PET06136

Engaging Student Teachers Through the Development and Presentation of Problem-based Scenarios

Judy Peters

Full paper for refereeing prepared for:

AARE Conference, Adelaide
November 27th – 30th 2006

Dr Judy Peters
School of Education
Division of Education, Arts and Social Sciences
University of South Australia
St Bernards Rd
Magill SA 5072
Fax: +61 8 8302 4395
Email: judith.peters@unisa.edu.au
Engaging student teachers through the development and presentation of problem-based scenarios

PET06136

Judy Peters

School of Education

University of South Australia

In 2004 a team of lecturers from the University of South Australia introduced the development and presentation of problem-based scenarios in a practicum related course undertaken by students in the final semester of the graduate entry Bachelor of Education. The intention was to provide more engaging pedagogy. Problem-based learning (PBL) has been widely used in health care education and many other professions. Recent years have seen the emergence of its use in teacher education overseas and in Australia (Mcphee, 2002). In most cases, lecturers, sometimes in partnership with industry experts, develop the problem-based scenarios that form the basis of these programs. In the course depicted in this paper, small groups of students developed the scenarios, together with the workshop processes for presenting them to their peers, implemented them and wrote reflectively about the experience. This paper analyses the scenarios and related materials, processes and reflective writing developed by five groups of students from one class. The findings suggest that student designed scenarios provide a wide range of challenging issues and learning opportunities for those who design and present them, and as well as for those who engage with them once they are designed.

Introduction

An ongoing challenge for teacher educators is to ensure that their own practice models pedagogy that engages their students. In South Australia constructivist principles underpin the South Australian Curriculum Standards and Accountability (SACSA) Framework, which will govern curriculum development and implementation in government schools for the foreseeable future (DETE, 2001). Therefore it is important that pedagogy in teacher education not only engages students but also demonstrates practice derived from constructivist theories (Richardson, 1999).

Until the end of 2005 I worked with a team of lecturers from the University of South Australia who taught the course Reflective Practice 3 in the final semester of the graduate entry Bachelor of Education. Students in this program have a first degree and complete two years of course work over eighteen months in order to qualify with a Bachelor of Education (Specialisation). They specialise in Early Childhood, Junior Primary/Primary, Secondary or Adult Education. In 2005 I coordinated the course at the Magill Campus and worked with two workshop groups (approximately 25 students in each) that comprised students from the Junior Primary/Primary Specialisation. The on-campus component consisted of an Introductory Day before the semester began, weekly two-hour workshops over the first six weeks of semester and an eight-week practicum. The main objective for the course was to develop students’ abilities to reflect on their teaching in terms of their actions, practical and theoretical reasons for actions and ethical justification for actions (based on Handal’s model, 1990, cited in Day, 1993).

The Introductory Day and first workshop focused on the topic of ‘negotiating the practicum’. Until 2004, for the five remaining workshops we used an approach in which small groups of students developed and implemented a presentation and workshop processes around one of five topics: 1) valuing difference; 2) engaging students in learning; 3) managing the learning environment; 4) planning and programming; and 5) assessment and reporting. Following their presentation each group submitted a reflective summary about their decision-making processes, evaluation of the session and learning. Although this worked well in many ways, student evaluations and our own observations alerted us to three main problems with this approach: 1)
despite explicit explanation and modelling of student centred approaches, there were always some groups who used a great deal of exposition as part of their presentations; 2) students often revisited material from the previous year’s courses and so some presentations were seen as involving unnecessary repetition; and 3) the presentations tended to focus on practical reflection to the exclusion of theoretical and ethical reflection. The course evaluations in 2003 highlighted the first two of these problems to such an extent that it was clear that student engagement in the course was suffering. We decided that we needed to make changes focussed on more engaging pedagogy for our students.

Towards the end of 2003 a seminar by a visiting scholar, Alistair McPhee, about the use of problem-based scenarios within teacher education courses at the University of Glasgow, suggested a change in pedagogy that seemed to have the potential to overcome the problems that had emerged in our course. Having read further about the approach, we determined to trial the use of problem-based scenarios in Reflective Practice 3 in the first semester of 2004.

An earlier paper explored students’ responses to the new pedagogy. The findings indicated that PBL pedagogy appeared to engage most students in personal and social construction of meaning, and theoretical and ethical reflection, to a greater extent than occurred through the presentation-based approach used in previous years (Peters, 2004). This paper focuses on the scenarios, related materials, processes and reflective writing developed by five groups of students from one class in 2005. It explores the extent to which developing, presenting and reflecting on student designed scenarios provided a wide range of challenging issues and learning opportunities for those who designed and presented them, as well as for those who engaged with them through workshop processes.

