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Innovation in postgraduate teaching: mixed methods to enhance learning and learning about learning

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Growing pressure to restructure and reform tertiary education is encouraging university academics to use innovative practices that assist students to develop 'employable' skills. The hybrid approach described in this paper stimulated students to be self-directed adult learners who maximized their learning of content and skills by means of problem-based learning and action research strategies. The lecturer also operated as a reflective practitioner and role model by using an action research approach. This paper demonstrates the value of student empowerment, communication and leadership in autonomous learning groups. It outlines methods by which academic teaching staff can build continuous improvement into a university unit's curriculum design and processes. These can be powerful additions to lecturers' teaching strategies and to students' learning experiences.

Keywords: action research; innovation; knowledge; problem-based learning; reflective practice; self-directed study

Introduction

Teaching and learning concepts such as learning by developing (Raij, 2007) and continuous professional development (Harwood & Clarke, 2006) are generalised approaches to the scholarship of teaching and learning. However, specific action research (AR) and problem-based learning (PBL) approaches are increasingly being used across a range of disciplines in tertiary education (Reynolds & Vince, 2007). Within business education, AR is more widely practiced and accepted. Problem-based learning is considered largely to be a learning strategy (Saatci, 2008). Combined PBL and AR approaches were used in a tertiary communications unit in an attempt to promote reflective practices that would encourage lecturers to build continuous improvement into curriculum design and delivery processes, thereby enhancing students' learning experiences.

In the current paper a report on the practical nature of structural reforms is presented, supported by qualitative statements from students as to their reflections on the innovative practices used to bridge teaching and learning, theory and practice. The purpose of the paper is to report on AR in a communications post-graduate unit of study using PBL strategies. The use of a PBL/AR teaching/learning approach was unique to students of this unit and the study programme at the time of the research, although PBL and AR have been recognised individually in previous studies. The

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research was multi-focussed and founded on staff/student interaction as a basis for experiencing a cooperative learning exercise. The innovative approach was designed primarily to enhance student engagement and improve the student learning experience and the success of the programme measured by evaluating student attendance, learning outcomes and results. The success of the programme encouraged the lecturer to incorporate the hybrid PBL/AR approach to the unit on a more permanent basis.

Background

Mature-age postgraduate students take a mandatory introductory unit of study that forms part of a post-graduate certificate course. The unit has the dual aims of developing students' understanding of the skills and roles of communication in business and enabling students to develop learning skills that will be relevant throughout their tertiary studies and beyond. The unit design is informed by Goode, Willis, Wolf and Harris' (2007) concept that 'designing and delivering innovative, exciting and relevant learning experiences is needed if we are to make our classes good learning experiences' (p. 297). Furthermore, self-directedness in learning has an important part to play in the competitiveness of organisations (Moser, Hasanbegovic, & Metzger, 2008; Smith, 2002) and is a desirable skill for postgraduate students to learn and practise. Consequently, an innovative learning experience was developed and used to promote the twin aims of student learning about communication in organisations and their development of a range of adult learning strategies.

The student cohort involved comprised a class of 48 post-graduate students who were enrolled in the first unit of a graduate certificate programme. There was a large diversity of students in the class as indicated in Table 1.

Table 1. Demographic profile of the class.

Descriptor	Number
Male	27
Female	21
Age	
20–30	14
31–40	22
41–50	10
51 and over	2
Nationality	
Australian	19
Asian	18
European	4
Central/South American	3
African	4
Prior university experience	
Previous degree in a management field	18
Previous degree in a non-management field	3
First university experience	27

The unit of study was divided into three contact hours per week over 12 weeks with an expectation that students would devote another six hours per week to their study of the unit. The assessment tasks comprised both group and individual work and were designed to meet the learning and graduate attribute skills outcomes of the unit as depicted in Table 2.

