PROBLEM-BASED LEARNING: ENGAGING THE WHOLE PERSON

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This practice-based research paper is based on an analysis of a qualitative case study involving twenty-two Second Year students in a Human Resource and Management subject in the Diploma of Business, Temasek Business School, Temasek Polytechnic Singapore. This was the students' first experience with Problem-based Learning. The focus of this practice-based research was on analysing the students' self-reflection accounts in order to elucidate what the students experienced to be beneficial about the Problem-based Learning process. At the outset of the course, students were informed that whilst working on each of the two PBL problems with their respective groups, they should provide their frank assessment of what they had learnt. The notion of whole-person learning emerged as one of the primary hallmarks of this learning-teaching strategy.

SETTING THE CONTEXT

One of the common features of the PBL process is student self-reflection accounts. The student self-reflection account is a variation of reflection journals used in PBL (Woods, 1994; Major, 2000) which encourages students to record written reflections about learning. It creates the platform wherein there is "open, active communication channel between the social context and the inner self" (Butler, 1994, p.18). MacFarlane & Manwaring (1998) and Stefani, *et al.,* (1998) posit that PBL offers a genuine experience or context in which reflection can take place. Reflection and the process of learning can be articulated through student self-reflection accounts. In the words of MacFarlane & Manwaring (1998):

The notion of capability in a reflective practice model requires students to learn to work effectively with others as well as on their own. Teamwork also tends to enhance self-reflection and awareness of the learning process, as individuals are accountable to the group (p.12).

This small scale case study draws upon two sets of reflective accounts submitted by the twenty-two second year students in a Human Resource and Management subject in the Diploma of Business, Temasek Business School. Each self-reflection account accounted for five percent of the overall marks. One self-reflection account was required at the end of each of the two problems. Having a second problem to consider midway through the semester provided students with a valuable benchmark for ascertaining their adeptness at handling the PBL process and achieving the learning outcomes. The second time around, students were generally less uncertain about the PBL process. They appeared more comfortable working together and were better able to generate the learning issues and organise the areas of research needed to be undertaken.

The impetus we initially had in focusing on the students self-reflection accounts grew out of our realisation that the first set of self-reflection accounts revealed rich personal learning experiences that were spontaneously written by the students. It was interesting to note that sustained patterns of response came through many of the second pieces of self-reflection accounts. We concur with Savin-Baden (1998) that "the consideration of personal experience in learning is something that is noticeably lacking in the literature about learning in general, and Problem-based Learning in particular, yet for many, personal experience is that which makes learning both possible and meaningful" (p.1).

The concepts of reflection and self-assessment have various connections. Both focus on learning and experience. The student self-reflection accounts paved the way for a measure of self-assessment to take place. However, we recognise that not all reflection leads to self-assessment (Brew, 1999) and that assessment by teachers of student self-reflection is problematic and sometimes oppressive (Boud & Walker, 1998; Sumsion & Fleet, 1996).

The one overarching research question that guided the design and analysis was: What did the participants find beneficial about the Problem-based Learning process?

PROBLEM-BASED LEARNING AND ITS BENEFITS

Problem-based Learning (PBL) is an approach to learning and teaching in which students wrestle with real-life problems in small groups as a stimulus for learning. In PBL, students work in small tutorial groups on these problems, and, in the process, formulate goals for self-directed learning. The learning resulting from these activities are considered constructive and contextually meaningful (Barrows, 1983; Norman and Schmidt, 1992; Savin-Baden, 2000).

Boud and Feletti (1997) outline the following characteristics of PBL:

- Using stimulus material to help students discuss an important problem, question or issue
- Presenting the problem as a simulation of professional practice or "real life" situation

- Encouraging critical thinking and providing limited resources to help students learn from defining and attempting to solve the given problem
- Students working co-operatively as a group, exploring information in and out of class, with access to a tutor who knows the problem well and can facilitate the group's learning process
- Students identifying their own learning needs and the appropriate use of available resources
- Reapplying this new knowledge to the original problem and evaluating their processes

PBL purports to give rise to positive effects in student learning. Firstly, learning is contextually valid in that the problems are gleaned from professional practice and students acquire knowledge organised around these problems. PBL develops self-directed, reflective, lifelong learners who can integrate knowledge, think critically, and work collaboratively with others. Secondly, learning is collaborative in that students help each other and are rewarded for so doing. The peer learning and teaching that is an integral part of PBL enhances the quality of student learning. Thirdly, students learn to solve problems in a more effective way as a result of PBL. Fourthly, PBL appears to create a strong motivational effect. Students tend to feel that they are involved with real life situations and not just theoretical concepts. The students also benefit from gaining interpersonal skills through dialogue and shared learning (Barrows, 1988, 1996).

