# PROBLEM-BASED LEARNING: FOSTERING CREATIVE PROBLEM SOLVING THROUGH COLLABORATIVE WORK

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*Abstract*

*Problem-based learning (PBL) is an approach to learning and teaching in which students are presented with contextualised, ill structured problems to investigate and discover meaningful solution in small collaborative groups. In PBL, the teacher adopts the role of a facilitator of learning, guiding the learning process and promoting an environment of inquiry. In this paper, I reflect on my experience of problem-based learning following my participation as a learner in a course that used the PBL approach. Generally, I found PBL to be effective in helping the students' understanding of the content for clinical practice. Through both individual assignments and collaborative work, we were able to draw from the diverse backgrounds of group members and come up with solutions to the scenarios. However, PBL needs to be complemented with feedback-based lectures and individualized assistance for slow learners. In addition, both students and teachers need prior comprehensive training on PBL.*

## Background and Introduction

Problem-Based learning (PBL) was first introduced in the medical education However; it is now being used in many health oriented educational institutions (Savery, 2015). In PBL, rather than being given facts about problem solution, students are presented with ill-structured contextualized problems to analyse and discover meaningful solution in small collaborative groups. The teacher adopts the role of a facilitator of learning, guiding the learning process and promoting an environment of inquiry (Ehrenberg & Haggblom , 2007). Through its encouragement of self-directed learning and students' responsibility for their own learning, PBL enhances learners' personal and professional development. In a Swedish study, students reported that PBL promoted greater freedom but also greater responsibility for them. They appreciated taking greater responsibility for analysing clinical cases and reaching solutions to problems presented in the cases. They reported that PBL had empowered them for participating in their learning as well as for the ability to handle difficult situations in working with patients and their families (Barrett, 2010); Ehrenberg & Haggblom, 2007).

Although PBL has been used in various programs over recent decades, there has not been much reported about how nursing students experience it (Savery, 2015). This is despite that fact that PBL has students' reflection on the learning experience as one of its important components. Reflection represents an assessment of where we have been and where we want to go next; and thus allows us to learn from our experiences .It has been argued that reflection promotes deep learning (Savery 2015; Walker & Leary 2009).

In this paper, I reflect on my experience of problem-based learning following my participation as a learner in a course that used the PBL approach. My experiences were captured in reflective diaries and were later compiled into an integrated essay that was one of the graded assignments for the course. My reflection is guided by the Graham Gibbs 1988, Reflective Cycle model (GRC). The Gibbs' Reflective Cycle model enables effective reflection as well as enhances understanding and learning from the experience. The model has six stages that include (1) factual description of what was happening, (2) feelings or emotions felt during the incident, (3) evaluation that determines the positives and the negatives of the situation, (4) analysis or making sense of the situation through thinking about factors that may the situation different (either positively or negatively) and corroboration with other types of evidence, (5) conclusion about what was learned from the situation, and (6) action plan for handling similar situation in the future (Harrington & Price, 2013). I have merged the fourth and fifth stages into "analysis" because I find the two closely related.

## My Experience of PBL and the GRC
## Description

At the beginning of the semester, we had our first lesson of the health promotion course. After taking us through the course outline, the lecturer informed us the course offering would follow the problem-based learning approach. She then briefed us on what PBL is and the process that it follows. It was my first time to hear about PBL. Despite all my concentration and interest, I found it very difficult to understand PBL; and apparently, my classmates were equally struggling to grasp the concept as a lot of questions were thrown to the lecturer. What I learned is that in PBL, rather than having the teacher providing facts and later testing the students' ability to recall, students construct knowledge by working on ill-structured contextualised problems. Working in collaborative groups, students discover meaningful solution to problems. Rather than being a transmitter of knowledge, in PBL, the teacher adopts the role as facilitators of learning, guiding the learning process and promoting an environment of inquiry. (Ehrenberg & Haggblom, 2007; Savery, 2015).

Our first assignment was to explore selected concepts frequently used in health promotion. We had to reach a common understanding of those concepts as a class so that we could have a common expectation from the course. We formed temporary groups for this first assignment as course registration was still on and additional students kept on joining the class. I volunteered to be the chairperson of the group. Even though I knew my group members from the workplace, I had not been in class with any of them. I therefore had to

learn to work with people with different characters and experiences. Fortunately, all of us were motivated to carry out the learning assignment and we were quite respectful of one another's needs. I was happy with my contribution to the assignment. My group completed the assignment and presented its work to the larger class. All but one group which failed to meet did very well. The lecturer had other commitment and she was not present; and one of our classmates had volunteered to coordinate the discussions during her absence.

