

Reinventing **PBL**



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**TRANS-DISCIPLINARY, PROBLEM-BASED APPROACH TO TEACHING
ENGLISH AND PSYCHOLOGY IN SENIOR SCHOOLING.....228**

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Trans-disciplinary, Problem-Based Approach to Teaching English and Psychology in Senior Schooling

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ABSTRACT

Education in Australia, it would seem, is at the crossroads with an exodus of students from the public sector into private learning institutions. This is to a large extent due to student disengagement and absenteeism. The trend is reflected on a global level and has become a social issue that is causing grave concern due to its impact. Parents who can afford the fees are shifting their children and the Australian Federal Government is subsidising this exodus. These days newspapers and television carry regular stories of under-performing schools and students without basic literacy and/or numeracy. This paper suggests student disengagement as the key reason for the apparent decline in public education and offers solutions based on a recent trial of an alternative approach using Problem-Based Learning (PBL) to engage learners and develop the generic attributes required for work and tertiary learning.

The study conducted involved 34 year 11 students from a Geelong senior college who were studying English and Psychology in a combined class. The findings of this research suggest that students who experience the PBL methodology have a higher satisfaction with their learning experience when compared to previous years students who study these subjects in a traditional didactic approach.

BACKGROUND

Corio Bay Senior College (CBSC) is a recently fully-refurbished, stand-alone, co-educational senior secondary College catering for Year 11 and 12 students which, over the past six years, has had a stable enrolment of around 365 students. The college is located in the northern suburbs of Geelong, a lower socio-economic area. In a recently released social study (Vinson, 1999) the Corio/Norlane area featured as a neighbourhood with one of the highest levels of poverty and unemployment in Victoria. The family occupation status sees approximately 60% of parents in the categories of, 'Home Duties', 'Pensioner', 'Unemployed', 'Retired', 'Student' or 'Homeless' and less than 5% in the 'Professional' category (Boyle, 2005). Many families are entrenched in second or third generation unemployment and do not have a high regard for education and its relevance to their future. Approximately 17% of the students are independent and over 50% receive youth allowance. Many of the students lack the necessary social competencies and positive role models in their life. All of these factors impact on students' personal motivation, self-esteem and individual growth (Boyle, 2005).

Corio Bay Senior College provides a choice from two Senior Secondary certificates - the Victorian Certificate of Applied Learning (VCAL) and the Victorian Certificate of

Education (VCE). Vocational Education and Training (VET) and Structured Workplace Learning can be integrated into students' individualised programs. Aggregate VCE scores at CBSC are among the lowest in Victoria and this is cause for concern for the staff and management for the school in a Federal and State regulatory environment that is conscious of growing public concern regarding the success of public schools.

Attendance and engagement are recognised as a major barrier to student success at the college. Various strategies (Advocacy, fortnightly reports to parents, rewards system, make-up classes) have been employed to address attendance, but student engagement and absenteeism remain significant barriers to learning for many of the students.

The concept of delivering curriculum in a senior secondary school via a PBL pedagogy came from the college principal. With a strong background in Project for Enhancing Effective Learning (PEEL, 1985), the Principal's visit to schools in Sweden in 2002 and also in a follow up visit in 2004, consolidated his belief that PBL offered advantages to students in a senior secondary setting. College staff were asked to volunteer for their involvement in the program and develop partnerships with other staff to integrate curriculum across the college.

PBL professional development was provided by Central Queensland University's PBL Coordinator and this has been an ongoing process since 2005. Additional professional development was provided by a representative from Deakin University's Nursing faculty, along with a funded trip to South Australia's Mathematics and Science Academy for key teaching staff late in 2005.

LITERATURE REVIEW

Kearsley and Shneiderman (1999) suggest that learning engagement is achieved by presenting students with real-world authentic problem scenarios; having them relate to these in small teams; collectively create a solution and then donate this back into the real world. They claim that this approach leads to significantly high levels of student buy-in and a sense that what they are doing is worthwhile and meaningful. Marzano and Pickering (1997) suggest that before learning begins the context of the content needs to be made meaningful to students. They also assert that problem-solving needs to be apart of all higher level learning.

