

In order to be a productive group member, each student needed to comply with a group contract, come prepared for the role, and share their ideas and performances in front of each other to be critiqued. Unsolicited emails citing a unit's praise are not a common occurrence; however, one student noted his individual growth and benefits of learning within this collaborative environment:

> I was fortunate to be in a group with 3 other very motivated students. Having the labs set up with a holistic scenario every week in which all members had their responsibilities is

> a fantastic idea. It gave everyone a sense of not wanting to let others in the group down. It made the content… engaging by applying it to a scenario... I think that a lot of people in this course are lazy and won't rely on their own drive to complete the work, and the thing is, when they don't do the work, they come undone in the scenario and look silly in front of their group members for not completing the pre-readings. I was skeptical at first however I am astounded at how much my group has learned from this whole thing (email 15/05/2008).

An important aspect of professional nursing practice is the ability to function as an effective member of a team. Asking students to work in groups was very effective for those committed to the needs of the whole group and not just themselves, and students' personal ambition to succeed accounted in part for the differences in approach between various groups (Lea, Stephenson, & Troy, 2003). Our students mentioned not wanting to disappoint fellow students as motivation to perform well. Poor communication, fear of exposing their real feelings or offending people were often their main concerns and conflicts arose in some groups therefore the best ways of managing the situation had to be found. Such conflicts and difficulties encountered through group work can resemble authentic work situations. Therefore it is important to give students the opportunity to reflect upon their experiences (Livingstone & Lynch, 2000). Occasionally conflicts cannot be resolved without the tutor as a moderator, who might model healthy ways of conflict resolution. As per the findings of Livingstone and Lynch (2000) students' views of effective group work were influenced by their acceptance of their role responsibilities – team leader, RN, and student RN.

Media-supported role-play and psychomotor skill development

After the first cycle of delivery, it became apparent that critiquing one's own practice and that of student peers was not enough to learn the requisite psychomotor skills. While most students were positive about the opportunity to review their peers during group role-plays, there were those who were highly critical of one aspect of this. Specifically, they struggled to cope without the visual cues provided by a tutor's demonstration of the psychomotor skills during lab time. They reported that this affected their confidence in preparing for the RN role with the specified skills. The perceived reality for some students was that 'too much time was wasted' and that 'watching others make mistakes hindered… learning rather than helping' (Student, 2007 semester 1). The development of a DVD resource was therefore undertaken in subsequent versions of the units in response to students' request for more demonstration of skills by professional staff (Student, 2007 semester 1). The video producer noted key features of the DVD developed:

> The subject matter is well suited to filming as there is no ambiguity as to what… and when it must happen. We systematically documented how to correctly perform a variety of skills in the actual time that it would take for a nurse to correctly perform [them]. The skill sets… are complicated… each component is vital to the correct execution of the procedure (Media production staff 07/08 email to Unit Assessor).

This production of an in-house professional DVD in which an RN demonstrated psychomotor skills in a mock patient setting, thus addressed students' need to see skills demonstrated by an expert. Students observed and noted the steps in the procedure to assist their performance during lab sessions and in preparation for their final exam. It provided flexible and ongoing access to a professional demonstration rather than witnessing the skills only once. Students appreciated the DVD, claiming it to be 'a very good idea', 'extremely helpful' and an 'excellent' resource (Student, 2007 semester 2). During the filming of a student group in a lab session, the media producer noticed that students referred to the DVDs and 'discussed what they had seen as they were performing the procedure… seeming well informed as to what they had to do as a result' (Media production staff email 07/08 to Unit Assessor). It is cost effective and easily modified, and its usefulness encouraged the Clinical Teaching Team to also produce a DVD for the CNIV unit. The 2008 edition of the DVD includes frames with prompt questions or statements in text, to encourage reflection in context for greater integration of theory with practice.

DVD resources were never intended to replace tutor advice or expertise, or negate alternate methods of performing the skills. The majority of students perceived these as valuable resources and suggested that scheduling times for tutors to oversee their skill development at regular intervals may further improve confidence and provide guidance on when 'they have got it right'.

Professional learning by tutors and dissemination of insights

The PBL group role-play initiative raised challenges for tutors trying to ascertain and maintain a balanced level of guidance. Students, cognisant of tutor's clinical expertise and used to seeing demonstrations or direct answers, initially struggled to work out solutions for themselves. They accused tutors of standing on the sidelines and using poor teaching practices, and noted this in their feedback. In response to these dissatisfactions the Clinical Teaching Team attended workshops on facilitating small groups for PBL. Teaching and Learning Centre colleagues also provided sessions on: 'Improving the facilitation process', 'Troubleshooting problems with small groups' and 'Improving the learning experience for students'.