THE RESEARCH PROCESS

The growing interest in qualitative research stems from the general disillusionment with quantitative approaches which tend to reduce the complexity of human experience to statistical analyses and verification of facts, denying values (Lincoln and Denzin, 1994). In contrast to quantitative research which investigates a prior hypothesis developed by the researcher, our qualitative research does not begin with a conventional hypothesis to be proved or disproved. One of the particular strengths of qualitative research is its capacity to identify the unexpected and serendipitous and to illuminate the odd (Hargreaves, 1995). For us, the charm and attraction of qualitative research is encapsulated in the words of Miles and Huberman (1994):

> Qualitative data are a source of *well-grounded, rich descriptions and explanations of processes in identifiable local contexts ...* Qualitative data are more likely to lead to serendipitous findings and to new integrations; they help researchers to get beyond initial conceptions and to generate or revise conceptual frameworks. Finally, the findings from qualitative studies have a quality of 'undeniability.' Words, especially organised into incidents or stories, have a concrete, vivid, meaningful flavour that often proves far more convincing to a reader - than pages of summarised numbers (p.1).

Case study methodology

We chose case study methodology which maintains collaborative and participatory elements. Yin (1994) defines the case study as "an empirical inquiry that investigates a contemporary

phenomena within its real-life context, especially when the boundaries between phenomena and context are not clearly evident" (p.13). Case studies constitute "a particular form of academic discipline, justified by its relevance to the practice of teaching and conducted in such a manner that the evidence it marshalls as well as its conclusions are widely accessible" (Skilbeck, 1983, p.16). Case studies have a special capacity to explore social processes as they unfold in their specific context (Hartley, 1995). The texture of reality may be suitably captured and through the adequate presentation of data analysis readers are enabled to make their own judgements.

Typically, in a case study, there is the need to engage in triangulation of research data. One of the limitations of this small-scale research is its singular focus on student self-reflection accounts as the data collection source. However, the data analysed from the student self-reflection accounts contained rich insights that sufficed as data for this paper's purpose. Further research could explore other data collection methods such as interviews with the participants and facilitators, and participant observation of the group dynamics within the Problem-based Learning groups.

Content analysis

The overarching analytic term describing our method of analysis is content analysis (Krippendorff, 1980). It is one of the most frequently used data analysis techniques for qualitative research. Content analysis is "a research method that uses a set of procedures to make valid inferences from the text. These inferences are about the sender/s of the message, the message itself, and/or the audience of the message" (Weber, 1990, p.9). Data analysis involves working with data, organising, breaking into manageable units, synthesising, searching for patterns, and interrogating what is important and what is to be learned and deciding what to communicate in the writing up.

The constant comparative method originally articulated by Glaser and Strauss (1967) is recognised as the most effective means of content analysis. It is designed to inductively generate grounded theory, i.e. theory which emerges from data systematically obtained in the field. Grounded theory is inductively derived from the study of the phenomenon it represents. It is illuminated, developed and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon (Strauss and Corbin, 1990).

ANALYSING THE BENEFITS OF PBL AS EXPERIENCED BY THE PARTICIPANTS

Engaging the whole person in learning

This research shows that the participants uphold the vision of personhood where whole person learning is emphasised. In unequivocal terms, a participant remarked:

> PBL helps us grow as persons in a pretty holistic way.

The commitment to whole person learning suggests that wholeness is an integral dimension of the learning process. The potential for developing understanding through PBL is enhanced by

a focus not only on developing cognitive awareness (metacognition) but also in engaging students in "learning for the whole person" (Heron, 1993).

