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## **2010: THE KBC ODYSSEY: KBC STRUCTURES FOR KNOWLEDGE FUSION (RELATIONSHIPS) IN TEACHER EDUCATION**

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This paper explores the experiences of preservice teachers as they embarked upon an alternative model of teacher education known as the Knowledge Building Community Project (KBC) at the University of Wollongong. The KBC Project was initiated as a response to research that suggested preservice teachers needed more experience with the day-to-day operation of schools, and how the daily work of teachers related to the culture of schools and classrooms. A series of revisions now means that the KBC model is underpinned by four outcomes to support knowledge fusion: (i) Community Collaboration, (ii) Taking responsibility for own learning, (iii) Professional problem solving using the principles of PBL and (iv) Reflective practice.

The research showed that the students involved in the KBC Project benefited from the support of a community triad (the KBC facilitators, school based teachers and each other). The data showed that being members of a community triad enabled students to develop friendship and trust, which made working in collaborative school groups advantageous.

The paper demonstrates that there are key components needed in order to implement a KBC in teacher education. The key feature highlights the importance of a structure to promote social interaction between the main participants. When students are given the opportunity and support of the community triad, they can develop an ownership and responsibility for their learning. A key trait is the ability of the students to link theory to practice as well as developing an increased understanding about the culture of schools and the way that they operate.

### **INTRODUCTION**

Like most institutions charged with the responsibility for preparing teachers, the University of Wollongong's Faculty of Education has long been conscious of the documented shortcomings of traditional models of program delivery. These traditional programs feature mass lectures and tutorials, punctuated by prescribed periods of examination and practical experience.

Traditional modes of delivery seem to produce many students who are disenchanted and bored with their university education. They complain about being faced with vast amounts of information to memorise, much of which seems irrelevant to the world as it exists outside the university. They admit that they forget much of what they learn, and complain what is remembered cannot be applied to the problems and tasks they later face (Cambourne, 1998). Over the last five years the Faculty of Education at the University of Wollongong (UOW) has been intent on redesigning its teacher education courses and subjects to meet the needs that the teaching profession has identified. While the new degree structure that was implemented meets many of these needs, the mode of delivery remains relatively unchanged. Thus the decision to trial an alternative mode of delivery provides a unique opportunity to begin to address many of the shortcomings of traditional university methods identified above.

The approach undertaken by the UOW is a collaborative venture between representatives from the Faculty of Education, the NSW Department of Education and Training (DET) and the NSW Teachers Federation. This Reference Group began meeting regularly and negotiating details in January 1997. The overall intent of the

Reference Group was to explore issues inherent in changing two major aspects of teacher education at the UOW:

- The teaching/learning culture of undergraduate teacher education; and
- The traditional mindset and culture associated with practice teaching/internship in schools.

In order to adopt the above it was decided that the alternative model would seek to achieve these changes by:

- Shifting the mode of program delivery from the traditional campus-based-lecture-tutorial mode to a problem-based-learning-within-a-school-site mode;
- Reconceptualising the nature of what has been traditionally known as practice teaching or 'the internship' so that there is a closer link among the specialised knowledge in Education courses and the nature and culture of schools and how they do business so that it is better understood both by students and local schools and teachers; and
- Renegotiating the professional relationship between the NSW DET, the university, local schools, and the NSW Teachers Federation so that a new form of practice teaching could be collaboratively developed.

It was decided that these aims would be implemented through an inquiry and problem-solving approach with a greater integration of the practical field-based component with the theoretical content.

In 1999, the Faculty of Education at the University of Wollongong implemented its alternative teacher education program in initial teacher training. This project became known within the faculty and collaborative partners as the Knowledge Building Community (KBC) Project. In 1999 the KBC Project commenced with twenty-two primary education students from the first year cohort (approximately 12.5% of the total intake) and was supported by four local schools whose staff had full commitment to the project.

### **What is a Knowledge Building Community?**

A Knowledge Building Community is a group of individuals dedicated to sharing and advancing the knowledge of the collective. what is defining about a Knowledge Building Community is a commitment among its members to invest its resources in the collective pursuit of understanding.  
(Hewitt, Brett, Scardamalia, Frecker & Webb, 1995).