Problem-Based Learning (PBL) was originally developed for medical education as a strategy to ensure that graduating doctors developed significantly better clinical and diagnostic skills than they were using conventional instructional methods (H Barrows & Tamblyn, 1980).

The term problem-based learning (PBL) covers a family of educational approaches that all have messy ill structured problems at their core (H. Barrows, 1986). Some examples of PBL include:

- research
- case studies
- guided design
- engineering design projects.

(Woods, 1995)

The Illinois Mathematics and Science Academy define PBL as:

Problem-based learning (PBL) is an educational approach that organizes curriculum and instruction around carefully crafted problematic situations adapted from real-world issues. Learners gather and apply knowledge from multiple disciplines in their quest for solutions.

Guided by cognitive coaches, they develop critical thinking, problem-solving, and collaborative skills in addition to content knowledge as they identify problems, formulate hypotheses, conduct data searches, perform experiments, formulate solutions, and determine the "best fit" of solutions to the conditions of the problem.

(IMSA, 2001)

Woods (1995) claims that the power of PBL comes from the fact that the learning environment embodies most of the principles that improve learning as well as providing a context for learning which leads to greater levels of learner engagement.

Graduates and employers now place as much importance on so called generic skills as content knowledge (Scott & Yates, 2002). The type of activities undertaken in problem-based learning contribute demonstrably towards these generic skills and attributes. Stepien (1993) suggests that PBL develops the following generic skills and attributes:

- critical and reflective or higher order thinking
- communications
- metacognition (thinking about thinking)
- information handling
- ethical analysis
- problem solving

Indeed the development of enhanced generic skills and attributes was one of the key factors in the school's decision to adopt PBL as its dominant pedagogical approach.

The PBL approach is seen as a more engaging way to involve students in the learning process as well as giving them ownership of their learning. The problem is provided to the students in the context of the skills and knowledge the teacher wishes their students to gain. The students solve the problem in that context then abstract their new knowledge and skills to new contexts.

In the context of our years 11 and 12, the problems designed by the authors were aimed at achieving outcomes for the Victorian Certificate of Education (VCE) in the subject areas of Psychology and English.

THE PBL PROCESS

A trigger or an appetizer is set up to introduce and/ or act as background for a topic. Supporting documentation is handed out to students. The problem is usually set in 'real world' terms (e.g. the students are reporters for a newspaper, or they are compiling a job guide...). The parameters of the problem are clearly defined in terms of; date of completion, format of assessment, requirements of the problem, possible resources, the real world situation for role playing, number of group members and

who they are, the outcomes to be achieved upon completion of said problem. Students have to identify what they know and what they need to know. They then allocate 'roles' or tasks to each group member so that everyone is aware of their individual responsibilities – their collective responsibility is to complete the task! The research phase can involve working individually before reporting back to the group where they peer teach what they have learned before collaboratively completing the task.

THE STUDY

The first step was to ensure that students could still achieve Victorian Certificate of Education (VCE) outcomes. The structure of the VCE requires that certain a study design be followed for each subject taught. The Victorian Curriculum and Assessment Authority (VCAA) has the right to audit any subject to ensure quality assurance of delivery and assessment. Effectively this means that that the content of the course is controlled by the VCAA and assessment is chosen from a list of options. Given the course structure and assessment guidelines specified by the VCAA, the integration of PBL to the VCE assessment requirements in English and Psychology at first appeared to present various difficulties. Several problems were required to be written specifically to allow a unit of work be assessed in a PBL format consistent with the respective study design. In some cases, however, existing assignments previously used for assessment could be adapted to a PBL format quite successfully. (see Appendix A)

The timetable at CBSC was modified to allow longer session times (1 x 110 minutes and 2 x 70 minutes per subject. This structure provided a total of 260 minutes of class contact time; well above the 200 minutes specified by the VCCA. This extra time suited PBL delivery for students working in groups and meeting deadlines.