The term "holistic" has entered the educational arena to promote a view that an attention to wholeness is more important than attention to the separate and contributory parts. Deriving from the Greek *holos* – whole – the concept refers to an understanding of reality in terms of integrated wholes whose properties cannot be reduced to those of smaller units. Whole person learning seeks to restore an appropriate balance to the different dimensions of life (Whitaker, 1995). It enfolds "personal integration" (Miller, 1976) and an "informed heart" (Bettelheim, 1971); it involves the training of "eye, hand and heart" (Reid, 1986) and encompasses an "all-round development" (Van Der Zee, 1991).

In fleshing out whole person learning, the research identifies three values enmeshed within PBL: (1) Stimulating the Affective; (2) Strengthening the Cognitive; and (3) Enhancing the Social.

Stimulating the affective

Several participants emphasised that the affective is an integral dimension in PBL. In unequivocal terms, they remarked:

> I feel that my emotions are more engaged through the PBL process.

> In PBL group work, the emotions are also involved… you have to relate to other people and in the process there is a lot of giving and taking … you also inevitably disclose some of your strengths and weaknesses.

The comments above suggest that relating to others and entering into self-disclosure tend to strike an affective chord. In parallel with the proposition that emotions embody cognitive content, Fineman (1997) suggests that what is learned and not learned cannot be appreciated outside a socially contextualised, socially constructed discourse of emotion. Our emotional, sensual and physical being informs our knowledge of both self and others; empathy, anger, desire and interestedness are moments of connectedness to self and the world that provide important evidence about the world.

The appeal for the affective dimension to be valued as an integral component in learning is consonant with Lindeman's (1926) emphasis that "emotions and intelligence are continuous and varying aspects of a single process and that the finest emotions are those which shine through intelligence, and the finest intelligence that which is reflected in the light of its appropriate feeling" (pp.105-106). He goes on to elaborate: "We cannot feel and then understand; feelings may predominate over intelligence but they cannot annihilate it; likewise, to understand anything always partakes somewhat of *getting the feel* of its properties and qualities. Feeling adds warmth to understanding and understanding gives meaning to feeling" (p.106). Likewise, MacMurray (1957) argues that the significance of feelings for human action is crucial. Reflecting on "emotional rationality", he points out that it is a "serious mistake to think that rationality has only to do with our intellectual capacities. On the contrary, our feelings and emotions have a reference to the real world, just as our thoughts do" (p.xxi). Although our emotions are epistemologically indispensable, they are not

epistemologically indisputable. Like all other faculties, they may be misleading, and their data, like all data, are subject to reinterpretation and revision (Lee, 2003).

Increasing awareness of oneself

The research indicates that in the process of the affective being aroused through PBL, there emerges an enhanced sense of knowing oneself. Several participants disclosed feelings about their journey towards greater self-awareness:

> Basically, I am someone who finds it hard to voice out my opinions. But while doing the PBL, I realised that I could actually voice out my opinion. I was also able to share my ideas. I think that PBL has helped me to begin to discover my hidden self.

> How did PBL affect me as an individual? Well perhaps the greatest impact on me was self-realisation. I got to know myself a bit more.

The above two comments resonate with Lindeman's (1926) observation that "only those selves which have been self-discovered can get realised, expressed. Knowledge of the self discloses what the self is capable of expressing" (p.49). The process of discovering one's real self corresponds with the suggestion of Gabelnick *et al.,* (1990) and Qualley and Chiseri-Strater (1994) that collaborative learning provides an arena for the discovery and definition of self. Collaborative learning communities in PBL enrich the process of self-discovery by creating a super-saturated environment with fertile interplays between the individual and the community, between the individual and ideas, and between the individual and one's own learning processes (Lee, 1998).

This is akin to Savin-Baden's (1998) observation that "learning through Problem-based Learning may challenge students' current sense of self, and their way of both seeing the world and acting within it. This is because of the way in which problem-based learning encourages students to assemble their own body of knowledge, and formulate their own decisions about what constitutes relevant learning" (p.6) and that "students do not lose track of themselves and they work to clarify their values, abilities, interests and goals to other students. They seek to become self-aware and thus more proficient in self-evaluation. Students thus identify their own strengths and weaknesses as well as the means for resolving or correcting any deficiencies" (Savin-Baden & Major, 2004, p. 85).

Building trust

The research observes that a pervasive thread running through the notion of the affective being aroused is the element of trust. Several participants remarked:

> I also learned that trust and openness are essential to produce an efficient task.

