

Title Page (1)

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Title: Reflecting on the essence of our Problem-Based Learning discussions: The importance of faculty development and our continuous quest for Problem-Based Learning's applications

Short Running Title: PBL: Continuous quest for its application and faculty development

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Abstract

While problem-based learning as a teaching strategy to promote critical thinking, creativity and self-directedness in learning are all very important, it is the meaningfulness of the learning to our students with a contextual understanding that marks the significance of this approach in our health care education. At the Kaohsiung Medical University International conference and workshop on problem-based learning 2008, the scholarly discourse in sharing empirical findings and practical experience with various aspects of problem-based learning brings forth the importance of teacher's continued learning about the meaning, the dynamics of the process and the pragmatic details of problem-based learning. This quest, for a continuous learning and understanding about problem-based learning, parallels our search to extend the classroom problem-based learning into students' clinical experience. Clinical teachers' development in the understanding of problem-based learning was explored as part of their experiential learning in the clinical teaching after their problem-based learning workshops. While the clinical teachers who participated in the project appreciated the merits of clinical problem-based learning, the complex balance between patient service and student teaching at an unpredictable clinical setting has led to the use of a simulated clinical environment with patient simulators. We have also taken problem-based learning for interprofessional education to pilot with our undergraduate students of nursing and social work. The ways how we can adopt problem-based learning in various settings and with different intents will help to prepare our health care graduates in meeting the challenges of our ever more complex health care systems and the demands of holistic patient care.

Key words: classroom problem-based learning, clinical problem-based learning, teacher development, dynamics, simulation.

INTRODUCTION: RESONANCE FROM THE CONFERENCE

We face the future fortified only with the lessons we have learned from the past. It is today that we must create the world of future...in a very real sense, tomorrow is now.

Eleanor Roosevelt

At the Kaohsiung Medical University (KMU) International conference and workshop on problem-based learning (PBL) 2008, the spirit and ideology is vividly displayed which reminded me of the words from Roosevelt. The scholarly exchange and learning from each other's experience of PBL was characterized by tremendous enthusiasm and enabled our further inquiries as to how best to promote PBL in our student learning. There have been numerous exemplars of the increasing use and success of PBL in the health care education system. As one of the teaching and learning strategies, its value for our graduates of health professions rests in its development of their generic competence that is in demand of our new generations of health professionals, who is expected to be life-long learners with the attributes of being critical, creative and self-directedness. Complementing this set of attributes is a need to cultivate their interpersonal and teamwork dispositions. As our health care system professed to be patient-centered while it also becomes ever more complex with various patients' needs as well as the workload demands of the health professions, these changes behooves us as health care educators to reflect and reexamine the progress we made with our learning about PBL for teaching. In this

quest for excellence and to further our understanding of the issues with the implementation of PBL, an examination of tutors/facilitators' development of their understanding of PBL is needed.

The Hong Kong Polytechnic University: Development of PBL

At the Hong Kong Polytechnic University, School of Nursing, we have adopted the use of PBL as part of our teaching and learning methods since 1998. To conduct PBL in students' seminar groups is highly complex as the facilitators need to pay heed to different aspects of the learning process such as the dynamics of the group interactions, the understanding of the significance of the ground rules and the appreciation of the values of this kind of learning to name just a few. But embedded within any teaching and learning activities is its meaningfulness to the learners.

Learning takes place through students' active engagement. Such engagement depicts John Dewey's [1] "educative experience". That is, in addition to encouraging students' active participation, an effective curriculum must be designed to recognize students' past experiences, which in turn will shape their understanding of the present and future. PBL creates several conditions to optimize meaningful learning through 1. the activation of student's prior knowledge; 2. new, relevant knowledge is learned during the process of identifying and solving the problem; 3. learning is in a context

resembling that in which the knowledge will be applied, i.e. in a clinical situation.

It also requires students to be responsible for their own learning. Although they might have limited experience and hence lack the richness necessary for a multifaceted interpretation of new situations, even this limited experience has meaning. So the question is how do we build on student's prior knowledge and make it meaningful through PBL in clinical setting? The answer to the question seems to be easy as one could just respond that "students will bring their PBL from classroom setting to their clinical practice." However, given some of our clinical teaching for senior year students is conducted by our clinical counterparts, though with the support of our academic colleagues, it remains important for our clinical colleagues to better understand the ways that students have experienced their PBL with the use of nursing case scenarios in the classroom setting. Accordingly, a project for PBL in clinical learning was implemented a few years ago with the emphasis on teacher development.