Problem Based Learning

Problem-based learning (PBL) is ‘focussed, experimentally based learning that is organised around the presentation, investigation and resolution of a ‘messy, real-world’ problem’ (Murray-Harvey & Slee, 2000, p. 1). It aligns with constructivist learning principles in that it is student-centred, open-ended, integrated and involves students in the active construction of knowledge (Wee King Neo, 2004, p. 15). It is also claimed that to engage effectively with problems students need to develop and use reflective processes:

During post problem reflection, students deliberately reflect on the problem to abstract the lessons learned…. This reflection allows them to make generalizations and to understand when this knowledge can be applied (Salomon and Perkins, 1989). (Hmelo & Evensen, 2000, pp. 3-4)

It is these characteristics of PBL that suggest it is has the potential to make a valuable contribution to teacher education pedagogy. It has been widely used in health care education (see for example Skinner, Winning, Braunck-Mayer & Peterson, 2004) and examples can also be found in the literature about professions as diverse as architecture, mechanical engineering, law (Boud and Feletti, 1991), social work and psychology (Beveridge and Archer, 2002). Recent years have seen the emergence of its use in teacher education overseas (see for example Peterson, 1993; McPhee, 2002) and in Australia (see for example Kiggins, 2001; Green, Randall & Francis, 2002; Mulcahy and Hildebrand, 2004; Murray-Harvey, Curtis, Cattley & Slee, 2004; Askell-Williams, Murray-Harvey & Lawson, 2005). Such studies have produced claims that PBL: engenders a high level of student engagement (Ahlfeld, Mehta & Sellnow, 2005); develops student responsibility for learning (Dutch, 1995, cited in Kiggins, 2001); facilitates professional dialogue, creates a student-centred learning environment, connects theory and practice and promotes students’ ability to think critically (Murray-Harvey & Slee, 2000); and develops in students ‘a deep sense and understanding of schools, classroom work, and the multiples roles of a teacher’ (Kiggins, 2001, p. 6). Finally, in today’s rapidly changing world and related knowledge explosion, PBL is seen as an important vehicle for supporting students to ‘learn now to learn’ (Tan, 2004).

From the literature it would seem that most often the problem-based scenarios which form the basis of PBL pedagogy are developed by lecturers, sometimes with the help of expert partners in the field (see for example Kiggins, 2001; Murray-Harvey et al, 2004; Tan, 2004). It is less common to find examples of student-developed scenarios, suggesting that this approach to PBL pedagogy warrants further investigation by teacher educators. The study reported in this paper adds to the growing literature by presenting insights about the potential of student-developed scenarios to provide learning opportunities for the developers as well as
those who engage with them in workshops.

**Background: How PBL was interpreted in Reflective Practice**

Before out-lining the research process, findings and discussion it is necessary to provide a brief overview of the way PBL was interpreted in Reflective Practice 3 in 2004, as with some minor changes this was also the interpretation used in the year of this study.

In trialling PBL in 2004 we based our interpretation of problem-based scenarios on the model reported by McPhee (2002), in which a detailed scenario is developed about a teaching based problem, but is supported by a range of additional information presenting the views of stakeholders associated with the problem. In this model students are required to access set readings about the topic before they begin to analyse a specific scenario. In his 2002 article Mcphee wrote about a trial of ‘lecturer-designed’ scenarios, but in his seminar reported on a later trial of student-designed scenarios. We opted for the latter because we felt it had more potential for student engagement and was more in keeping with constructivist principles that emphasise that the ‘learner is active in the process of taking in information and building knowledge and understanding: in other words, of constructing their own learning’ (DETE, 2001, p. 2).

We decided to ask each small group of students to develop a problem-based scenario, support materials and questions related to one of the five topics mentioned earlier and plan and facilitate the workshop processes through which it would be considered. They were to develop at least three questions which addressed the practical, theoretical and ethical dimensions of the scenario. Having presented their scenario, the group would then collaborate on a reflective written summary. These components would make up their on-campus assessment task.

We felt that students would be better able to meet these expectations if, in the first instance, the teaching team modelled scenario and workshop development and gave them explicit guidelines. We identified the topic ‘Negotiating the Practicum’ as one which would be appropriate for this purpose. I volunteered to develop a scenario, support materials and workshop processes to use with our workshops groups on the Introductory Day, as well as a set of guidelines to support students in developing their own scenarios.

After further reading about problem-based scenarios I found a web-based framework for writing scenarios based on the three key attributes of ‘relevancy’, ‘complexity’ and ‘coverage’ (Creating an Appropriate Problem, 2003). I used these three descriptors as the framework for the guidelines I developed but I interpreted them differently to fit with the course’s objectives. To briefly summarise, I interpreted ‘relevancy’ as scenarios related to realistic teaching-based experiences and issues, ‘complexity’ as representation of the multiple viewpoints and interests of stakeholders and ‘coverage’ as the inclusion of practical, theoretical and ethical issues (based on Handal’s three levels of reflection mentioned earlier).

Using these guide-lines I developed a scenario which was introduced to the students on the Introductory Days in 2004 and 2005 and lecturers modelled processes that were intended to be as engaging as possible. Towards the end of the introductory session students self selected into five groups. Each group chose one of five topics (listed in the Introduction) as the basis for a collaboratively developed scenario, support materials and processes for a seventy minute presentation in one of the remaining six workshops. (The first workshop and the rest of the time in each of the five other two-hour workshops was used for sharing ideas, concerns and issues related to their ongoing work in preparing for the practicum). Each group was asked to email their scenario, any support materials that were available electronically (the rest to be given out on the day) and focus questions to lecturers for circulation a week before the scheduled workshop. Another member of the teaching team identified two to three readings related to each topic and these were posted on the course home page. Students were asked to have read at least one before they attended the workshop on that topic.