The notion of students and teachers working together in collaboration has been in educational conversation since Dewey but in the latest decade has been taking a more definite shape in various programs (Scardamalia & Bereiter accessed January 2000). The adoption of this approach sees the class become a research team aimed at advancing its own collective, intellectual growth through sustained, collaborative investigations (Hewitt et. al., 1995, p. 1). Based on the principles espoused by Scardamalia and Bereiter (1989, 1991, 1993, 1996) the student teachers involved in the KBC Project at the UOW work in a learning environment that supports the continuous social construction of knowledge (Vygotsky, 1978).

To reposition the delivery of teacher education from a campus-based-lecture-tutorial mode to a problem-based-learning-within-a-school-site mode the KBC in operation at the UOW was underpinned by three learning principles.

- Community learning (CL);

- School-based learning (SBL); and
- Problem-based learning (PBL)

### **Community Learning**

Community learning (CL) is a major shift from the traditional teacher education model of lectures and tutorials and serves to strengthen the working link between the university and the participating local primary schools. It requires the development of a community of learners, which is made up of preservice teachers, the school-based teachers and university lecturers who act as facilitators on campus. This community is designed to establish a sense of trust among all of its members who are dedicated to working together to educate competent and sensitive professionals.

### **School-based Learning**

School-based learning (SBL) is the second learning principle of the KBC project. Schools are more than a conglomeration of buildings and people rather they are a set of individual cultures which have evolved in response to the wider cultural values (Bullough, 1987). To function, and indeed survive a beginning teacher must understand this culture. This component of the KBC structure aims to develop a sophisticated understanding of school-based culture. It is important for preservice teachers to understand how schools do business and how classroom cultures operate and support the learning of all students. It is also necessary as a part of this understanding of classroom culture to know and appreciate how to create and sustain this culture. This part of the KBC project is particularly aimed at reducing the reality shock by increasing preservice teacher's understanding of a teacher's multiplicity of roles in both the school and the classroom.

### **Problem-based Learning**

Although problem-based learning has been extensively used in medical and other health professions over the last 30 years it has not widely crossed over into teacher education. The literature supporting problem-based learning in preservice teacher education provides relatively few examples. Higher education has become characterised by structured subject based learning. Subject based learning has at its centre the lecture. The lecture rates poorly as a means to motivate students because the core issue of the lecture is the lecturer's intent to cover set material (Margetson, 1994). However, effective student learning does not necessarily result from the lecturer's presentation of material. It appears that no matter how well the lecturer performs during the course of the lecture, students still sit passively and are seldom involved (Margetson, 1994). Subject-based learning means that subjects are viewed in isolation from each other and it is the subject that is driving learning. This style of learning assumes that the learner is unknowledgeable (Woods, 1994) and the instructor is the source of knowledge. Duch (1995) says that faculties that incorporate problem-based learning into their courses empower their students to take a responsible role in their learning and as a result must be ready to yield some of their authority in the classroom to the students.

### **The Evolving KBC Model**

The research undertaken in 1999 and 2000 showed that the attempt to combine PBL in its pure sense as the literature suggested was a bittersweet mixture of success and failure. The experience of PBL over the last two years has predominantly provided insights into the pitfalls of trying to implement what might be called a "pure" PBL model. As a result of this research the current KBC model has removed the

constructed or hypothetical problem. Problem-based learning principles guide the students as they negotiate to complete assessment tasks. The students devise assessment tasks based on collaborative evaluation and analysis of the non-negotiable curriculum i.e. the compulsory subject outcomes. The students then undertake negotiations with their mentor teacher at the school where they are a Teacher-Associate to ensure that the tasks they have devised are appropriate and achievable in their setting.

The original three learning principles have also undergone a revision and are now referred to as the Four Pillars or outcomes for KBC learning. They are:

#### 1. Taking responsibility for own learning

Within pillar number one it is expected that the students will:

- Demonstrate that they understand the importance of becoming autonomous, self-directed, independent learners
- Demonstrate that they know how to make effective, productive, learning decisions
- Identify a set of learning strategies and/or tactics that responsible, self-directed, independent learners can use and/or draw on
- Apply some of these strategies and/tactics to their own learning.