More importantly, Psychology attracted a total of 34 enrolments at the beginning of the 2005 school year with all of these students enrolled in English. This meant that the timetable could be structured in such a way that two teachers could be timetabled for to the group of 34 students for two subject lines (six sessions instead of three). This allowed the facilitators to use this large block of time as they saw appropriate; both or either subject could be delivered over the six sessions per week depending on which best suited the task at hand. Essentially, this structure meant that the 34 students could be in the same room with two teachers for the delivery of either English or Psychology.

The facilities to cope with a group of 35 students are not commonly found in secondary colleges, nor are they ideal to facilitate a PBL style of learning because of the pedagogy's group work (quiet areas) and research requirements (connected Information Technology Communications equipment). As an interim measure, before a purpose built facility was completed, the class was timetabled into two rooms with adjoining doors to a small computer room between them. This worked well with one room used for meeting as a large group and then breaking out into the other room as well as the computer room as required. Presentations could be made to the larger group or to smaller audiences.

From the beginning of term one, students were presented with a series of problems relating to either the English or Psychology curriculum. It is important to note that

delivery was entirely by PBL with little or no didactic teaching. Students went from the completion of one problem to the commencement of the next.

Some problems were structured so as to integrate the content of one subject into the other. (e.g. Using psychology content in English). Other problems integrated the skills required in one subject with the content of another. (e.g. English essay writing in psychology).

Allocation of groups was initially done by student choice and this resulted in friendship groups. The next step was teacher selection but with consideration to friendship. This meant that each student had at least one friend or familiar face in the working group. Ultimately, as students came to know each other, the facilitators were able to randomly assign students to groups without complaint. This is not to imply that all students were equally happy to work with each other, however they accepted that they were working in a small group temporarily to achieve a goal. New groups were assigned for each new problem.

Each group was asked to develop a list of rules that would apply for the time the group operated. Initially, the list of group rules generally involved expectations for interaction between the group members. As students moved from group to group throughout year, the rules became more pragmatic and more work oriented towards the problem tasks. By the end of the year, and when students were entering their tenth group, the rules were literally unwritten as the PBL culture became prevalent with the student cohort.

The amount of time allowed for each problem varied. English problems were generally completed over a longer time period (two to three weeks) than psychology problems (one to two weeks). Due dates were essential as the next problem required all students to be available for allocation to groups for commencement at the same time.

Assessment caused the most apprehension, as it was expected that students would be reluctant to accept the global grade given to the group, irrespective of individual effort. In this respect group assessment was 'phased in' by beginning with a composite assessment that included individual contribution and group result. Later in the year peer assessment was also used.

FINDINGS

1. Student Achievement

The following observations, by facilitators, have been made regarding the areas of engagement and student attendance: the key reasons for the implementation of PBL. In addition, student input through reflective writing as an evaluation process, has been included.

Students embraced the idea of PBL far more quickly than the authors had anticipated. Although there were strong misgivings about changing group dynamics for each problem, students have enjoyed the concept of working at their own pace with the emphasis on learning rather than teaching.

RESEARCH PAPERS

“It is also better this way because I can’t sit in a classroom and listen to a teacher talk all the time because it gets boring.”

“I think PBL is a good idea because I like the fact that it’s more hands on. I also enjoy the group work. It’s more fun and interesting rather than working by yourself.”

“PBL is better than normal classes.”

Excerpts from student reflective journals, Term 2, 2006

In the group of 30 students the authors had a small number that were excellent students who provided leadership in groups and a positive contribution to all problems. They gained significant benefits in the development of leadership skills in the small groups. These students have also produced excellent results in traditional classroom settings.

“I am learning a lot of things I didn’t know. And the fact we are always doing work.”