**Method**
Having collected data to evaluate students’ responses to the trial of problem-based pedagogy in 2004 (Peters, 2004), in 2005 I focussed on collecting naturally occurring data that would enable me to analyse the scenarios and processes produced by each of the five groups of students in one class, and their perceptions of their engagement and learning from the design process. To this end, and with their permission, I kept copies of each group’s scenario, support materials and reflective writing and my feedback to them. I also accessed the results of the on-line Course Evaluation Questionnaire (CEQ) and Student Evaluation of Teaching (SET).

To analyse the data I used a content analysis approach whereby documents were read and divided into meaningful units. These were coded and categorised which enabled patterns to be identified leading to the emergence of the key themes which form the basis of the paper (Bernard, 2000). I also prepared a summary of the components of each scenario and related supporting materials (see appendix).

The rest of the paper details the findings and discussion about the following aspects:

- the extent to which the scenarios and support materials developed provided learning opportunities around issues which were relevant, complex and provided coverage (based on the definitions of these terms cited earlier).
- the level of engagement and learning outcomes of the developers.

Did the issues explored in the student-developed scenarios provide challenging learning opportunities?

Data analysis revealed that all scenarios and support materials met the criteria of ‘relevancy’, ‘coverage’ and ‘complexity’.

**Relevancy (related to realistic teaching-based experiences and issues)**

The summary of scenario content and stakeholders reveals that students’ concerns with the immediate future was a driving force in developing most scenarios, with three revolving around issues related to beginning teachers, the fourth around an early career teacher and the fifth around a student teacher in his final practicum (Scenario Summary).

It was also clear from the group’s reflective writing that the scenarios reflected issues that were of personal concern to the designers or other student teachers or teachers of their acquaintance. For example one group’s reflective writing reported that their scenario reflected one of their major concerns as beginning teachers:

> For many beginning teachers managing behaviour in the classroom is an area where we want to feel confident, competent and skilled. Of course this comes with time and practice, but we thought if we explored a scenario which challenged our ideas and was based on a real life example it would allow for discussion and debate about what behaviour management should look like in classrooms in the twenty first century. (RW 3)

Another group indicated that they drew on the experience of a teacher who had spoken to them on the Introductory Day about a last minute change of year level in her first placement as a beginning teacher (RW 4). A third group reported that they combined personal interests with a focus on the broader national context when they based their scenario around the intense emotions related to Muslim/Western conflict (RW 1).

The groups also looked for relevancy in terms of seeking some congruence with their course-work across the program and the set readings, as can be seen by this excerpt from reflective writing:

> Our purpose in developing our scenario and planning our workshop was to compare and contrast the effects on student engagement of two different models of teaching and learning. Throughout this course of our studies for this degree ad through or readings for this topic (Joyce and Weil, 1996 and Barry and King, 1993) we have learnt about the advantages and disadvantages of a variety of teaching and learning models. (RW 5)

Finally, it can be seen in the Scenario Summary that a further sign of the personal nature of the scenarios was that common themes across all scenarios were the ‘emotional dimensions’ and ‘interpersonal, intra-personal
and communication skills’. All summaries identified the emotional nature of the interactions around teaching and learning for teachers, students and other stakeholders – emotions that often include anger, frustration, worry and sadness as well as excitement and commitment. This aspect was commented on in reflective writing and my feedback to groups:

As you mentioned, one of the key outcome of the session was to highlight for participants and you the need to consider the emotional nature of teaching and the kinds of support that may be needed to manage strong emotions. (Feedback/S 1)

From the outset we wanted to present a problem that would encourage our peers to think deeply about that they would do in the same situation, with the initial feelings from most being anger, uncertainty, frustration and helplessness. (RW 4)

The importance of effective verbal and written communication skills can be seen in the range of support materials developed across all scenarios, while two groups also included journal entries written by teachers, emphasising the role of intra-personal reflection.

**Complexity (representing the multiple viewpoints and interests of stakeholders)**

It was evident in some students’ reflective writing that they were challenged by the requirement to represent the multiple viewpoints and interests of stakeholders. For example:

Challenges we experienced in developing the scenario included … developing realistic stakeholders who were complex enough for the class to consider their viewpoints. (RW 2)

However, it can be seen in the Scenario Summary that all groups met the challenge of depicting teaching as a multi-stakeholder enterprise. In addition to teachers in varying career stages, other stakeholders represented include:

- students from a range of cultural and socio-economic backgrounds and with diverse abilities, disabilities and needs;
- parents and other care-givers;
- members of governing councils;
- principals and coordinators;
- teachers’ families;
- support agencies; and
- university lecturers.