By the third week more students joined the class and our group grew in size. We therefore split into two groups that were to be PBL groups for the entire semester. I was in a new group of five members. The lecturer briefed new class members on what we had covered during their absence. Once again, she provided a brief description of PBL but it was still difficult for many of us to comprehend the concept.

During the analysis of the first PBL scenario, everybody in my group was quiet and reserved; and that is when I discovered my hidden strengths I never knew I had. I saw a leader in me as I started allocating tasks; and somehow, all group members took it well. As the group work progressed, I realized that there were those of us who were as committed as I was to completing the assignment. However, there were those who did not perform as we had agreed. I was very disappointed and this reduced my trust on some group members. I therefore decided to work on assignments that were pending.

More meeting on the first scenario followed and although some members would miss meetings because of work commitments, they would send what they had done to the group. My leadership became evident as I communicated my ideas to other group members and as I integrated information from different members to build up a solution to the problem. Of course there were heated debates and arguments sometimes, but ultimately, we reached a consensus and completed the assignment. Other groups presented their work to the class before ours. As I listened to them, I realized that there was a lot that I needed to know. I therefore decided to go read on my own to inform myself about PBL; which really enlightened me as by the time my group presented, I had a better understanding of what was required of us than I had been. My groups' presentation was very informative and we received fair constructive criticism from our colleagues. The facilitator also appreciated our effort, especially how we had handled the application of a conceptual framework to our learning goals. My group was able to assist other colleagues who were still struggling with the use of a conceptual framework to guide problem solution.

After each scenario analysis and class presentation, we carried out peer evaluation. This was very interesting as all of us had our black windows revealed; we became aware of others' perception of us. I learned that I am too persistent and was advised to relax. My team

members were very mature in dealing with this evaluation; and I believe we all learned as characters continued to manifest with subsequent scenarios.

The second and last PBL scenario for my group was less hectic as everyone took responsibility to see to it that the assignment was completed. We all did our assigned tasks. I had a little disagreement on the conceptual framework but I reserved my point of view because I did not want to be labelled "overly persistent" again. However, neither the facilitator nor the rest of the class seemed to understand the framework. I was hoping my group members would answer questions about the framework but they did not. It was a bit embarrassing that we could not provide answers asked. As none of my group members seemed to be prepared to take responsibility to bridge identified gaps, I took it upon myself to read more about the framework and attend to issues that had been raised.

**Feelings**

With regard to my first group, I feel the group formed a strong bond at an early stage, perhaps drawn together by the safe environment of knowing each other from the workplace. We shared ideas and anxieties and we had a shared goal of wanting to come up with a good presentation. The learning task was therefore a positive experience for me. As the group matured our trust for one another also matured. Although we could have differing opinions, we were able to constructively work through those until we reached a consensus. I found it remarkable that we could bond so early and commit to a common goal when as human beings; we tend to be preoccupied with the need to be liked by others which frequently inhibits us from revealing our true selves.

My second group was more relaxed and less committed than the first one, especially with the first scenario. I lost trust of team members who failed to complete tasks assigned to them. This put me under pressure as I would end up doing a lot more than what was my fair share of the work. However, I am grateful for doing more as that gave me an opportunity to learn. By the time we completed the assignment, I would be quite confident with the learning content.

My team had age disparity with some members being well older than the rest. Being the team leader did not make me forget to respect those who were senior to me age-wise. I was firm though; and I believe I was felt as such as I saw a lot of improvement in group members' commitment to completing subsequent assignments. However, we faced challenges of some group members still taking a relaxed stand, missing meetings for no known reasons, and coming to meeting unprepared and therefore failing to make a contribution. I still felt the pressure to put in a lot of effort to get the assignment completed. Some team members did not seem to care about group work so much that given another chance, I would not choose them for group members again.