Excerpt from student reflective journals, Term 2, 2006

Observations suggested that students are generally time efficient in researching (when on task) especially on the Internet and have well developed skills in locating and filtering information to suit their needs. Some have found their way to the required information through sourcing facts they have found interesting (e.g. two students found the personal life of psychologist, JB Watson exciting and researched further in both his professional and personal life).

Irrespective of membership or problems with group dynamics, all groups have managed to complete all problems. Some groups have had major breakdowns mid-way through a problem, but all have completed and submitted responses to the set problem.

“PBL is good for me. I like the group working together because you have to get the work in and it’s more fun working in a group than working by yourself. Yes I am learning and liking the idea that you are not doing the same thing all the time.”

Excerpts from student reflective journals, Term 2, 2006

The ‘average’ group (the largest) benefited the most from PBL. The expectations of the group placed enough pressure on the individual to lift their work rate and contribute to the group at a higher level than if they were working individually.

“Yes I am learning. I think I learnt more because I have to find things for myself.”

“Group work is ok but some people going to boss you around and give you most of the work while they have very little and some people depend on other people to do their work for them. It is better working you can pass.”

Excerpts from student reflective journals, Term 2, 2006

PBL offers tremendous scope for students to waste time. There are some students that take advantage of this from time to time, although the vast majority do not. Students are generally good at judging what needs to be done now and what can be done later. We have found that deadlines are generally met and groups far more likely to meet a deadline than an individual. Students have been involved in some socialising during class time but, overall, we have not considered it a problem for the majority of students.

“The problem with working in groups is that you are relying on other people To get their work in on time otherwise the group falls behind. This means there needs to be a lot of trust and group meetings.”

Excerpts from student reflective journals, Term 2, 2006

This can influence involvement. Students can be involved in long problems but need to feel that progress is being made. If progress slows, students tend to feel disengaged from the problem. Thus checklists are utilised for this purpose in the English problems that are longer (three to four weeks) compared to the Psychology problems (one to two weeks).

In VCE English the only allowable assessment methods are essay writing and oral presentations, whereas psychology is more flexible in its evaluation. To assist in perfecting essay-writing skills, psychology has adopted essays as an assessment outcome. Through the process of writing essays in two different contexts, students have an opportunity to practice their skills in this genre of writing.

2. Student absences

Student absence is a complex issue that is a recurring problem at school. Absences have proven pivotal in the success or otherwise of groups in the Problem Based Learning focus. Absence of members is a significant source of frustration for the group when material that was promised to the group is not delivered. Thus this was a problem that PBL attempted to redress by providing enhanced student engagement and thus a greater will to attend school more regularly.

However facilitators found that although increased student engagement was evident in both in student’s own reflective writing as well as in facilitator’s observation of the class, absences were largely unchanged. An individual student’s absences were generally across all enrolled subjects and not higher or lower in PBL.

Students with absence concerns were able to maintain contact with their groups(and groups were generally supportive of absentee students) and facilitators and were able to complete tasks-often to the minimum standard. The facilitators believe that without the support of the PBL groups and the flexibility they provide these students would have much higher rates of absenteeism and ultimately exited the college before the end of the school year. In this sense there may be evidence of a relationship between student engagement and success

So although students demonstrated a high level of satisfaction with the class and considerable connectedness to other class members but this did not translate to a reduction in absences. In this case it would appear that there was little relationship

between engagement and attendance but student engagement may increase the likelihood of student success.

3. Relationships in the Classroom

The group dynamics developed as a result of PBL perhaps provides the biggest benefit for students in terms of communication skills, self-esteem and peer learning. Group dynamics are also the source of potentially negative influences. Several times groups have fallen apart due to personality clashes and differences of opinion. The support system that was already in place, restorative justice (Morrison, 2002), that assisted in getting our students back on tasks. This has been consistently successful in ensuring student relationships remain intact until the realisation had sunk in (which it did without any prompting from the facilitators) that the important factor was the group outcome: the resolution of the problem. Students have been encouraged, through their own initiative, peer support and peer pressure, to attend classes so that the problem could be addressed. Students also established ways they could remain in contact with each other in the event that they could not attend class and pass on information required to assist in completing the problem.