A PBL approach enabled students to identify learning needs aligned to their current interests and/or abilities. Hannon and D'Netto (2007) and Bentley (2008) claim that the PBL process enables all students to be equally challenged and engaged in their learning. The AR process encouraged both lecturer and students to seek constant feedback and renewal in the learning process as a means of demonstrating and practicing continuous improvement. Within this context, the initial part of the innovative experience enabled students to establish what constitutes relevant knowledge for purposes aligned to PBL decisions they identified as important. The intention behind this was to stimulate students to become reflective practitioners while undertaking action research related to their PBL 'problem'.

Mills (2000) and Brydon-Miller, Greenwood and Maguire (2003) claim that the cyclical nature of action research ensures that improvement to both teaching and learning is ongoing throughout the process. Because the learning tasks were quite complex and demanding, the allocation of marks for assessment tasks reflected this and required each learner to keep a reflective journal related to the major project. As Table 2 reports, the assessment tasks included a critical analysis of two journal articles related to communication in business. The task was worth 20% of the total marks for the unit and assessment was based on the quality of students' research and critical thinking skills. The group research report and presentation required students to incorporate a PBL approach to their study and to develop a model that represented the topic they chose to investigate. Assessment of this task was based on the originality of the model, the demonstration of the use of PBL strategies and the students' understanding of the chosen topic.

Literature

Action research

Action research has been suggested as an appropriate and effective mechanism to integrate educational research with teaching and learning practices (Zuber-Skerritt,

Table 2. Assessment tasks and learning outcomes.

Learning outcomes	1. Describe key concepts of organisational communication 2. Articulate relevant ideas, opinions, feelings 3. Positively contribute relevant information from various sources 4. Interpret and evaluate information 5. Use persuasive, effective communication techniques
Graduate attribute skills outcomes	1. Demonstrate effective research skills 2. Demonstrate effective academic writing 3. Demonstrate your understanding of the conceptual frameworks on a practical level. 4. Effectively work in a group. 5. Give an oral presentation.
Assessment activities	1. Critical journal article analysis (individual) 2. Reflective journal (individual) 3. Research report and presentation based on a specific communication topic (group)

1992). It is a cyclical process based on a reflective, participatory approach (Drummond & Themessl-Huber, 2007; Kitchen & Stevens, 2008). In educational settings, teachers, lecturers and students can be the researchers gathering information to integrate theory and practice (Brydon-Miller et al., 2003); develop reflective practices among faculty and students (Zuber-Skerritt, 1992); and improve student outcomes (Mills, 2003).

There were two aspects to the AR approach used on this occasion. Firstly, an AR framework based on the work of Stringer (1996) was developed and used as the basis for the overall project. The AR framework involved all class members actively participating in collaborative dialogues, participative decision-making and inclusive reflection as mechanisms by which they learnt from each other in relation to shared problems. Stringer's (1996) 'Look, Think, Act' model formed the basis of students' AR learning. Secondly, an AR approach was used by the lecturer to gather data for the *research* aspect of the project and to inform their own teaching practice within the unit. In this way, the lecturer modelled the AR approach for students and *Act*ed to modify the unit as progressive AR cycles unfolded.

Problem-based learning

Problem-based learning is a teaching methodology that develops knowledge, abilities and skills through participation, collaborative investigation and the resolution of authentic problems. It relies on clearly defining the focal problem, then using teamwork, communication, data collection, decision-making, planning, goal-setting and reflective analysis to enhance learning (Clarke & Hubball, 2001; Gallagher, 1997; Stepien & Pike, 1997). The abundance of publications about problem-based learning (for example, Fenwick & Parsons, 1998; Margetson, 1998; Saatci, 2008) provide ample testimony of the dynamic capacity of professional practice to be a process for framing and solving ill-structured problems (Schon, 1983). The pedagogical roots of PBL lie in constructionism, rather than positivism and context-based learning (Cobb & Bowers, 1999; Hansman, 2001). In this case, the definition of constructionism provided by Harel and Papert (1991) is accepted. That is, learning is a reconstruction, rather than a transmission, of knowledge and that learning is most effective when part of an activity the learner experiences is constructing a meaningful product. Typically, the PBL curriculum is organised around a series of situations profiling dilemmas of knowledge and practice within which students are required to identify, diagnose and explore strategies for solving the problem (Bovee & Gran, 2004; Lipman, 1991). Barrows (1994) reminds practitioners that it is important to ensure that the problem satisfies the curricular goals of the course and not to view problem-based learning as a panacea for all educational ills.

