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Editor's Introduction

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It is generally recognized that learning how to "do" PBL is not easy (Ertmer & Simons, 2006). Students are known to struggle with the ambiguity of the problem-solving process, while instructors tend to worry that they are either doing too much (i.e, being too directive) or not enough (i.e, letting students flounder unnecessarily) to facilitate student learning. Particularly when students are engaged in authentic problem solving, the need for scaffolds to support both teacher's and students' efforts is clear.

The articles in this issue are concerned with ways to help novice PBL teachers and students adapt to the PBL method. More specifically, they address questions such as: How do we support instructors or facilitators and students during the PBL process, particularly if they are new to the method? What kinds of scaffolds do students perceive as being most needed and most useful? Can technology-based scaffolds effectively support students' efforts during the problem-solving process?

In the Dabbagh and Blijd article, "Students' Perceptions of Their Learning Experiences in an Authentic Instructional Design Context," the authors describe how 11 graduate students responded to learning instructional design (ID) through involvement in a real world ID project. In this case, students were tasked with developing an online training system for underground coal mine supervisors. Given the immersive nature of this experience, the researchers were interested in students' perceptions regarding three key aspects of the approach: 1) working on an authentic ID project, 2) working on a performance-oriented team and 3) their resulting ability to link theory to practice. Although students were positive about the experience, they struggled to manage the various expectations involved, particularly related to teamwork and the open-ended nature of the project. Furthermore, while students were motivated to succeed due to the relevance of the experience, additional scaffolding was desired.

The article by Ge, Planas, and Er, "A Cognitive Support System to Scaffold Students' Problem-based Learning in a Web-based Learning Environment," describes the results of an experimental study that examined the effects of question prompts and peer review, facilitated via a web-based cognitive support system, on students' problem-solving efforts. Ninety-six pharmacy students were asked to generate solutions to real-world problems

related to clinical communication. Half of the students received question prompts that guided them through the problem-solving process; the rest of the students received only a list of the five problem-solving steps. After formulating their initial responses, students in the treatment group viewed their own and peers' reports, while students in the control group viewed only their own reports. Both groups revised their reports and then viewed an expert's response. Results suggest that students' performances benefitted significantly from question prompts, but that students in both conditions improved their problem solving scores when given a change to revise their initial reports (peer review didn't add any additional benefit). The results of this research suggest that we can off-load some of the instructor scaffolding responsibilities by allowing a support system to provide "hard" scaffolds (Saye & Brush, 2002) during the problem-solving process.

In their article, "Using Questioning to Facilitate Discussion of Science Teaching Problems in Teacher Professional Development," Zhang, Lundeberg, McConnell, Koehler, and Eberhart explore the question, what makes a good PBL facilitator? By observing three pairs of experienced facilitators, the authors documented how specific types of questions were used to initiate and advance PBL discourse among novice PBL science teachers. Interestingly, results suggest that there is not one type of question that is more effective, but that different question types serve different functions during the PBL process. This research provides the kind of rich description that will enable others to understand the fine art of PBL facilitation.

Together, the articles in this issue illustrate what authentic PBL looks like, in situ. Although the first two articles (Dabbagh & Blijd and Ge, Planas, & Er) focus on students' perceptions and outcomes, the implications speak directly to teachers, as do the results from the Zhang et al. study. All told, the results of these three studies bring us a little closer to understanding how to effectively "do" PBL in our classrooms.

References

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