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How to understand the gap between practice and theory when making education innovation?

-Case study of Problem Based Learning implementation

Abstract:

Problem Based Learning is widely regarded as a promising educational innovation to improve the teaching and learning quality and therefore it has been spreading to a number of disciplines and higher education institutes worldwide. However, it is not an easy task to transform the traditional Lecture Based Learning paradigm to Problem Based Learning. In this study, we will make a thorough exploration about the gap between the actual practice and the PBL theory when a university changes its educational paradigm from Lecture Based Learning to Problem Based Learning. Afterwards, we will discuss how we should understand this gap in order to facilitate the educational innovation.

Outline:

1 Introduction

The past four decades have witnessed the increasing adoption of various educational innovations regarding the teaching and learning throughout a great many higher education institutes and disciplines. Among them is Problem Based Learning approach which is widely believed to be conducive to students' learning motivation and outcomes and it is currently spreading to the domains of the medical, engineering, social science and the like. However, albeit being promising, the implementation of Problem Based Learning as an educational innovation project is always

not an easy task for many higher education institutes, especially for the ones with strong tradition of Lecture Based Learning (see examples: Little and Sauer, 1997; Erik and Rob, 1997; Lonka, 2001; Ward and Lee, 2002; Tai, Huang, Bian etc., 2008). This study is intended to demonstrate how the actual practice is deviated from the ideal of educational theory when the educational innovation is implemented and afterwards discuss how we should understand the gap between the practice and the educational theory.

2 Theoretical part

This study sets its departure from the principles of PBL which can be specified as problem centeredness, interdisciplinary learning, social learning and student centeredness.

- Problem centeredness means that the curriculum design and the learning process should be organized around the real life problem rather than the disciplinary knowledge.
- Interdisciplinary learning implies a cross-disciplinary approach for both curriculum design and learning process relying upon the integration of the knowledge and the method from various disciplines to solve real life problems.
- Social learning refers to a learning approach taking place in groups where the students are required to collaborate and cooperate to deal with the problem.
- Student centeredness shift our focus from the teacher to the student since within PBL environment the students are more likely to dominate the learning process in terms of learning objectives, content, as well as the activities.

The specification of PBL principles is not just to clarify the essence of PBL, but also serve as a framework, or a yardstick to facilitate the data analysis.

3 Empirical part: a case story of PBL implementation at the university

The empirical part is heavily dependent on the description of a story about how a university transformed its educational paradigm from Lectured Based Learning to PBL. In 2004, a Chinese medical university with a long history of lecture based learning launched a project to transform its educational paradigm to PBL throughout the entire organization. Instead of imposing a systematically designed plan in terms of a single institutional-wide curriculum model, the top management level at the university encouraged the bottom department and staff members to develop their own PBL approach and thus formulated many variations of PBL approaches as following:

- Single course based PBL: the lecturer only transforms a limited amount of the content of a single course to PBL.
- Revised course based PBL: the whole content of a single course is delivered through PBL approach.
- Integrative course based PBL: PBL is designed on the basis of integrating several disciplines.
- Project organized PBL: PBL is organized around a pre-defined project and the students have to work on the project in the form of teams.
- Medical problem organized PBL: the students are presented with a medical problem beforehand by the lecturer and afterward work in teams to solve the problem
- Small class PBL: the students work in the form of small teams where the students have intensive communication with others. The size of the group is between 8 to 10 students.

- Big class PBL: the students work in large groups with limited communication and collaboration. The size of the group is around 20.

4 Data analysis

Compared with the principles of PBL, several gaps can be recognized between the PBL theory and the actual practice:

- Problem centeredness: the empirical evidence reveals that although the university adopted some elements of PBL, the design of the curriculum in practice is largely dependent on traditional disciplinary subjects rather than real life problems.
- Interdisciplinary learning: the majority of the PBL courses are single discipline based PBL which goes far from the essence of interdisciplinary learning. Even in the Integrative course based PBL, the traditionally disciplinary boundary can easily be identified.
- Social learning: there are quite limited amount of collaborative elements in the learning process in the large sized student group for the big class PBL.
- Student centeredness: it is the teacher rather than the student that dominates the learning process even in PBL classroom. The teacher still plays a vital role in the design of learning objectives, content, as well as the activities.

5 Discussions

How do we understand the gap between the practice and PBL theory? Is this gap implies a problematic PBL practice which is necessary to be corrected in line with the PBL theory?

On one hand, it should be acknowledged that any educational practice at higher education institutes should be aligned with the theory when the educational innovation is implemented. In this sense, the implementation

of PBL is by nature involving the normative dimension which implies that the PBL practice inconsistent with the PBL principles should be given more attention to be further examined.

On the other hand, this gap between the practice and PBL theory can be constructive as it discloses the cultural or the contextualized dimension of the education innovation. From this viewpoint, the deviation of PBL practice from PBL theory cannot be simply regarded as a destructive force for educational innovation; rather, it is an adaptation to the culture and context where the educational innovation is located.

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