Often, PBL is characterised as 'active', 'self-directed' (Bernstein, Tipping, Bercovitz, & Skinner, 1995) and 'student-centred' (Mann & Kaufmann, 1995). It is usual for the problem-solving to be undertaken by groups of students using co-operative learning (Herreid, 1999). Boud (1985) suggests that behind any PBL approach there should be a problem that the learners wish to solve. The concept was expanded by Ross (1991) to have students themselves search for and identify the knowledge needed to address the problem. The decision to encourage students in the class to identify their own preferred area of research was based on this premise.

Principles

Problem-based learning draws on a wide range of learning strategies including critical thinking, interpersonal communications, reflective analysis, goal setting, cooperative learning, learning by doing and problem-solving (Cobb & Bowers, 1999; Stepien & Pike, 1997). The method also utilises the diverse abilities of individual group members (Cox & Ram, 1999). In the research conducted, one group used Davis and Harden's (1999) reference to the acronym 'PROBLEM' (Problems, Resources, Objectives, Behaviour, Learning, Examples, Motivation) to identify aspects of the nature of learning that occurs in PBL. Other groups used Charlin, Mann and Hansen (1998) to define seven core principles of PBL learning:

(1) the problem acts as a stimulus for learning;
(2) it is an educational approach, not an isolated instructional technique; and
(3) it is a student-centred approach.

Accordingly, student learning must involve:

(4) active processing of information;
(5) activation of prior knowledge;
(6) meaningful context; and
(7) opportunities for elaboration/organisation of knowledge.

These principles clearly outline the benefits of experiential learning and collaboration. Dewey (1916, p. 26) argued that when students 'participate or share in a social learning environment, the environment serves to reinforce the purpose of the activity. In addition, people acquire needed skills and they are saturated with its emotional spirit'.

Teacher/learner interaction

The second aspect of PBL to be examined was the variety of ways in which teacher/learner interactions can occur. The teaching/learning processes become a priority in PBL classrooms when the instructor's role is that of facilitator providing guidance, rather than providing solutions (Kendler & Grove, 2004). This idea has been expanded by several researchers who have identified taxonomies that describe a problem-based learning continuum (Harden, 1998; Jones, Rasmussen, & Moffitt, 1997) with differences occurring as choices are made among discipline-based learning activities, holistic learning and the desired level of student participation. This is achieved by activating students' prior knowledge to help them understand new information, enabling students to discuss and add to new knowledge, aid their recall and provide a context for the new learning (Morrison, 2004).

At the same time as the action research provides a scaffold for students to be facilitators and managers of their own learning, there is flexibility for the lecturer to exercise a range of roles such as mentoring, coaching and facilitating (Murphy, Mahoney, Chen, Mendoza-Diaz, & Yang, 2005).

Learning skills

The third aspect of a PBL framework can be used to describe factors related to the development of learning skills in students. Velde and Lust (2004) suggest that rich and

rigorous learning environments that include active student participation can make a profound difference to student learning by fostering a sense of community and a sense of success. Research findings identify improved student performance on a range of group-oriented skills and behaviours (Blue & Stratton, 1998; Mathew & Smith, 1996). These include improved performance:

- measured against skills accreditation guidelines issued by professional associations such as the Australian Society of CPAs (Certified Practising Accountants) (Curtin Business School, 1999);
- in relation to digesting subject matter (Hommes, 1998); and
- against graduates attribute skills that purportedly meet the needs of employers (Cummings, Ho, & Bunic, 1997).