#### 2. Learning through professional collaboration

Pillar number two expects the students to:

- Demonstrate understanding of the value and power of collaborative learning;
- Demonstrate ability to work productively and professionally as a member of a team;
- Demonstrate the ability to deal with inter-group conflict in productive ways;
- Understand how group dynamics work and be able to apply principles and know-how to maintain group cohesion; and
- Demonstrate that they can collaborate in the generation of professional knowledge which all who are members of the KBC community can share and use.

#### 3. Identifying and resolving professional problems

Pillar number three encompasses the principles of PBL and therefore expects that the students will:

- Demonstrate the ability to identify and articulate professional problems, which need to be addressed and resolved;
- Demonstrate the ability to analyse the key elements in a range of professional problems;
- Make explicit and apply a set of problem-solving strategies and tactics which can be used to address and resolve such problems;
- Demonstrate the ability to identify resources that might be needed to address and resolve a problem, and subsequently find and use such resources; and
- Demonstrate the knowledge and ability to use time effectively in the problem-solving process.

#### 4. Becoming a reflective practitioner

The fourth and final pillar of KBC learning engages the students in reflective practice; therefore the students will be carrying out the following activities:

- Demonstrate the ability to engage in the process(es) inherent in reflective learning; and
- Students will be expected to make regular, honest, and systematic judgments of the degree to which they believe they have demonstrated the four broad specific outcomes of KBC in the various settings (School, KBC home-room, Self-Directed

Learning) by completing self-evaluation reports at regular intervals.

The four pillars of the KBC are a set of complex interactions that are interrelated. When these interactions are working they will serve to drive the task that is to be investigated. In the place of the designed generic problem are a series of questions that have been designed to guide the students in their quest to master the outcomes of the compulsory subjects in which they are enrolled. This is a four stage approach. At each stage there is a question that has been written to guide the students as they work towards designing their own assessment tasks. The questions at each stage are written as a means of ensuring that the students are satisfying the requirements of the compulsory subjects. The four guiding questions are:

- Stage 1 Let s identify exactly what we are expected to learn in each of these subjects
- Stage 2 Let s see how we can reduce our workload by integrating and combining what we find out in Stage 1
- Stage 3 How can we make best use of our time in school to support what we re expected to learn?
- Stage 4 What sort of assessment tasks can we design and submit that will convince those who are going to assess us that we have achieved what we re supposed to have achieved?

The students use the four pillars of KBC learning to support their work through each question at each stage. The principles of PBL are still in use because the students do not attend lectures, are constantly asking questions are engaged in problem solving research activities and they work in small teams. It is these teams that form the structures for knowledge fusion relationships to be built.

### **Social Interaction: The Missing Link in Teacher Education**

The key feature of these relationships highlights the importance of a structure to promote social interaction between the main participants. When students are given the opportunity and support of the community triad (the KBC facilitators, school-based teachers and each other) they can develop ownership of and responsibility for their own learning. Another key trait is the ability of the students to link theory to practice as well as developing an increased understanding of the culture of schools and the way that they operate.

The support of the community triad is the base from which all else operates. The experiences of the students from February 1999 through to the present day are directly influenced by the friendship and trust that is created in the community triad. This was evident in week one of Session One 1999 when Siobhan stated that she didn t feel lonely and that she always had someone to have lunch with . She went on to question, How you could ever learn when you felt lonely at university? Kerrie confirmed this when she said:

I don t think I am learning and then I go home and all this stuff comes out. I think where did that come from? It's because we talk and trust each other. If we have a problem we talk. We had so much fun with our group poster we weren t afraid to say anything. We talked so much. We hardly ever disagreed at all once someone said something we would go oh yeah that s a great idea One of my initial concerns about this course was that my friends weren t doing it and I thought that I would be on my own but just the opposite has happened and I have made so many friends.

Kerrie

Skye via e-mail also reiterated the benefit of working in groups

Its been great. I have loved working in-groups. I have had the best time. I have found that by working in a friendly environment you learn more. I think that everyone has different aspects that you can utilise. Skye

The reverse to this situation was demonstrated in Session One 2002 when students not carrying out their share of the workload were threatening the underpinning value of the group relationship i.e. trust.

We have had several group meetings now where one or two members have arrived with their allotted tasks not completed. To be frank I am losing all sense of trust with them. I am concerned that we will not be able to finish our major assessment unless we have a major turnaround. Michael

The KBC Project was established as a means of providing students with quality learning experiences. What has emerged however is that the social interaction and support of each other and/or the KBC facilitators and/or the school-based teacher mentors serves as the greatest influence on any or all of the students experiences.

