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Abstract

Much of the research on how teachers approach the design of problems for problem-based learning (PBL) environments has described models that provide procedural steps on curriculum design. While these give insights into the variety of models and frameworks that teachers can employ in their approach to designing problems for PBL lessons, such models neither investigate nor discuss teachers’ experiences and influences on teachers’ decisions on problem design.

This study focuses on exploring how teachers approach the process of designing problem-based learning activities for PBL at a polytechnic in Singapore. This study seeks to understand the processes and factors that influence how teachers design problem activities for PBL. Guided by a qualitative paradigm, this study employed thematic analysis to investigate the influences underlying the design decisions of the problem crafters. Specifically, this study described and interpreted the data collected from a group of certified problem crafters in the institution, panel members of the problem crafting certification, curriculum documents and portfolios of problem crafters undergoing the certification process across a range of disciplines.

The findings showed that teachers’ decisions in designing problems for PBL focus on an outcomes-based approach, which begins with the desired outcomes of the lesson in mind when designing the lesson. There is also a deliberate objective of creating an entry into disciplinary knowledge for students through the problem activities. Employing the ecological lens (Bronfenbrenner, 1979), the factors that influence teachers’ decision making in designing problems are seen along two key dimensions, namely, the individual and community levels of influence. At the
individual level of influence, factors include the teachers’ conceptual understanding of PBL, their pedagogical expertise, and their understanding of the learning culture in the classroom. At the external or community level of influence, the factors include having a shared vision and philosophy of education, the influence of the teaching and learning community in the institution, and the professional and industry community.

This interconnected perspective to teacher decision making in problem design enables a more holistic understanding of the design process as well as the conditions that enable and support the process of problem design. The findings of this study hold implications for the conceptualisation of how teachers approach the design of problems and develop the curriculum for PBL; how professional development can be designed to enrich and extend teachers’ efforts in designing a problem-based curriculum; and how PBL can contribute to skills development and the professional training movement for industry professionals. This study highlights that PBL can play a role in strengthening the relationship between workplace learning and institutional learning in Singapore.