The thoughtful facilitator of learning can use PBL to establish a repertoire of pedagogical techniques such as case study, thematic learning, project learning, service learning and performance learning so as to synchronise them with multi-dimensional strategies and tools that operationalise Gardner's (1983) theory of multiple intelligences as elaborated by Fogarty (1997). By contrast, the traditional teacher-directed, lecture-based curriculum allows little opportunity for reflective, self-initiated or integrated practical learning (Bovee & Gran, 2004).

Research

The concepts

The research was focused on trying to investigate the interaction of PBL/AR in order to generate an innovative approach to student learning of the communication subject matter and student learning of a variety of PBL techniques to increase the potential for student engagement and successful learning.

Conducting the research was an attempt to:

- discover how PBL and AR relate to each other and student learning;
- investigate whether students could learn about the techniques of PBL and AR while learning the necessary subject content; and
- determine whether a hybrid PBL/AR approach was a valid and useful teaching tool.

The use of a hybrid PBL/AR framework was introduced to inform changes that could be made to the unit to make it a more engaging and useful learning experience for students. The use of student participation and feedback in constructing and designing the learning environment and the use of both formative and summative feedback to evaluate the process and develop the unit made this a collaborative research event. The 48 students in the class were all involved and all contributed to the final outcomes.

The process

Cycle 1

Called Cycle 1, the initial stage of the project required students to use the action research activities (look, think and act) in an iterative manner as they interacted with

the material and with other students in the class. Students were directed to use the Stringer (1996) ideas as follows:

- Look: gather relevant information/data
  build a picture
  describe the situation
- Think: explore/analyse (hypothesise)
  interpret
  explain
- Act: plan (report)
  implement
  evaluate

The action research cycle used is shown in Figure 1.

The *Look* aspect of Cycle 1 became the first part of the project whereby each student was required to identify an area of interest related to the use of communication in organisations. An adapted card sort process (Hogan, 2003) was used to focus interests and resulted in the following ten topics being agreed upon:

- Effective meeting communication
- Communication technology
- Empowerment through communication
- Communication in recruitment
- Communication among bosses and subordinates
- Cultural effects in communication
- Leadership and gender differences
- Group focus on problem solving
- Non-verbal communication in networks
- Resolving conflict in service industries

Students self-selected appropriate work groups of between two and five members according to their preferred study themes, with each group being required to undertake a group research project related to their chosen communication topic. Having decided on a name for their group to assist with group identity and cohesion, the initial task for members was to investigate the concept of knowledge and what was meant by saying that one is able to 'know'. The second task was to confirm the focus of the group's research project. The essential aspects of this task involved identifying what the group members already knew about the topic and could generate into group knowledge and listing aspects of the topic that the group considered still needing to be learned. The group also was responsible for determining the type of resources that could be used to establish the sought-after knowledge.

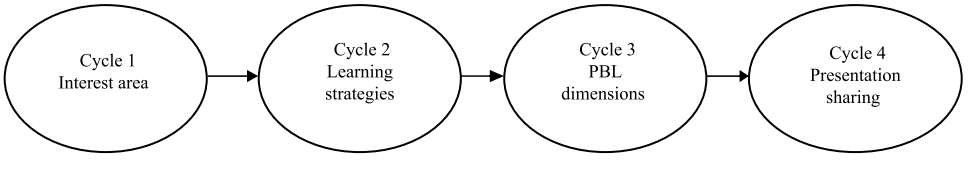

Figure 1. Action research cycle.