**Evaluation**

The presentations were very informative and eye opening as they made me think more broadly than I did with life issues that were narrated in the scenarios. I was able to benefit from a variety of new things from the class as well as refresh my memory on the things I already knew. I realized that there was still more that I was learning on the implications of public policy, health care ethics and culture when one is dealing with health issues. I realized that there were many policies that I was not aware of. Problem based learning helped me to take more responsibility for my learning as it demanded that I researched on what I needed to learn. The opportunity of being a team leader has enhanced my meeting management skills and has sensitized me to the importance rules of the meeting such as punctuality and time management. I believe what I have learned about meetings will make an impact on meetings at my workplace.

Collaborative learning has taught me an important lesson about working with human beings as I now know how frustrating life can be if people do not take their responsibility seriously, and when the group fails to make a deliberate effort to ensure a smooth flow of communication. However, I have also been impressed by the fact that divergent ideas can converge to a beautiful consensus. I have found it remarkable that two groups working on the same problem could take divergent approaches to problem solution and yet still bring their ideas together to an even more creative problem solution.

My group for the first assignment bonded very quickly; and I believe the bonding was motivated by both the anxiety about getting it right and our collective commitment to results. We were able to draw from the wealth of experiences of group members to design a presentation that was not only rich in substance but was also rich in fun and humour. Even though I believe the facilitator could have been harder with groups that failed to meet time targets, she did well in stimulating thinking through questioning and intervening where necessary. (Caldwel, 2013) noted that facilitation involves ensuring that discussions are focused and directed to problem solution.

**Analysis**

Scenario analyses were quite detailed, informative, interactive and interesting. We discussed the problems in-depth; briefly reflecting on what we knew, exploring what we did not know, examining conceptual frameworks and their fit to the problems, and exploring policy, cultural, and ethical implications of problem solutions. I have learnt that there are lots of policies addressing different topics; and their relevance to health promotion became clearer for me. The subject of policy analysis was extremely interesting because policy is embedded in our cultural and social structures. Policies and laws in any country tell the story of its people, their history, and their culture. Culture is equally important in health promotion because some cultural values, beliefs and practices may pose a threat to the wellbeing of

communities while some may support wellbeing. Incorporating health care ethics in the course could enhance our sensitivity to patients' rights and minimize the risk of litigations.

One of the things I appreciated was when the facilitator would come in when there were gaps left by the presenting group; she would come in with her contribution which would provide direction for all students and enhanced their engagement in the discussions. I could see the class moving from crude postulations to more practical and evidence-supported discussions. To me this proved that PBL needs to be complemented by feedback-based lectures and individualized assistance for slow learners. The positive experiences that I have reported in this paper are supported by what other scholars have observed about PBL. In a study conducted in Sweden, PBL nursing students appreciated taking responsibility for their learning and reported that PBL gave them increased freedom and responsibility as well as enhanced the transfer of what they had learned to clinical practice (Ehrenberg & Haggblom, 2007; Ferreira & Trudel, 2012).

Writing reflective diaries helped me to think about the positive and negative aspects of my experience. Reflection enhanced both my personal and professional development. Reflection is said to enable people to learn from their experiences and to enhance their creative problem solving skills (Barret, 2010; Chae, Lee & Lee, 2002; Dunlap, 2006; Ferreira & Trudel, 2012; Williams, 2001).

**Action plan**

Learning from experience, there are a number of things that I would do differently. I would use the first meeting to get to know other team members, identify their strengths and weakness and consider such in allocating tasks. I believe assigning group members tasks that they can confidently handle could enhance their enjoyment of their tasks and improve their contribution to the group's effort and reduce the workload for those are driven by anxiety to fill-in for on-performers. I would research more to acquaint myself with. For instance, I would read on tasks assigned to other groups so that I could fully contribute to class discussions.

**Conclusion and Recommendations**

I believe PBL is an ideal approach to learning for practice oriented disciplines such as nursing as it could enhance transfer of learning from the classroom to practice environment. Group analysis of scenarios enabled us to learn how to work with other people and how to bring together our diverse views and reach consensus. Writing reflective diaries helped me to think about what I was learning, to identify what I enjoyed and what I needed to improve in the future. Through the experience of shared learning, we were able to draw from a wealth of our experiences to come up with creative solutions that none of us alone could generate. However I think PBL needs to be complemented by feedback-based lectures and

individualized assistance for slow learners. Additionally, both students and tutors need to be given comprehensive orientation to PBL.

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