The questions posed by groups also demanded that participants consider the scenarios from other stakeholders’ perspectives, as can be seen from the examples below:

How is your stakeholder advantaged and/or disadvantaged within this scenario? (S 1)

As a group (from a perspective of either Jo/Angry/Hans/ Lucy) make an X-chart to show what engagement sounds/feels/looks and thinks like in a classroom. What things do you think inform this person’s view? (S 2)

Should a schools behaviour management policy be applied to all students all of the time? Give reasons why and why not from your stakeholder’s point of view. (S 3)

What strategies could Fairly implement to incorporate the needs of a gifted student in his class? (S 4)

To what extent should gender be a factor in considering appropriate assessment? (S 5)

As a result of representing multiple views and expectations, the scenarios were rich with the kinds of dilemmas to which there are no simple solutions. These included:

- integration and/or segregation (S1)
• emotional and/or rational responses (S1);
• explicit and/or student-centred teaching (S2);
• responding to individual and/or group needs (S3);
• being consistent and/or flexible in response to individual needs (S3);
• long term and/or responsive planning (S 4); and
• competitive and/or supportive assessment practices (S 5).

These dilemmas were not presented as either/or dichotomies with ‘right answers’, but rather required participants to weigh up the pros and cons and bring theory to bear in order to arrive at ways forward that were in the best interests of students and other stake-holders.

**Coverage (inclusion of practical, theoretical and ethical issues)**

One of the primary concerns that led us to change away from student-designed presentations in the earlier version of the course was their tendency to focus on the practical to the exclusion of the theoretical and ethical aspects of teaching. Analysis of the scenarios revealed a thorough coverage of all aspects.

**Practical issues**

Handal’s (1990) level of ‘actions’ in the reflective triangle was interpreted as reflecting on the ‘what’ and ‘how’ of teaching (cited in Day, 1993, pp. 83–92). It can be seen in the Scenario Summary that all scenarios had a strong focus on issues of immediate and practical concern to the participants as beginning teachers. Over the duration of the course work participants were asked to consider practical issues such as identifying and catering for the needs of new students (S1), students with special needs (S 2 & S 4) or from diverse cultural (S 1) or socio economic backgrounds (S 2) or a new class (S 3); factors influencing planning (S 3); ways to scaffold constructivist learning (S2); inclusive behaviour management strategies (S 4); and purposes and forms of assessment (S 5). Questions focusing on the practical included:

What actions, strategies, resources might be employed to achieve the best outcomes? (S 1)

If you were Lucy Graduate what type of strategies and activities would you use to encourage communication, group work, working collaboratively, questioning, critical thinking and self directed learning? (S 2)

What does good behaviour management look like in a classroom? How does it feel to both the teacher and students? (S 3)

As prospective teachers, we could be placed in any year level and be given short notice to plan. What strategies could we be incorporating now to prepare to teach a range of year levels? (S 4)

What are examples of equitable forms of assessment? (S 5)

Through their reading, input from the presenters and me and the sharing of responses, most students felt there was adequate coverage of the practical as can be seen in this comment from the CEQ:

Discussing the practical issues we will face in the classroom. Having the opportunity to talk to peers about our experiences and fears. Having (lecturer) recommend websites etc that we can go to based on particular issues. (CEQ)

However, there was also a minority of students, such as this one, who wanted more focus on the practical:

There are so many issues and questions we have at this point of the course and feel this subject would have been more beneficial if we had the opportunity to discuss more relevant and pressing issues such as looking for work, interviews, resumes. (CEQ)

**Theoretical Issues**

In Handal’s (1990) triangle, theoretical issues are interpreted as reflecting on the practical and theoretical reasons for actions – the ‘why’ of teaching (cited in Day, 1993, pp 83 – 92). It can be seen by the questions
they framed that the developers were focussed on having participants articulate the theories informing their thinking, both those derived from reading and web research and from their developing personal philosophies of teaching and learning. For example:

From your readings (if you did them) describe different forms of diversity which would promote reflection for a teacher and describe how they could impact upon a teacher’s classroom practices? (S 1)

Considering the readings and discussions today, if you were Lucy Graduate and you had been requested to attend a meeting with Jo Concerned, how would you prepare for this, with the aim to achieve the best outcome for all stakeholders? Refer to practical, ethical, and theoretical standpoints to support your answer. (S 2)

What are appropriate goals of assessment? (S 5)

In addition to questions focussed on theory, some presenters also included various forms of ‘input’ in their sessions in which they synthesised key information or principles from the literature to inform participants’ thinking about aspects of the scenario. These were aspects I commented on in my feedback to them:

You also identified two important resources from the literature and provided an excellent synthesis of key ideas from the Puplick article which, in turn, informed your presentation and written summary. (Feedback/S 1)

I particularly liked your emphasis on the theories informing practice via your inclusion of the short segments on theoretical clouds and distribution and introduction to the chapter from Marsh. (Feedback S 3)

Students’ feedback in the Course Evaluation Questionnaire indicated that engagement with the scenarios did help them to think beyond the ‘how’ and ‘what’ of their teaching to the ‘why’. For example:

The scenarios provided us with a learning style that was meaningful and helped me to think deeply about important issues facing beginning teachers. (CEQ)

Ethical Issues
Handal’s (1990) level of ‘ethical justification’ involves students reflecting on the values that underpin actions and the implications of actions for social justice (cited in Day, 1993, pp. 83-92). There was ample evidence of developers’ attention to ethical issues in the materials they developed. Issues inherent in the scenarios and support materials included:

• the influence of teachers’ life experiences and cultural capital on their values and practices (S 1);
• meeting the individual needs of students, especially those with special needs (S 2);
• the potential values clashes in different approaches to management (S 3);
• the multiple internal and external factors influencing inclusive planning (S 4); and
• the connection between assessment practices and teachers’ values and experiences (S 5).

