Chapter XI

Lessons Learned and Tips

Introduction

We have been applying PBL to learning by our students since 1996. Although many lessons have been learned, we are still continually learning and discovering new insights each year in our PBL process. Our desire is to find out and learn as much as we can about how students learn and how we can make the PBL process more effective for our students. We are very thankful to our students for their continuing support of our endeavors to make learning interesting, effective, and fun for them. Students continue to give us feedback and their input has shed much light on our PBL process. As a result of their feedback and honest discussion, we are continually striving to improve on our tutorial process.

We must confess that our experiences with PBL were not easy ones to start with. There were times of encouragement and frustration, especially early in the course when students were facing a major change in their educational mindset, when motivation and encouragement were important. Above all, we have learned that implementing PBL is not easy! We have learned many insights during our experiences with PBL. It is our belief that some of these insights would help others to better understand the implementation of PBL. In this chapter, we share with readers some of the issues that we have learned are important to PBL implementation. For each of the issues discussed, we have also incorporated guidelines to help readers.

Insights Learned from PBL

There are many books and articles written about PBL and its benefits. Occasionally there have been articles describing experiences of authors implementing PBL. We hope that by sharing our experiences, we can encourage others to take on PBL. We have identified many issues that we feel are useful tips that can help readers to understand the process of PBL and how these issues are useful when implementing PBL. Some of these are concerned with what we have learned from our experiences. Others are insights that we gained from interaction with our students and their studies.

Domain Analysis

In designing a PBL curriculum, we have to analyse what must be learned. In doing this we have to combine identification of key concepts, procedures, and so on, with analysis of the professional use of those concepts. Identification of key concepts is a matter of what is most important for students to "know." This must include the learning outcomes of the module as stated in the degree scheme. The identification of key concepts is defined through the professional activity that calls for their use: that is, it is defined in the activity of the learner. In our case, the activity was to design instructional software to solve user's problems.

There are two things that must be emphasised. First, our analysis must not preclude any type of learning activity—memorization of a list or extensive practice of a skill may be necessary—but it should arise out of the need to use the information in authentic tasks. Second, what must be learned includes not only information in the content domain, but also metacognitive, collaborative, and other skills that are necessary for participating in authentic activity. In particular, a crucial issue is how to ensure that the problems designed are educationally rich enough that in seeking answers, students must gain understanding of significant subject matter concepts. Problems also need to be feasible and manageable, given the time and resources available to the students. However, artefacts should be rich enough to promote both depth and breadth of knowledge in their creation as well as demonstrate student mastery of the content. Artifacts must require students to integrate information and use complex thought.

Problems must be designed to sustain student motivation and thoughtfulness. A number of factors should be considered in problem design that affect students' motivation to tackle the problem in a manner that fosters understanding. These factors include whether students find the problems to be interesting and valuable, whether they perceive that they have the competence to engage in and complete

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