“I like PBL. The advantages of working in groups – is great to be able to get other classmates opinions on work.”

“Well I like PBL because I would rather do group work than individual work.”

Excerpts from student reflective journals, Term 2, 2006

The diversity of student abilities in a group is a frustrating issue for students. The PBL methodology helps them to overcome this and to value others' contribution. A student can sometimes feel 'out of their depth' in a high level group, which can impact on their self-esteem, but it is common for students to underestimate their value to the team in comparison to other group members. The peer evaluation implemented within the groups allowed students to gain some self-confidence, and belief in self and realise the value of their contributions.

“I like PBL because it's a little bit more different and fun. Of course, with such a big and diverse group there are a few conflicts but they teach us how to deal with people.”

“The advantage of PBL is the opportunity to work with and alongside fellow students. Disadvantages may be personality clashes, perhaps feeling unheard, intimidated or not respected.”

Excerpts from student reflective journals, Term 2, 2006

PBL has been proven to help students develop relationships within the class. Students who would be slow to make friendships or enrol later in the year, fit in and became part of the group very quickly. Students have also commented that they are happy to have people in their group that they don't particularly like, so long as they complete their work and submit it on time. This was a big development from the beginning of the year when everybody wanted to work only with their friends.

“So far PBL has been a good experience and has helped me to work with, depend on and interact with small/ large groups of people – something I hadn’t had much experience with previously.....working, or trying to work, with people I don’t know is teaching me some social skills I would need in the ‘real’ world.”

Excerpts from student reflective journals, Term 2, 200

CONCLUSION

Overall, the PBL approach resulted in significantly improved outcomes for many of the students involved with the English/Psychology subject. Especially advantaged were the students that would have normally struggled to successfully complete these as individual subjects. The commitment to the group, combined with the vastly improved interpersonal skills, resulted in on-time submissions and improved quality of work than would have been expected given previous experiences in each of these subjects in past years.

While the results of the class have improved overall, by far the most significant improvements have occurred in the areas of generic skills and attributes. It is the authors’ hopes that this also translates into increased employment and educational opportunities for their students after leaving school at year 12.

RECOMMENDATIONS

School absenteeism did not show any significant improvements over past years and this is contrary to what the authors of this paper expected. They surmised that greater learning engagement would result in increased attendance, as students would be more motivated to come to school regardless of their personal circumstances. The factors associated with absenteeism are complex with many circumstances being beyond the students’ direct control (CBSC, 2005). More research needs to be done to determine if there is indeed a direct relationship between learning engagement and absenteeism.

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APPENDIX A

PBL ACTIVITIES

Newspaper problem for “Australian Rules”.

The students were eager to start the problem and they started by choosing an editor (someone to take charge!). The groups then divided up the sections of the newspaper to work on in pairs or individually. The group came together to compile the newspaper. Students insisted on A3 size to mimic the form of newspapers. This problem took 3 / 4 weeks.

While all newspapers were submitted, we had an incident in one of the groups which divided the loyalties of members of the group. This caused the task to suffer as people refused to work together. We sought the assistance of the school student counsellor who worked within the framework of restorative justice to resolve the situation.

Another group had two members who were constantly absent. A few days before the due date, the rest of the group divided up those 2 students’ workload and completed it so they could all receive a good grade.

The peer assessment reflected a pretty fair view of people’s contribution and effort. However the consensus was that regardless of personality conflicts, it was the group task that was important.

Film for “Tomorrow When the War Began”

- Students had a talk from our media teacher about film technique
- They were given handouts on writing scripts and storyboarding
- In their groups they chose a writer, in general, before tackling the script.
- It was a good problem because those students who took media as a subject were immediately hailed as the experts. Most of them had not taken on a leadership role before and this provided them with that opportunity.
- Students took their proofs to our art teacher who advised them about effective layout.