In addition, all scenarios revolved around issues of unequal power relationships and the diversity of stakeholders’ expectations, needs and interests.

Questions addressing ethical issues included:

What are ramifications if the teacher and/or school do not value the children’s cultural capital? (S 1)

What are a teacher’s ethical considerations when applying a behaviour management policy? (S 3)

What are the pros and cons of traditional and constructivist assessment? (S 5)

The groups’ reflective writing also provided examples of explicit consideration of ethical considerations in designing materials and workshop processes and presenting them. For example:
… the group appeared to gain more confidence and optimism as they devised strategies and operations that would empower all stakeholders without leaving any at a disadvantage. Achieving equitable outcomes for all of us was one of our main aims of this session. (S 4)

In addition, participants’ comments in the Course Evaluation Questionnaire, such as this one, indicated that they had been challenged at an ethical level.

The presentations were of value especially in thinking about our philosophy of education and our ethical reasons for practice and action. (CEQ)

Overall, it appears that the pedagogy around student-developed scenarios, workshops and reflective writing did meet the specified criteria of relevancy, complexity and coverage. In doing so it provided participants with opportunities for purposeful engagement with issues that were multi-dimensional, practical, theoretical and ethical in nature and of immediate concern to beginning teachers.

**What were the levels of engagement and learning outcomes of the developers of the problem-based scenarios?**

In the previous section it could be seen that the student-developed scenarios and processes did provide a rich source of challenging learning opportunities for the participants. An unexpected outcome from the change to having students design scenarios was the extent to which the design and implementation processes appear to have had positive outcomes for their own engagement and learning. It was clear that the process of devising the scenarios and support materials was a powerful one. Students’ reflective writing indicated that they needed to engage in considerable research and collaboration in order to prepare their scenario, support materials and workshop, as can be seen in this group’s out-line of the processes they used:

1. reading the set readings individually;
2. group meeting to share reflections on the readings, brainstorm ideas, develop the scenario context, develop stakeholders and decide on support materials;
3. two group members worked together to further develop the scenario while other group members worked individually to develop the support materials;
4. group meeting to discuss and refine individual contributions, ensure their scenario was coherent and relevant to the topic and to our class, devise focus questions and plan how to run the workshop. (RW 2)

It was also clear that the scenario and workshop development gave rise to powerful debate about key issues, as can be seen in this excerpt from reflective writing:

Throughout our group many different ideas about forms of diversity were brought forth and we were hoping that each of these would come out within the class. While there were a few disagreements at the time of creating the scenario situation and supporting material, we were able to overcome these issues through great debate and deliberation to come to a mutual agreement about the way in which our presentation should run. (RW 1)

Students’ written reflection revealed that they also felt that designing the scenarios had helped them to learn far more about the topic and related issues. For example:

…some of the conclusions included: that assessment needs to be inclusive, fair and just for all students; it needs to incorporate a range of assessment tools; it needs to occur on an on-going basis and not just accumulate in the form of a test at the end of a unit of work; it needs to be explicit and understood by all students and should include students in the process; and it should be valid. That is to say that the task should actually ‘test’ or assess the abilities it intends to assess (Nightingale, 1996). (RW 5)
It was evident that having to design the scenarios from the perspectives of different stakeholders had helped students to understand the ‘complexity’ of issues:

The most significant thing we learnt is that there is no one right way when it comes to this issue. After considering the views of various stakeholders in this matter, we all felt we have a deeper understanding of inclusive behaviour management. (RW 3)

Through designing workshop processes for their peers they also felt they had learnt more about teaching practice which modelled core principles emerging from the scenarios. For example

In planning the workshop we aimed for a high level of class engagement (given that was our topic). To achieve this we decided to:

- open our workshop by randomly selecting students to read out the scenario;
- use small group work;
- vary the learning activities, the methods of recording and the methods of reporting. (RW 2)

The on-line Course Evaluation Questionnaire that students completed at the end of semester indicated that students overall satisfaction with the course was 75%, which is at the level used by the University in determining its ‘Excellence in Teaching’ awards. The majority of comments by students, such as those below, indicated that they found great value in both designing and presenting the scenarios and workshops and their engagement with other group’s scenarios:

I really felt having to create our own scenarios was really helpful, as was being involved in other students’ scenarios and their activities.

Reading for, preparing and presenting the workshop was the most helpful as I learned a great deal through this process.