Importance of faculty development

The development of academic and clinical colleagues in the use of PBL in their clinical teaching seems to be an endeavor for the Faculty of Nursing at KMU. These nursing faculty members were instrumental in the inclusion of PBL in its nursing curriculum. Their experience has gradually evolved from being a trial with a couple

of subjects to its future intent for more integration into its curriculum. Sharing with others their experience and their motivation to disseminate their knowledge and experience with others has prompted the workshops in the development of PBL facilitators. One cannot emphasize enough the importance of the facilitator's understanding of the role of a PBL tutor. As Professor Gwee (2008) commented, at the end of the conference, that what concerned him most is not about whether we have had a content expert to run the PBL, while it will be an advantage, rather it will be a teacher who does not understand the PBL process. Hence, staff development is founded to be essential for health professionals who are serious about the use of PBL in their curriculum and/or teaching.

PBL: A CONTINUATION OF THE CLASSROOM TO A CLINICAL SETTING

The move of PBL from the classroom to the clinical setting makes general sense.

While we have much experience with PBL in classroom situations, our experience in clinical situations is limited. Unlike the classroom situations whereby there is much control and the learning environment is relatively more predictable, student's learning experience in a clinical setting is highly complex and uncertain. The role of the clinical teacher does not only address the learning needs of the students but also the proper care of the patients. As mentioned earlier, since we have had colleagues from

the clinical settings help with the teaching of our senior year nursing students, we would like to know whether these teachers would be receptive to the PBL approach in their clinical teaching. Hence, we decided to include a research element in our introduction of PBL in clinical teaching and to explore the implications of using PBL in clinical settings through the experiences of students and teachers.

Method and data collection

The study involved both programmes of Nursing and Biomedical Science at our university. There were two phases to the study. During phase 1, we constructed a simulated experience in the laboratory to prepare the clinical teachers in the use of PBL in clinical settings. Clinical colleagues from different hospitals were invited to participate. A total of 36 colleagues participated in the first phase with 15 from biomedical science and 11 from nursing. They had all been involved in the teaching of our students from the Nursing and Biomedical Science programmes. Six nursing students were invited to play the role of students and to act as patients. They were also participants for the focus group interviews. These interviews were conducted at the end of the workshop. Questions posed were broad and non-directive, including questions such as: “How do you feel about the simulated PBL teaching experience? How different is it from your past experience in clinical teaching? The interviewer

encouraged the respondents to elaborate on issues and to provide examples for clarity e.g. tell me more or can you give an example? [5].

Data analysis

A qualitative study using a phenomenological approach is employed since we were interested to learn about the teachers and the students' lived experience of the simulated PBL clinical teaching workshop. The phenomenological approach helps to uncover the meaning structure of the lived experience of the participants [8]. The research team consisted of 7 academics (2 from biomedical science and 5 from nursing). All the team members read the transcripts independently and met to discuss the phenomenological themes of the participants' experience of the workshop. A final consensus was reached upon after much collaborative discussions from the insights and understanding of the data. The process of analysis entailed reading, rereading, reinterpreting and reformulating the themes.

Findings and discussion

The following four themes emerged from the focus group interviews:

1. dynamic process of learning
2. shifting boundaries of teachers' role

3. shifting boundaries of students' role
4. contingent clinical learning environment

In the discussions of the various themes, participants' quotes from the interviews would be used to illustrate.

Dynamic process of learning

What is essential in this theme are other sub-themes: asking questions, staging activities and conducting discussions after the experience.

Contrary to conventional teaching and learning, in the teachers' experience of PBL at the clinical settings, it is the teachers asking the questions and the students answer rather than the reverse. The teacher will ask the questions and, eventually it is the students who arrive at their own answers through self-directed learning facilitated by the teachers. One teacher described how he composed the questions.

- *“When I encounter a case, I have my own judgement and know what particular concerns that need to be addressed. I turn the pieces of information that the student needs to know into questions. This is a way to make the student think. If the response is different from the one I have in*

mind, I'll ask them to justify their proposal. If they can't provide justification [or the justification is not reasonable], I'll direct the student to think of alternatives. Finally, it's the student who arrives at his/her own decision.'

The teacher participants emphasized that staging the learning activities was important, and that PBL could start at an early stage of the clinical experience. It was not necessary for the students to know the entire plan of care or procedure. If the student had no knowledge of a particular task or condition of the patient, one teacher suggested the following.

- *We can start with some basic questions. [If the students do not have a clue what happens,] I can start with our daily life encounter. For example [I'll ask the student] there is a recent reported case of Avian Flu, what do you need to consider?*

Jerlock & Severinsson [4] and Price & Price [7] also asserted the importance of dividing the learning experience into stages. A logical staging starts with clarifying concepts, defining the problem, analyzing the problem, seeking new understanding, synthesizing new knowledge in the understanding of the problem and finally solving

the problem.

For the sub-theme of *discussing and reflecting on the experience*, the following is illustrative of the participants' comments.

- *Periodic discussion is important to highlight the significant learning experiences. [They can be informal in-between, but] the last meeting can be more formal.*

The discussion serves at least a dual purpose. While it enables the students to share their possible different understanding of the experience right after the clinical experience, it also allows students sufficient time to read and reflect if the discussion was held the next day or later. The teacher can help the students to link other episodes of care to the problem being considered [7]. Inductive learning from specific to general is optimized.