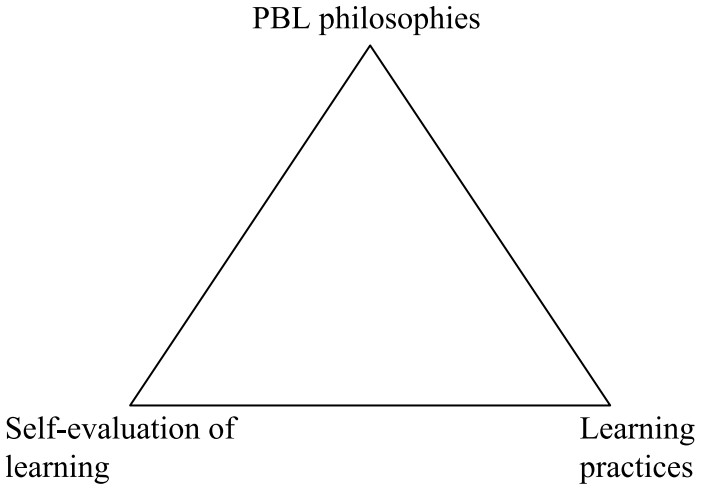

Figure 2. Problem-based learning framework.

Prior to researching their interest area, group members were required to *Think* about how they could investigate their topic and what they would accept as legitimate knowledge in their topic domain. It was agreed that there should be a common class understanding and students sought to answer questions such as: What is knowledge? How do we know what we know? and How do we acquire knowledge? Answers were collected from a number of reference sources. Typically, they began with simple definitions from a dictionary, but many of these used the word 'know' in the definition and were discarded. Further investigation of textbooks, journal articles and Internet material provided a variety of definitions. Eventually, the simplest, broadly accepted view was that the word 'knowledge' meant 'understanding'. One group identified that the ancient Greeks classified knowledge into *doxa* for knowledge believed to be true and *episteme* for knowledge that is known to be true. Students argued about how such differentiation was possible.

Several groups identified one or more of the following types of knowledge:

- Assertoric – having no absolute viewpoint
- Conditional – not infallible
- Group achievement – consensus – agreed set of conventions
- Societal convention – relative to time and place

One group, directed by a former humanities student who had studied philosophy, assisted the business-oriented students to recognise that knowledge claims are better accepted if they stand the test of time. The concept was related to Habermas's (1987) concept of the 'force of the better argument'. Eventually, the class decided that knowledge was the agreed (generally) best understanding that has been produced at a particular point in time. In reaching this conclusion, they were operating in a manner that was consistent with the socially constructionist definition (Crotty, 1998) they were proposing.

The *Act* aspect of Cycle 1 occurred as each group planned its own timetable of investigations, individual workloads and meetings to collate their findings.

Cycle 2

Cycle 2 required students to investigate the multi-faceted concept of learning as it exists within PBL learning strategies. The look, think, act sequence of examining the pros and cons of PBL increased students' awareness and understanding of the advantages and disadvantages of experiential learning processes. It helped them to identify behaviours such as motivation and readiness to learn which are frequently associated with 'deep' learning as suggested by numerous researchers (Biggs, 1993; Halbert & Kaser, 2006; Ramsden, 1992) and lifelong learning advocates (Marks-Beale, 2007; Morgan-Klein & Osborne, 2007; Sutherland, 2006). Once each group had undertaken some action research on PBL, the class as a whole developed a relatively simple, yet versatile, PBL framework. In turn, this enabled group members to determine the philosophical premises of PBL; how to construct a set of specific PBL practices that would meet the needs of particular learners and how PBL practitioners can evaluate their own initiatives and programs.

The purpose of developing an overview of PBL was to establish a model that would inform students how to develop their communication learning in a semi-structured fashion. The model would then enable the group to establish a range of techniques that could be used for learning about their topic. For example, one group used a Social Photo-Matrix as a learning method. They experienced – through visualisation and subsequent associations, amplifications and reflections – the things that Sievers (2007) suggests usually remain unseen or unnoticed in organisations.

A major outcome from Cycle 2 was the creation of a strategy with associated techniques that could be used to choose the means for presenting the group findings to the class, thereby sharing the learning in a co-operative fashion. Having located appropriate information about the three aspects of the PBL framework, students were required to *Think* about how specific aspects of the framework were relevant to their particular study. After coming to a group consensus on which strategies to use they then had to *Act* collaboratively to plan the learning processes to be undertaken.