Collaborative learning strategies and problem based learning through the scenarios really helped me to clarify my thinking about certain issues regarding teaching.

There were, however, a few comments that indicated that some students did not find sufficient challenge in the scenarios:

I at times felt a bit disappointed at the narrower focus of the presentations and would have liked more opportunity for a broader discussion of the issues relating to the topic.

The scenarios each week became tedious and I felt I could be spending the two hours doing something more constructive.

All in all it can be seen that the processes involved in the development of the PBL materials and activities provided a rich source of engagement and learning for the developers. Of necessity, they engaged in individual and group research, discussion and debate and collaborative writing, presentation and reflection that provided them with new insights about the complexity of their chosen topic, and the implications for practice.

**Discussion**

It appears that pedagogy based on groups of students design problem-based scenarios and workshop processes provides learning opportunities and purposeful engagement for both the designers and participants. All five groups of students were able to design scenarios that met the criteria of relevancy, coverage and complexity, thereby providing participants with opportunities to explore practical, theoretical and ethical dimensions of key aspects of a teacher’s role from the perspectives of multiple stakeholders. It is also clear
that students found the collaborative design process to be an important learning opportunity in itself. In particular, it appears that having students design the scenarios and workshops, as well as participate in those designed by their peers, enabled them to:

- engage in collaborative learning;
- make links between theory and practice;
- understand the complexity of the teaching role; and
- engage in critical reflection.

**Engage in collaborative learning**

An emphasis on collaborative learning is a core feature of most problem-based learning programs (Skinner et al, 2004). However, usually the collaboration occurs through small group work used to explore the scenarios devised by lecturers or other experts in the field. The findings showed that for these students, developing the scenarios and workshop processes was a collaborative endeavour that resulted in powerful learning. Each group found that they needed to engage in considerable research, discussion and debate in order to prepare scenarios, support materials, workshop processes and reflective writing. This was in marked contrast to the processes used for many of the group presentations in the old version of the course, in which individuals each prepared segments which were then presented as a sometimes disjointed whole. The requirements of the new version of the course appear to have necessitated the pooling and synthesising of each group member’s individual experiences, expertise and insights from readings. As a result they felt that they came away with important new understandings about their chosen topic and related teaching strategies.

Communication skills and group cohesion have proven to be an issue in some trials of problem-based learning. For instance, McPhee (2002) noted for teacher education students that ‘the majority of problematic areas in Year 1 related to the dynamics of group work, and in some cases to particular personalities’ (p. 69), while Skinner et al (2004) reported on dental students’ struggle with collaborative writing. Interestingly, there was no evidence of such problems in these five groups. Possibly the fact that the groups were self-selected helped to avoid this problem, but there was also evidence that most group members found the design process engaging and challenging and were prepared to put energy and enthusiasm into achieving successful collaboration. Having to develop workshop processes also highlighted their awareness of group dynamics for participants, and it was clear from their reflective writing that they put considerable time and thought into their own role as facilitators of others’ learning. In doing so they were able to practise some of the PBL facilitation skills identified by Tan (2004) such as ‘handling group dynamics, questioning skills, facilitating cognition and so on’ as well as their abilities to ‘identify, articulate and assess these skills’ (p. 179).

**Making links between theory and practice**

Claims have been made that problem-based learning in teacher education helps to bridge the divide between the real world of schools and the theoretical world of the university (see for example Murray-Harvey et al, 2004). Yet students do not always perceive scenarios developed by lecturers, even with teacher assistance, as having a high degree of relevance to their experience in schools. For instance, Kiggins (2001) reported that in early trials of PBL at the University of Wollongong students found the problems to be too big and not always relevant:

The students found themselves to be faced with insurmountable odds: Preparation for teaching, in the classroom and the onerous task of trying to research and force fit contrived problems. Although the problems were generically based on common school issues they did not suit all contexts. (p. 9)

The student-developed scenarios in this study were based on the students’ own concerns and experiences in schools, or those of other young teachers of their acquaintance. They focussed on some of the issues that were uppermost in the minds of the designers as they faced their final practicum and entry into the profession as a beginning teacher.

Clearly it is also important that problem-based scenarios enable students to build on their prior knowledge, engage with the theory that underpins a particular course and meet its objectives. Tan (2004) stressed the importance of designers knowing the students for whom the problems are designed in terms of: ‘1) profile of the students; 2) prior knowledge; 3) prior experiences; and 4) foundation knowledge’ (p. 181). It could be argued that students know their fellow students in these four areas better than any lecturer. This was certainly true of the students in this study who had been together as a cohort in all aspects of the program. There was
also considerable evidence that the students not only read the set readings before designing their scenarios and workshops, but also drew on other relevant print and web based resources to introduce key insights as part of the workshop process. They also designed processes and questions that asked participants to articulate the reasons behind their decision-making in regard to the problems and to make links with theory from their reading and other university course work. However, it is important to note that Reflective Practice 3 is not a content driven course, its main focus being on developing reflective processes. It may be more difficult to rely on student-developed scenarios in courses where it is important that students are exposed to specific concepts, as student may not have the ‘foundation knowledge’ to prepare appropriate scenarios.