One of the most important things I ve learnt so far is that this program is about helping each other and reflecting on our ideas so that we can learn from each other. Ashlyn

The development and formation of the community triad therefore needs to be included as an essential component of this alternative model of teacher education. Figure 1 illustrates the relationships necessary to replicate a community triad for any future KBC cohort to include students, university and school staff. This needs to be done prior to students entering the KBC project or any of the participating schools. The fusion of community between KBC facilitators and school-based staff needs to be viewed by both parties as a partnership.

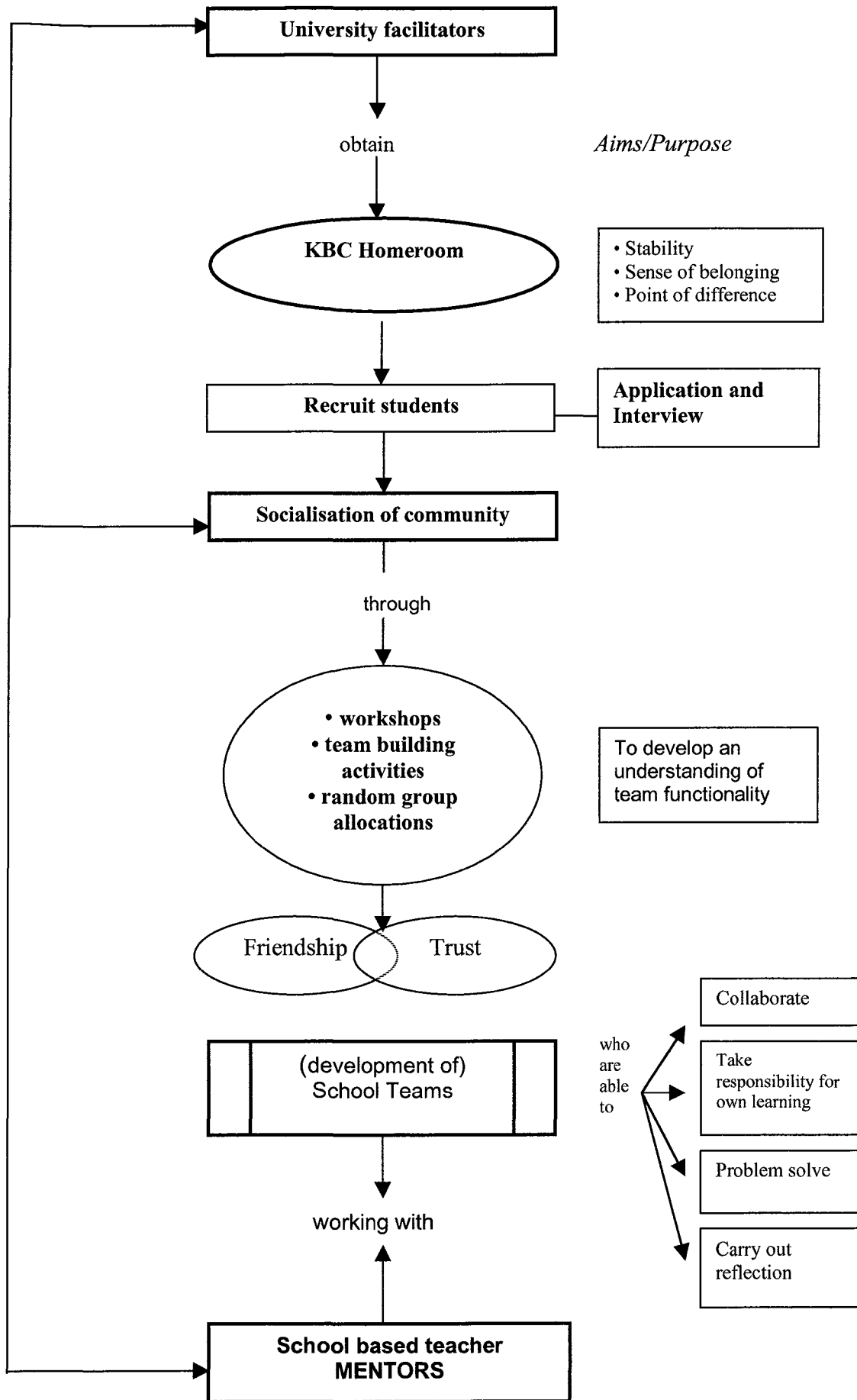


Figure 1 Relationships in the KBC Knowledge Fusion



Just as the students reflected on the relationships that they established through their involvement in the KBC so too did the school-based teachers.