Cycle 3

Cycle 3 was the operational cycle in the learning project. Student groups focused on appropriate strategies selected from the PBL framework and used them to investigate and develop their knowledge of the communication topic to the satisfaction of the group as a whole. Once the group had generated knowledge and artefacts related to their topic, their task was to develop an appropriate way of presenting that knowledge to other groups in the class. Again, the Look, Think, Act approach was an important part of the learning and reflection process to ensure selection of a high standard of relevant knowledge and to ensure continuous improvement in the development of the group findings and learning. The highly idiosyncratic activities and findings of groups were indicative of the values associated with group work, the PBL learning strategies and the reflective nature of the action research. The variety of content outcomes was accompanied by high levels of motivation and justified the early emphasis on the expectation that groups be innovative in their approach to the selected study topic.

Assessment

Assessment of the students' work by means of formative evaluation took place through the use of periodic checks of artefacts collected as a learning portfolio. A

learning diary was a concomitant part of the portfolio designed to sample student thinking and learning at different stages and to check on the skill development evident in information gathering, analysis and evaluation. Consequently, with training and appropriate skills, PBL becomes not simply a way to learn problem solving, but a way to learn content and skills as well (Stepien & Gallagher, 1993). Writing a weekly journal entry was integrated into the program to give students the opportunity to reflect on their learning and also as a way for the lecturer to obtain meaningful feedback on the progress of learning. In effect, another stage was added to the process. Cycle 4 (the *Share* cycle) emphasised practical presentations to the whole class designed to maximize the co-operative transfer of developed group knowledge so that all students were able to benefit from the group work both in terms of the investigation content and the learning processes undertaken.

The *Share* cycle was not merely a process to enable groups to select a type of presentation that would best reflect the actual learning achieved. It replicated the earlier understanding of a three-part process resulting from knowing presentation principles, encouraging interaction between presenters and students and demonstrating specific skills. Consequently, each presentation was customised to the topic by the group members who had constructed the learning.

The outcomes

The success of the PBL/AR hybrid approach can be measured by the level of attendance (never more than two people absent from any class) at a 5.30 p.m. to 8.30 p.m. class held on a Friday evening, class discussion (robust, honest and lively), class consensus (a relatively quick process as students were more aware of their responsibility for the collective learning environment), individual and group work and, finally, the graded results for the unit (no failing students and 56% achieving a high distinction result). The student journals provided a good source of feedback and were collected and reviewed four times over the semester. This process provided a way of achieving two-way formative feedback. Students were able to make their thoughts about the unit known to the lecturer and the lecturer was able to give students some feedback on process and the quality of reflective journal writing.

Reflections

Reflection is a standard format for delivery of feedback. Student and lecturer feedback were sought as an essential aspect of the AR methodology. The following comments from students are representative of the general climate of the classroom and the feelings of students in the class. Both formative and summative reflections were gathered and used for enhancing and improving the teaching programme. In effect, the comments are an articulation of perceptions of the success of the PBL/AR process and the students' perceptions of its evident value and relevance to their engagement with the topic and successful learning. Student journal material was selected, gathered and analysed as it related to the PBL/AR process.

Student reflections

The inclusion of the weekly journal entry by students as a mandatory part of the project was a useful way to reinforce student learning through the use of reflection and

to provide feedback for the lecturer. Typical of the early entries that addressed the 'innovative' aspect of the project were comments such as:

> This is the best way to form a group. We all want to do the same thing.
>
> Getting the chance to look at a 'real' problem instead of just doing theoretical study is fantastic.
>
> It is great to be able to interact with other people with similar educational aims.
>
> I'm really glad I have international students in my group. I think I will learn a lot from the diversity.
>
> I think the experiential learning aspect of this unit will be of great value.