> My group members' actions actually motivated me to feel free enough to move on and take the past as a lesson learnt.

> For PBL problem 2, my group mates still trusted me to be responsible. They never lost hope in me. The word is TRUST. Although I broke the trust once, they never stopped

> trusting me that I could be a better group mate. That really freed me to persevere in the process. I felt free to dare to share my thoughts even when I was unsure … we were all learning together.

The repetition of "free" suggests open space for experimentation and exploration. Mistakes are appreciated as an integral part of the learning process. The participant's comments about being "free to dare to share my thoughts …." is akin to Weisbord's and Janoff's (1995) perception that "for participants to feel free to travel a tricky terrain requires a safe enough container" (p.147).

The notion of openness to differing perspectives abounds in PBL. There is often a ready forum for interchange of ideas and varying perspectives. Through the process of interacting with others, individuals rediscover themselves and their perspectives expand. If collaboration is to provide a way for participants to negotiate multiple positions, it must involve two recursive moves: a dialectical encounter with an "other" (person or idea) and a reflexive engagement with self (Lee & Tan, 2004).

Listening

The research highlights the importance of participants entering into active listening. Several participants expressed that the art of listening calls for sensitivity. They pointed out that during the sometimes rapid flow of dialogue, "outspoken" individuals need to be conscious that fellow participants might be awaiting opportunities to join in the dialogue. A participant remarked:

> We listen to each other's point of view before making judgements or decisions.

> When we have doubts about the project, we tend to ask each other and listen to everyone's ideas about the problem … we will consider each other's ideas carefully. We need to be sensitive to other people's opinions and other people's learning as well.

Listening implies an openness to the totality of the communication of the other person. One's whole person is involved in listening. Respectfulness should frame the conduct of those involved in critical dialogue. Respectful dialogue includes deep respect for the total communication process (Brookfield, 1993).

Honouring, listening and respecting are concrete expressions of trust. Trust and rapport are foundational for collaborative learning communities. Participants are more likely to express their thoughts, feelings, reactions, opinions, information and ideas when trust prevails (Brundage and Mackeracher, 1980; Rogers, 1994). Trust accumulates over time as individuals experience the openness of the world they share with others and the extension of mutual respect and consideration. As trust develops, interpersonal relations strengthen and deepen, increasing the probability for mutual learning and strengthening of relationships. Trust enables people to gradually discard their masks of passivity, hostility and indifference. The resultant energy enhances group cohesion and invigorates interpersonal engagement with each other and with the task at hand. This leads to more mutually supportive relational dynamics.

Strengthening the cognitive

This research indicates that one of the values of PBL is the strengthening of the cognitive dimension. The dynamics enmeshed within PBL tend to stimulate further thinking. A participant remarked:

> In our group there is a free flow of ideas which is very beneficial in order to come up with a good solution to the problem scenario …. PBL has the potential of helping us to learn to think about the issues at hand … we get to play around with ideas, and talk through issues.

The "playfulness of learning" (Brake, 1992) signals a refreshing dimension of collaborative learning in PBL. Many well-intentioned teachers can be imprisoned by outcomes, rather than enjoying the freedom of "turning ideas on their sides and laughing about them" (Brake, 1992, p.6). A special value in the 'playfulness of learning' is its tendency to break down barriers to learning. *Enjoying* becomes a theme – "when people laugh together, they cease to be young or old, master or pupil, worker or boss, jailer or prisoner. Instead, they become a single group of human beings enjoying the group's existence" (Brake, 1992, p.7). In a sense, play is the ability to suspend rules in order to explore new arrangements. It engages our energy, involvement and curiosity. "Playfulness is, in part, an openness to being a fool, which is a combination of not worrying about competence, not being self-important, not taking norms as sacred and finding ambiguity and double edges a source of wisdom and delight" (Lugones, 1992, p.97).

A playful approach to learning helps learners connect with parts of the self which are often dormant, inaccessible or well-defended. Playing with ideas frequently results in better ideas as it embodies five dimensions as posited by Melamed (1994): the relational – the capacity for connectedness; the experiential – validating and learning from experience; the metaphoric – intuitive and right-brain thinking; the integrative – valuing a holistic and organic connectedness to people and things; and the empowering – facilitating transformation in ourselves and the worlds we inhabit.