The Clinical Teaching Team's effort to address this challenge, to increase the level of student support while maintaining a PBL environment in semester 2 2007 was rewarded in two ways. A marked improvement was seen in the ranking of student satisfaction with the teaching approach, 2.84 (47% response rate) in CNIII Unit Feedback, 2007 semester 1 to 3.84 (39% response rate) in the CNIV 2007 semester 2 Unit Feedback (1-5, strongly disagree to strongly agree). Reviews of all tutors in the Clinical Teaching Team by students in semester 2 2007 were also highly rated receiving 6.1 to 6.9 for teaching (7 being Excellent).

The Clinical Teaching Team's innovation and ongoing experience with PBL, group work and innovative resources have been recognised through invitations to present workshops and consultations. The 2008 Teaching and Learning Colloquium showcased the PBL group role-play innovation and its convener reflected that by 'showing the difficulties as well as successes of [the]…innovation' the Clinical Teaching Team provided guidance to other academics considering use of PBL in their own fields (email 18/06/08).

Additional findings

Having examined individual elements of the PBL group role-play innovation, this section provides further findings on the overall impact of changes on student learning. PBL group role-play has been appraised by students, Clinical Teachers and Clinical Teaching Team and is generally regarded as effective preparation for Bachelor of Nursing students who must work in an environment that is unpredictable, demanding and constantly changing. This outcome validates the authentic nature of the learning environment, however, students' responses were at times polarised about the extent of autonomy required in PBL approach.

Some students identified positive outcomes from their experience, namely – increased confidence and personal growth in leadership, negotiation, research skills, time management and collaboration. The tutor, rather than being students' only source of information and advice, was seen as one component of the learning environment, whose role it was to facilitate the process. Student peers, discovery learning and published literature were also highly regarded as sources of support. This group of students had been 'able to rise to the challenge of a more student centred approach' as described by Lea, et al. (2003, p. 331).

Provoking student centred learning in unwilling students

It has been suggested that students who choose to take an expedient approach to finishing a degree such as the BN in order to become RNs may neither understand nor value attempts to foster lifelong learning attributes such as problem solving or critical thinking (Massingham & Herrington, 2006). In some instances, a mercenary attitude (Phillips, 2005) may take precedence whereby students want value for money and expect that tutors should and must 'spoon feed' them by providing all the answers, thus negating the need to take responsibility for their own learning (Massingham & Herrington, 2006). Not surprisingly therefore, some students were vehemently opposed to the PBL approach. They reported that they felt unsupported, let down and inappropriately prepared to utilise the required psychomotor skills. 'Feeling silly', 'fear of clinical skills', 'faking it till you make it', and the perception of wasted time were some of the negative comments received. One student's comment encapsulated this theme in the online unit feedback, demanding 'show me how to do it' (Student, 2007 semester 1). Deep seated convictions by students as to the best methods for teaching nurses and insistence on learning skills from 'experts' seemed to become stumbling blocks to effective learning outcomes. Another barrier for this group of students was the sense of 'chaos' and seeming 'disorder'(Chrenka, 2001) that resulted through the use of PBL and role-playing in the lab

environment. The ensuing disequilibrium, a place from which learning is meant to originate, prohibited rather than generated new knowledge in this case (Pellicione & Albon, 2004).

Students participating in an online discussion forum in the third iteration of these units indicated that their preferred learning environment, consistent with findings of Lea et al. (2003) was neither overly prescriptive nor completely self-directed. They commented that in their opinion, PBL often fell into the latter category. Students felt that the introductory session on PBL in the first week of semester, written information in the lab manual, dialogue in web forums and tutor facilitation fell short of the desired support mechanisms, leaving them feeling highly challenged as well as threatened or frustrated (Livingstone & Lynch, 2000). It seems that Lea et al's (2003) warnings about how student views could hinder their ability to achieve the desired learning outcomes had become a reality with the introduction of this innovation in the nursing labs.

PBL as a practice component of curriculum

Some involved in this innovation have suggested that commencing a PBL approach in the second year of the BN program in a single unit has been a major factor leading to students' resistance. At the time of writing a full course review is underway for the BN and while a staged introduction to PBL for the practice-based components of the curriculum would be preferable as a whole-of-course approach, there has not yet been such a decision. Our recent experiences would suggest that guidance provided to students in the initial weeks of semester in second year, would assist in acclimatising them to a PBL approach to learning.