Having KBC students in the school has led to discussions about teaching philosophies and organisational matters better professional conversations not whingeing and whining  
Dianne 2002

The students were making comments and asking questions that as a teacher I have longed to hear because what it did was reassure me that as graduates they were going to be effective teachers  
Jane 2000

Comments such as those above from the school-based teachers involved in the KBC-Mentoring Program support the existence of the community triad. However the university facilitators also make up this role and their role cannot be underestimated. The role of KBC facilitator differs from the traditional role of the lecturer. KBC facilitators cannot simply be the disseminator of facts. It is a role of multiplicity, as facilitators become counsellors, confidantes and co-learners.

The establishment of the community triad sees a positive change in the relationship between the school and the university. KBC facilitators carry out weekly school liaison visits, where it is not uncommon to sit with KBC students and unpack the classroom instruction that is being observed. School based staff are also involved in the KBC homeroom as guest presenters. One of the most successful components of the community triad is the involvement of school-based staff at the planning and debriefing meetings held at the beginning and end of each university year.

The relationships illustrated in Figure 1 not only meet Ramsey's (2000) recommendation that the re-energising of teacher education needed to be supported by reconnecting universities and schools, but also demonstrates to the students that they are part of an established team. This team can only become the community triad with their inclusion.

An important component of the social structure is that the KBC facilitators need to arrange a designated homeroom and it must be obtained prior to the students arrival on campus. The homeroom must not be a common teaching area; it needs to be for the sole purpose of KBC teaching and learning activities. This physical space plays a vital role in the establishment of the KBC. The homeroom provides stability, a sense of belonging, a place to display work products and emphasises a point of difference from the traditional mainstream program. It is the location where all workshops are held. The impact of not having access to the homeroom was not fully understood until Session One 2000. The situation of having two groups and only one homeroom meant that the KBC 2 students were without a permanent base and although teaching rooms were obtained for workshops, they were common teaching areas and the students could not stay in the rooms longer than the booking allowed. Quite often the rooms were located in buildings other than those that were designated to the Faculty of Education. The overlap of students saw KBC 2 students displaced and disorganised. KBC 2 students were even witnessed working in the cafeteria. Fran stated that they had lost their sense of identity; Katherine complained that they were no longer special; but Siobhan summed it up by saying that being on the move from room to room made the students feel that they were just another tutorial group. It became obvious that creative timetabling was necessary in order to accommodate two groups in one room.

When the students have been recruited through an application and interview process the KBC facilitators then undertake the process of establishing the final component of the community triad. Workshops, team building and random group selections that allow students to meet and work with each other and learn about group roles foster a sense of community. The mentor teacher's role and team functionality combine to help create that sense of community. When students develop friendships and trust they have the basis of a foundation that should enable them to work collaboratively in school teams with their school-based mentors. Ideally the school teams will be able to work not only in a collaborative community with all members but to take responsibility for their learning, to problem solve and to undertake reflective practice.

The community triad could not operate unless the students' social interaction is characterised by friendship and trust. Social interaction is promoted through collaborative learning and group meetings. When students carry out these activities the platform is built for them to get to know each other's strengths and weaknesses but it also helps constitute the basis of a successful KBC. The importance of social interaction is the missing component in many of the pre-existing models of teacher education.

Meetings are a vital part of collaborative learning. I can now accept and realise that our groups' problems were all central to the failure to meet adequately in the beginning of the semester. Meetings provide the grounds for members to build trust and develop relationships with each other that are vital for collaborative learning.

Jodi 2002

Ramsey (2000) proposed that for reform to take place in preservice teacher education certain criteria needed to be met. Diamond (1991) believed that central to the most common teacher education models were three basic components. These were listed as: (i) academic preparation in the subjects or disciplines that the preservice teacher will teach when qualified; (ii) theoretical foundations of professional education; and (iii) the student practicum or teaching in some form of internship. The KBC model meets these criteria but also has the unique feature of factoring into its structure the opportunity of social interaction.