Finally, much has been written about the importance of quality control of the scenarios and processes used in problem-based learning. Tan (2004) described negative cases of PBL as a ‘three blind mice experience’ in which:

‘The Problem’ can create confusion and frustration; ‘The Coach’ role could mean ineffective facilitation and superficial discussion; and ‘The Problem-Solver’ could be an experience of helplessness with little sense of learning and a failure to learn neither content nor process skills. (p. 181)

In this study there were some students who did not find the scenarios challenging enough. In adapting this approach for a course I will be involved in next year, we intend to build in a ‘lecturer/student conference’ to vet and revise scenarios and workshop processes more thoroughly before they are circulated to the wider group.

**Understanding the complexity of the teaching role**

Teacher education courses are often criticised for focussing too much on the teacher’s classroom role at the expense of understanding the broader school and community contexts in which teaching occurs (Zeichner, 1992). Studies have also shown that beginning teachers can be very focussed on their own survival, and find it difficult to consider the needs and perspectives of individual students and members of the wider school community (Gordon and Maxey, 2000, cited in Martinez, 2003). In designing scenarios and support materials which had to include a range of stake-holders and questions and workshop processes which privileged their views, the students found that they became more aware of the complexity of particular issues and of the need to step outside their limited personal perspectives. The questions and workshop processes required participants, too, to consider issues from the perspectives of different stakeholders and to share their insights. Rather than focussing on their own roles as beginning teachers, students had to engage with the needs of specific students related to their interests, experiences and abilities and socio-economic, cultural and family backgrounds. They also had to consider the needs and concerns of school leaders, such as Principals and Coordinators, parents and caregivers and other community stakeholders. Although all of the ‘problems’ were situated within individual classrooms, the issues extended into the wider school and beyond through consideration of school and systems policy and the expectations of other staff and the wider community. Askell-Williams et al (2005) found that involvement in problem based learning enabled teaching students to expand the limited ‘mental models’ derived from their own experiences as students, and it appears that this was also the case for the students in this study.

A further way that the scenarios depicted teaching as a complex activity was their focus on some of the genuine dilemmas which face teachers every day. It is generally recognised that addressing dilemmas and constraints is an integral part of learning and change. Groundwater-Smith, Ewing & Le Cornu (2001) drew attention to the centrality of dilemmas to educators’ work. They described dilemmas as ‘complex situations in which the choices have to be unravelled and the consequences for taking particular paths weighed up’ (p. 13). They argued that teachers needed to learn to ‘read the contradictions and find the textual interplay between rhetoric, logic and forms of evidence’ (p. 12). The scenarios were rich in dilemmas such as the needs of the individual versus the needs of the group, and the need to balance explicit teaching and outcomes based assessment with student centred pedagogy. In this way, they did not allow for simplistic solutions or right answers. This is an important finding because a possible criticism of using the name ‘problem-based learning’ is that the word ‘problem’ implies the need for solutions. Another criticism is that the values and ideology underpinning the use of the word ‘problem’ have particularly negative connotations in which blame can be attributed to some of the stake-holders (Plowright & Watkins, 2004, p.187). For these reasons we are considering the suggestion by some theorists that a better descriptor for future courses might be

**Engaging in critical reflection.**

It has been argued that it is difficult to engage student teachers in theorising or critical reflection in which they consider the ethical underpinnings and implications of their actions, because they are, of necessity, focussed on the immediate and practical issues arising from their inexperience (Calderhead, 1993). Certainly in the old version of this course we were concerned that some of the students’ presentations focussed on presenting a ‘grab bag’ of ideas, rather than demonstrating or engaging participants in critical reflection. Proponents of PBL point to its potential for promoting reflection through engagement with complex scenarios (Hmelo & Evensen, 2000), and certainly in my earlier study of students’ responses to the trial of PBL, this was shown to be the case (Peters, 2004). It would appear from the data analysed for this study that the development of the scenarios and related materials, processes and reflective writing involved the developers in critical reflection. In all aspects of their work it could be seen that they engaged with ethical issues and questions such as: the extent to which each stakeholder would be advantaged and disadvantaged by decisions and actions; the role of stakeholders’ experiences, assumptions and values in shaping their viewpoints and expectations; and the structural inequities present in some educational policies and practices.