Self-directed learning

A dominant concept that permeated much of the student reflective accounts was that of self-directed learning. The following are some comments from the participants:

> I feel that self-directed learning encourages the student to be disciplined in the areas of research and through this it also enables the student to commit more facts about the topic as we are compelled to read up a particular topic or chapter so as to gain greater insights on the different issues.

> I learnt a lot of things throughout my PBL journey – independent learning, doing own research, how to filter irrelevant information while focusing on the more important ones, team working, problem solving and learning how to apply the concepts. It helps us absorb more and makes us responsible for our learning.

> PBL has taught me to be self-directed in my studies. I have always depended on textbooks and notes from the teacher but in PBL I was left to study on my own. I had to do the research on my own to find the information I needed.

One of the primary goals of PBL is the students' development of self-directed learning skills in terms of recognising the needs for new learning, setting one's own learning objectives, defining relevant questions for study, accessing relevant information, testing one's depth of understanding of what one has learned (Blumberg & Michael, 1992; Savin-Baden & Major, 2004).

Barrows and Tamblyn (1980) observe that the main advantage of encouraging self-directed learning skills is that students learn how to deal with problems in the future, preparing themselves to be independent, lifelong learners. Self-directed learning is a characteristic often associated with lifelong learners (Candy, 1991). If self-directed learners can define their own learning needs, assess salient information independently, and evaluate effectively the adequacy of their learning, then they should be able to function as lifelong learners (Blumberg, 2000).

Enhancing the social

The research shows that PBL enhances the web of social relationships among the community of learners. The PBL sessions were filled with a spirit of camaraderie. One participant said:

> I feel the bond among us and we can work together as a group. The team spirit was always high…

Two expressions of camaraderie emerged –a sense of feeling comfortable in working with the group, and the enjoyment that went along with the learning. In speaking about feeling comfortable, several participants remarked:

> I feel very comfortable working with my group and everyone is free to make any comments, suggestions without anyone making judgements on one another's opinions, etc.

> The group meetings enabled us to know one another more and made us feel more comfortable in working together.

Two participants touched on the notion of enjoyment in the process of working as a group:

> It is really fun and enjoyable to work with my group members …

> This is one of the projects that I enjoyed doing the most! I really enjoyed the company of my group members as we were full of laughter and joy.

MacKinnon (1999) observes that in PBL the social dimension of learning is a critical aspects of students' learning experience. As noted by Dweck (1989), having fun is compatible with the pursuit of learning goals because the attractiveness of the learning method is enhanced.

The participants' sense of community seemed to be a powerful source of motivation. Through the process of sharing knowledge and discussing ideas, emotional bonds developed.

Intrinsic motivation is generally considered a kind of curiosity that drives a person to knowing more about a topic. It is sometimes called "epistemic curiosity". It is assumed that the drive is entirely internally propelled without the lure of external rewards. Group discussion aimed at clarifying one's own point of view and being confronted with other perspectives stimulates epistemic curiosity in the subject matter. Schmidt (1993) proposes that PBL as an approach to learning has the following cognitive effects on student learning:

- Activation of prior knowledge – the initial analysis of the stated problem stimulates the retrieval of knowledge acquired earlier
- Elaboration of prior knowledge through small group discussion, both before or after new knowledge has been acquired; active processing of new information
- Restructuring of knowledge in order to fit the problem presented. Construction of an appropriate semantic framework
- Learning in context. – The problem serves as a scaffold for storing cues that may support retrieval of relevant knowledge when needed for similar problems
- Emergence of epistemic curiosity – Students tend to see the problems presented as relevant and since they engage in an open-ended discussion, epistemic curiosity can be expected .

CONCLUSION

This small scale qualitative case study has reinforced the pulsating rhythm of learning enmeshed within the dynamics of PBL. The whole person is engaged as an active partner in the learning journey. One participant's metaphor encapsulates the ups and downs of PBL as a learning journey:

> My overall experience in PBL has been a challenging and rewarding learning journey. There is no doubt about it, that all journeys have bumpy rides. First-time travelers are always filled with ambiguity encompassed with curiosity at the same time.

As a small scale case study, this paper has focused only on the students' perception of PBL in terms of its advantages. We are cognisant that as with any educational method, there are also disadvantages and barriers to be taken into consideration to maximize the potential of PBL.

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