## CONCLUSION

A number of major benefits or themes have emerged since the implementation of the KBC Project at the UOW. Firstly students have learned the value of their community triad in regards to their learning and they have realised that learning from each other is a powerful tool. The KBC Project allows students to identify and act on professional problems in a collegial manner and then have the ability to reflect upon the course of action taken. Moreover they have developed a deep sense of understanding about the roles of the members of the community triad, the multiple roles of the classroom teacher and the need to have functional groups for effective productivity. One of the most impressive facets to emerge however has been the fusion of a positive working relationship between the KBC facilitators, the students and the cooperating schools.

Some, (not all) of the assumptions inherent in KBC are radically different from those that underpin the mainstream teacher-education programs. The KBC Project is proving itself as a credible alternative to mainstream teacher education and through a series of revisions has designed a way to link abstract theory to classroom application and at the same time the link for joint responsibility for

teacher education between the schools and the university has been strengthened.

Adoption of a KBC model may not be viable or desirable for all teacher education programs but the tangible benefits cannot be overlooked. The provision of authentic learning experiences in authentic environments in a supportive community provides the catalyst for knowledge fusion.

I think the benefit of the group work is that we are less focused on the outcome and more focused on the learning. Therefore gaining real knowledge through action and experience rather than just cramming in the theory in order to move onto the next subject, which we may forget.

Janice 2001

## REFERENCES

- Bullough, R. V. (1987). Accommodation and tension: Teachers, teacher role, and the culture of teaching. In: Smyth, J. *Educating teachers: Changing the nature of pedagogical knowledge*. The Falmer Press. London.
- Cambourne, B. (1998b). *Problem-based learning as an alternative mode of delivery in initial teacher education*. Unpublished Draft Agreement between the NSW Department of Education and Training, the NSW Teachers Federation and the Faculty of Education at the University of Wollongong, NSW Australia.
- Diamond, C. T. P. (1991). *Teacher education as transformation. A psychological perspective*. Open University Press. Philadelphia.
- Duch, J. B. (1995). What is Problem-Based Learning? from The Newsletter for the *Centre for Teaching Effectiveness*, University of Delaware.  
Available URL: <http://www.udel.edu/pbl/cte/jan95-what.html>
- Hewitt, J., Brett, C., Scardamalia, M., Frecker, K. & Webb, J. (1995). *Schools for thought: Transforming classrooms into learning communities*. Paper Presented at the American Educational Research Association, Annual Conference. San Francisco.  
Available URL: [http://csile.osie.utoronto.ca/abstracts/kn\\_build/](http://csile.osie.utoronto.ca/abstracts/kn_build/)
- Margetson, D. (1994). *Current educational reform and the significance of problem-based learning*. Carfax Publishing Company.
- Ramsey, G. (2000). *Quality matters. Revitalising teaching: critical times, critical choices*. NSW Department of Education and Training. Sydney.
- Scardamalia, M. & Bereiter, C. (1989). Conceptions of teaching and approaches to core problems. In Reynolds, M.C. (Ed.) *Knowledge base for the beginning teacher* pp. 37-46 Pergamon Press. New York.
- Scardamalia, M. & Bereiter, C. (1991). Higher levels of agency for children in knowledge building: A challenge for the design of new knowledge media. *The Journal of the Learning Sciences*. Vol. 1. No.1. pp. 37-68
- Scardamalia, M. & Bereiter, C. (1993). *Surpassing ourselves: An inquiry into the nature and implications of expertise*. Open Court. Chicago.
- Scardamalia, M. & Bereiter, C. (1996). Student communities for the advancement of knowledge. *Communications of the ACM*. Vol. 39. No. 4. pp. 36-37.
- Scardamalia, M. & Bereiter, C. (accessed January 2000). *Schools as knowledge building organisations*.  
Available URL: <http://csile.oise.utoronto.ca/abstracts/ciar-understanding.html>
- Vygotsky, L. (1978). *Mind in Society: The development of higher psychological processes*. Harvard University Press. Cambridge.
- Woods, D. (1994). *How to gain the most from problem-based learning*. McMaster University. McMaster.