As the program progressed and students began to investigate the meaning of knowledge, what knowledge they required to address their problem and how they would acquire that knowledge using the hybrid PBL/AR approach, there were numerous comments such as:

> It is the best feeling to meet other like-minded driven individuals with a passion for knowledge.
>
> I found all the group activities really rewarding – not a problem like they usually are.
>
> I think that the learning from this unit is not useful only in the workplace but also in a personal development area.
>
> This work help [sic] us to learn the theories vividly. I like them very much and I think it's the most interesting and unique point of this unit.
>
> Every time I walk out of a group meeting or a class (even if it is Friday night) I knew I had just learned something valuable.
>
> One of the best things is my classmates – they are a breath of fresh air – interactive and intelligent and we all have the common interest of getting the best out of the class and we all (including lecturer) work together to get it.

Some students initially found the reflective process difficult, but over the semester journal writing became easier and was valued as an important component of their learning. Comments about this aspect of the project included:

> The idea of writing the journal entry was excellent because I lack confidence in class discussions and this gave me the opportunity to express myself in writing.
>
> At the beginning, to be honest, I did not like doing it because I thought it gave me too much homework. But I find now the journal is very valuable. It gives me an opportunity to review what I have learned and think about it.

Final reflections included comments such as:

> This unit has provided me with a solid base and taught me how to look at scenarios from a different perspective.

> I feel a great sense of achievement. I feel rewarded for a sometimes challenging ride.
>
> The most crucial factor was the experience I went through by participating in this activity.
>
> Teamwork was encouraged and the team I worked with was excellent. I gained a lot of knowledge.
>
> This class was an exciting, interesting and enjoyable journey that allowed me to improve my existing skills and build new ones.
>
> In conclusion I wish to say that I have benefited more from this class than any other.

Students were aware that honesty was paramount in their writing and that the lecturer would be the only reader. The only negative comments in the journals related to the timing of the unit – Friday nights. All the comments about the project were positive, even when students faced challenging situations such as having to negotiate agreement on the presentation format. The high level of group co-operation and collaboration reported within the journals was a pleasing aspect of the project.

Lecturer reflections

The lecturer modelled the AR Look, Think, Act cycles and PBL techniques when initially presenting the unit outline to the class and in making suggestions as to how students might begin to use unfamiliar learning strategies. Once the unit was running, support was provided to each group to maximise their learning and involvement. Individuals who had specific requests for direction and assistance were seen outside class hours to ensure class time was used as a group learning opportunity.

One of the lecturer's key reflections on the hybrid PBL/AR approach trialed in this class was that a much stronger link between the teaching and learning components of the unit was evident. This strengthened relationship was mirrored in the level of interaction between the lecturer and students as demonstrated in some of the student reflections. A related outcome was the recognition that staff in business classes need to establish a better balance between the content of their units and the processes students use. It is clearly beneficial for the students to develop learning strategies and tools as part of a lifelong learning philosophy in addition to learning the unit's content material. Involving staff and students, and making the latter more responsible for developing innovative approaches to their learning, appears to be more acceptable and successful when varied research approaches can be applied. A third major reflection is that as the lecturer undertook the Look, Think and Act process as an essential feature in the development of continuous learning for both the students and lecturer. Students were encouraged to mirror that behaviour and, as a result, became enthusiastic in developing their own learning, thereby extending their capacity as adult learners.

Conclusion

In effect, the research approach has demonstrated the point made by Dryden and Vos (1994) that:

> It is possible for anyone to learn almost anything much faster – often anywhere from five to 20 times faster – and often ten times to 100 times more effectively, at any age. Those learning methods are simple, fun-filled, common sense – and they work. (p. 35)

In this project, post-graduate students demonstrated their interest and excitement at being able to practice a learning strategy at the same time as they expanded their content knowledge. Problem-based learning proved to be a major part of the learning revolution that assisted students to cope with the expanding technology, information and communications explosions of the twenty-first century. Although it suggests an innovative, future-oriented curriculum, PBL merely requires a simply understood context that will assist educators to reshape their understandings and application of teaching and learning practices. Such a context can be adaptable in a broad range of academic disciplines so that facilitators can be cognizant of the needs of students and their potential employers.

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