Reflective teaching practice for improved tutor facilitation

PBL can be severely hampered when teachers are threatened by or do not possess the ability to facilitate students' attempts to work as an effective team through the problem solving process. The temptation to provide answers can be very strong under these circumstances (Biggs & Tang, 2007; Katz, 1995). The Clinical Teaching Team strongly identified with D'Souza and Wood's (2003) comments that 'changes in teaching and learning styles are not a quick and easy matter'. In response to the difficulties experienced in semester 1 2007 it would have been so easy to focus on what the teaching team was doing wrong or blame the students, rather than to try and determine what was actually stopping students from learning (Biggs & Tang, 2007). However, the measure of a good teacher is the degree to which they 'reflect on how they might teach even better' (Biggs & Tang, 2007, p. 6). It has been the tutors' positive approach to this innovation that has been most beneficial in 'shifting the mindset' and challenging traditional expectations of teaching held by students, clinical nurses or academics (Chapman, 2006, p. 302). One tutor commented:

> I have strong memories last year of feeling like I wasn't doing my job. I wasn't sharing my knowledge as I usually did through demonstration and feedback… I feel like I've come along way since then. I'm using all that knowledge & experience whilst allowing, no – supporting – students' finding/working/learning for themselves! (email sent to Unit Assessor 06/06/ 08)

Highly positive feedback by students of their tutor's performance after semester 2 2007 supported and encouraged tutors' desires to continue with these teaching and learning methods. In addition, students in this semester had been able to see benefits of their initial struggles with PBL when attending clinical practicum in an acute health care facility – a finding which is consistent with D'Souza and Woods' (2003) views regarding the benefits of collaborative learning being long term rather than instantaneous.

Suggestions for future improvements

Several aspects of the PBL group role-play innovation can be fine tuned for future implementation. In brief they include managing students' expectations and supporting their reflective processes, ensuring a cohesive teaching team, and optimising the reuse of media resources specifically developed for this innovation.

Collating students' views on enrolment through a questionnaire that explores students' expectations and understandings of PBL and group work may be effective in diminishing the mismatch between their perceptions and reality (Kriflik & Mullan, 2007; Lea, et al., 2003). The challenge will be to

appropriately shape students' expectations without undermining the pedagogical approach within the clinical units. It is difficult to address students' responses to PBL, responsibility for learning and student centred learning environments, within one unit by an individual academic. Rather such measures require in depth discussion by all members of the department and educational advisors, informed by experiences of the teaching team.

Early identification of students at risk of feeling threatened and anxious, determining the amount and timing of tutor guidance and feedback, are issues requiring further consideration (Lea, et al., 2003). Another practical idea to promote 'bidirectional feedback' (Lea, et al., 2003) between student and tutor could be implemented by asking students at the beginning of a lab session to identify the level of their knowledge, technical ability and holistic performance on a linear measuring tool. During debriefing sessions students could discuss the degree to which the role-play, peers and tutor guidance assisted their learning in order to identify measurable achievement and further individual learning needs in the group activity. Reuse of video capture of students' performances has potential in the future. Viewing previous students' performances on DVD can be a powerful tool reinforcing the benefits of effective teamwork and active student engagement. Signed consent forms to release recordings for future viewing must be obtained.

Conclusion

The Clinical Teaching Team's introduction of a PBL group role-play has largely motivated and inspired students to adopt an active problem-solving approach to their learning. Adding digital recordings of expert demonstrations of clinical skills has further enhanced students' capabilities for skills development. There has been a shift in student attitudes and beliefs towards this changed learning environment as indicated in both formal and informal feedback. Practising the RN role and working in a simulated patient environment were considered by students to be valid preparation for future nursing practice. Actively collaborating with peers and tutors provided students with confidence to solve authentic patient problems and motivated them to accept responsibility for preparation and active participation during lab sessions. Students' future peers, i.e. Clinical Teachers working in health care facilities, praised the students noting their preparedness, high level of confidence and ability to transfer theory and skills to the real world of nursing.

The Clinical Teaching Team, though separated by distance, has been united in its reflective, action based approach and has consistently responded to identified learning needs over the four university semesters of this innovation. The introduction of PBL into only a part of the BN course and not as a whole-of-course initiative has been evaluated, and while the effectiveness of this approach can be further improved, there is also now a strategic opportunity to review a fuller integration into the undergraduate program, if so agreed.

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