Shifting boundaries of teachers' role

In the adoption of PBL in their clinical teaching, the participants had to make a conscious effort to refrain from their conventional way of teaching. Students were to

be involved in the learning process and not to be placed in a spectator's role.

Following are illustrative.

- *I know the procedure so well that I can be very conversant about the procedure. I can easily state what he should do, [in such way] I will turn the student to be a spectator.*

Instead of offering solution, the teacher would prompt the students and work with their lines of inquiry and reasoning. The process has made both the teacher and students more inquisitive. As one teacher reflected:

- *I feel that my mentality has changed. I'd think more on how to help students learn better, how to initiate questions [to prompt the student]. I feel that, mutually [between the teacher and student], we are more inquisitive.*

It is also clear from the participants comments that the clinical teacher cannot afford to be entirely nondirective in a clinical situation. They would have to know when and where to intervene particularly in the case of life and death situations. Concomitantly PBL challenges the clinical teacher to be patience in allowing students to formulate

their understanding and arrive at their own conclusions. In this context, PBL in the clinical settings places more demands on the teachers.

Shifting boundaries of the students' role

The active involvement of student learning becomes more meaningful to them. This in turn helps them to be able to transfer their learning in context [6].

- *With problem-based learning, the teacher guides me to make me comprehend the case at hand better. Since I'm involved in dealing with the situation, I feel that I have stronger participation [in the learning process]. Without problem-based learning, I sometimes feel like an observer, and the learning is less efficient.*

As students are expected to assume an active role in their own learning, the participants emphasized the need for students to have their learning outcomes for the clinical experience.

- *Some students come to the clinical setting, at a loss of what to learn. I think the students need to come with purposes ... there is a set of clinical learning*

objectives to go with each unit. For example in the medical unit, there must be specific cases like patients with cardiovascular condition, respiratory condition.

The contingent clinical learning environment

Given the complex and dynamic nature of the patient situations in the clinical settings, the learning resources are tremendous. However, at times these rich learning opportunities are not being tapped into for the creation of new learning episode for the students. Rather teachers, sometimes are confined within what can be role-modeled for the students within the daily routines and expectations. As one participant remarked as follow.

- *There are multiple learning opportunities in clinical In the clinical we may be confined by the concept of 'role modeling' and the learning is restricted with what's being modeled ... the spirit of PBL is that you can stimulate the student to think more, e.g. did the student explore the background of the patient [that is related to his onset of asthma]?*

The obvious difference between PBL in the classroom vs PBL in the clinical setting is

the contingency nature of the clinical and the presence of a real patient that triggered the student to address learning issues ‘as they are’ rather than as “if they were” [10]. Since we are dealing with the real patient, it is important to “do it right” as patient’s safety and comfort is of concern. The learning in clinical often occurs in short segment of time, so the teacher will need to guide the student’s learning within a short time and revisit the experience afterwards [7]. One participant illustrated this point:

- *When we encounter some urgent cases, if we don’t seize the opportunity to deal with it, it’ll be gone quickly. In such case, we cannot [take time to] explain this and that [to the students] for the patient will die [if we don’t take action]. We need to revisit the situation [with the students afterwards].*

The dynamic process of learning about the use of clinical PBL also points to the significance of solving the problems in real life environment. The process enables students’ integration of theory and practice with teachers’ deliberate attempt to strategize the students’ learning and turning any unexpected opportunities into learning moments. In this project, we came to learn that our clinical colleagues do appreciate the workshops and the subsequent follow-up on their experience to improve their clinical education.

CONCLUSION

As we continue to work with our learning from our clinical colleagues about their views of PBL in the clinical settings, the adoption of clinical PBL is not without its difficulty, namely in a real clinical environment, often times service needs take priority over the students' learning needs as the clinical colleagues attended to both the patients and students' needs. Our experience of PBL in a simulated setting [10] has helped to address and offer us at least three benefits in its use. First, it can mitigate the need to address the service needs in a clinical setting while providing an aspect of realism in a relatively safe and stable environment. Secondly, a simulated setting would provide students the kinds of learning experience that may not always be available in a real clinical setting. Thirdly, a simulated environment can provide a complete scenario of a specific patient condition so that students can experience a full range of learning issues. Moreover, the use of PBL could also provide a window to interprofessional education. A World Health Organization Study Group on Interprofessional Education and Collaborative Practice [2] observed that there is currently a shortage of approximately 4.3 million health workers worldwide. This phenomenon results in a barrier to the provision of much-needed access to health care, and hinders the success of other health interventions. Interprofessional collaboration is believed to have the potential to address this healthcare challenge and offers a concomitant

contribution to the holistic patient care [3]. The increasing success of PBL within the healthcare education system has befitted its use in interprofessional education [4], hence the adoption of the PBL approach for a cross-disciplinary learning project through discussion seminars among the nursing and social work students has been conducted and the findings point to a better understanding of the collaborative effort across the social-health care boundary.

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