**Conclusion**

This paper has analysed student-developed scenarios and support materials, workshop processes and reflective writing to show that this version of PBL pedagogy provided a wide range of challenging issues and learning opportunities for the students in their roles as designers and presenters, as well as for those who participated. That is not to say that having students as designers will work in all courses, nor that there is not room for improvement in future versions of our courses. Clearly the extent to which students should be involved varies with the objectives and contexts of the particular course, and successful design depends on explicit support structures, guidelines, criteria and quality control mechanisms. We will continue to work on these aspects in the future.
References


### Appendix: Scenarios Summaries

<table>
<thead>
<tr>
<th>Scenarios</th>
<th>Stakeholders</th>
<th>Support materials</th>
<th>Questions (sample only)</th>
<th>Issues</th>
</tr>
</thead>
</table>
| **S 1 Valuing Diversity** | Teacher (T) | 1. Letter F to P | How is your stakeholder advantaged and/or disadvantaged within this scenario? | - influence of teacher identity | **-**
|  | Student (S) | 2. Reply P to F | What are ramifications if the teacher and/or school do not value the children’s cultural capital? | - influence of student identity | **-**
|  | St’s Father (F) | 3. Staffroom conversation T and P | Apart from his religious ties what other factors could impact upon Mohammed’s adjustment to his new school? | - effects of discrimination | **-**
|  | Tr’s Brother Principal (P) | | | - inclusive practice | **-**
| **S 2 Engaging Students in Learning** | Beginning teacher (BT) | 1. Phone conv. between CP and PC | Based on the scenario and student profiles, would engage St 1 and St 2. How are they disadvantaged and advantaged by BT’s style of teaching? | - mainstream vs ethnic school | **-**
|  | Previous teacher | 2. Class profile | If you were BT what type of strategies and activities would you use to encourage communication, group work, working collaboratively, questioning, critical thinking and self directed learning? | - role of principal | **-**
|  | Primary Coordinator (PC) | 3. St1: handover information | | - giving and receiving feedback | **-**
|  | Concerned parent (CP) | 4. St 2: handover information | | - conflict resolution | **-**
|  | Year 4 class of 28 students (two with special needs Sts 1 & 2) | 5. Diagnostic Criteria for ADHD | | - hidden curriculum | **-**
|  | 6. BT’s journal entry | | | - perceptions of equity | **-**
|  | 7. BT’s Maths unit overview | | | | **-**
| **S 3 Managing the Learning Environment** | Beginning Teacher (BT) | 1. Staffroom conversation among OTs | What are a teacher’s ethical considerations when applying a behaviour management policy? | - nature of engagement | **-**
|  | Principal (P) | 2. Excerpt of meeting BT and G | What are the theoretical and practical considerations? | - balancing student-centred and explicit teaching | **-**
|  | Previous Teacher | 3. Phone conversation P and PGC | Should a school’s behaviour management policy be applied to all students all of the time? | - teaching in new setting | **-**
|  | Parent on the Governing Council (PGC) | | Give reasons why and why not from your stakeholders point of view. | - constraints of contract teaching | **-**
|  | Student St’s Grandmother (G) | | How could you modify Ima’s strategy to ensure that no stakeholders are disadvantaged? | - career stages of teachers | **-**
|  | Other class members | | | - beliefs about teaching and learning | **-**
|  | Other teachers | | | - scaffolding learning | **-**
|  | | | | - learning theory (constructivism) | **-**
|  | | | | - reflection/evaluation | **-**
|  | | | | - school values/ vision/policies | **-**
|  | | | | - education for the future | **-**
|  | | | | | **-**
<table>
<thead>
<tr>
<th>(OTs)</th>
<th>Planning and programming</th>
<th>Assessment and reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>S 4</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beginning Teacher (BT)</td>
<td>1. Letter of offer</td>
<td>What internal/external factors would BT need to take into account to plan for the year 6/7 class given he only has 1 week to prepare? Take into account practical, theoretical and ethical issues he is facing in his planning.</td>
</tr>
<tr>
<td>Principal (P)</td>
<td>2. Answering machine message from P to BT</td>
<td>As prospective teachers, we could be placed in any year level and be given short notice to plan. What strategies could we be incorporating now to prepare to teach a range of year levels?</td>
</tr>
<tr>
<td>St’s Mother (M)</td>
<td>3. Conversation BT and M on 1st day of school</td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Year 6/7 Students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Parents</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>S 5</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Teacher (ST)</td>
<td>1. ST’s journal entry</td>
<td>What are the pros and cons of traditional and constructivist assessment?</td>
</tr>
<tr>
<td>Mentor Teacher</td>
<td>2. Conversation ST and Principal</td>
<td>What are appropriate goals of assessment?</td>
</tr>
<tr>
<td>University Liaison (UL)</td>
<td>3. Email from ST to UL</td>
<td>To what extent should gender be a factor in considering appropriate assessment?</td>
</tr>
<tr>
<td>Principal (P)</td>
<td>4. Conversation between two OS</td>
<td>What are examples of equitable forms of assessment?</td>
</tr>
<tr>
<td>Yr 4 Student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Students (OS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td></td>
<td>- coping with relocation and a new job</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- expectations of beginning teachers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- factors influencing planning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- flexibility an adaptability in planning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- long term planning vs responsive planning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- needs of gifted students</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- induction and support for beginning teachers</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Issues common to all scenarios: power; relationships; interpersonal, intra-personal and communication skills; emotional dimensions; catering for diverse student needs; stakeholders’ expectations</td>
<td></td>
<td>- values underpinning assessment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- purposes/forms of assessment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- pros and cons of assessment strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- assessment and self esteem/ success</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Student Teacher learning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- when to compromise</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- career stages of teachers</td>
</tr>
</tbody>
</table>