Are They Ready? Readiness for Problem-Based Learning in Higher Education

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Abstract:

Since its inception in 1969 at a Canadian medical school, Problem-Based Learning (PBL) has gained increasing popularity. PBL is generally described as a constructivist learning environment that emphasizes hands-on, experiential learning, focused on investigating, explaining, and solving problems (Hmelo-Silver, 2004). In this method, students acquire knowledge and thinking skills by tackling problems in small collaborative groups. A typical PBL session starts with a loosely defined problem. The students must then work together to identify and address the issues, fill gaps in their understanding, and find a suitable solution, with a facilitator guiding them through the process. In addition to the subject-specific knowledge and skills gained, PBL is designed to foster the development of critical thinking, problem-solving, and self-directed and collaborative learning abilities (Lieux, 2001; Schmidt, Vermeulen & Van Der Molen, 2006).

While PBL has gained many supporters across various educational fields, some evidence suggests that certain students find PBL environments challenging. Research indicates that although many students appreciate and find satisfaction in the PBL approach (Caplow, Donaldson, Kardash & Hosokawa, 1997; Rideout et al., 2002), not all students are enthusiastic about adopting it (Alper, 2008; Hamalainen, 2004; Hood & Chapman, 2011). For instance, in a recent study, Fukuzawa, Boyd, and Cahn (2017) found that only 22% of students who had experienced PBL agreed they would like to attend more PBL sessions. Additionally, only 41% expressed interest in taking another course utilizing PBL. The study also revealed that some students' motivation was negatively affected due to their unfamiliarity with the PBL process.

Recent studies have highlighted the critical role of student preparedness for significant transitions throughout their educational journeys. In educational settings, readiness generally refers to the degree to which students possess the necessary skills, attitudes, and knowledge to actively participate in and benefit from the learning opportunities provided in a particular environment (e.g., Kentucky Department of Education, 2019). According to a 2013 ACT report (ACT Policy Reports, 2013), many students fail to complete their college education because they are underprepared for higher education and require remedial classes. Additionally, many students lack the academic habits and goals essential for college success (p.2). Readiness also plays a crucial role in shaping students' responses to and performance in specific learning environments.

De Graaff and Kolmost (2003) pointed out that Problem-Based Learning (PBL) differs significantly from traditional teaching methods in several important ways. One of the main distinctions is that PBL focuses on giving students open-ended problems, rather than clearly defined tasks with a single correct solution. Additionally, PBL emphasizes the use of critical thinking skills, encouraging students to engage in both independent and collaborative learning. This approach contrasts with more conventional educational settings, where these skills may not be as strongly emphasized. Due to these unique features, some students may be more suited or better equipped for PBL environments than others, based either on their individual backgrounds or prior experience with similar learning methods. These differences in readiness can help explain the variations in how students perform and respond when they first encounter PBL in higher education settings. Given the evidence that students'

responses to PBL environments can vary widely, it would be beneficial for institutions that use PBL as a core teaching strategy to evaluate students' preparedness for its different components. By doing so, institutions could create tailored support systems to help students who may be at risk of struggling in these settings, ensuring they have the tools to succeed. Despite this, few broad tools to measure such readiness are available.

This presentation will outline an instrument designed to assess students' readiness for PBL in higher education (the Readiness for Problem-Based Learning scale, or RPBL), jointly developed by the presenter. This instrument has two main components: A cognitive processing component, and a learning processes component. This instrument has been validated with a large group of tertiary level students in Singapore, and has demonstrated excellent psychometric properties. With many institutions now making use of PBL, it is important for students' readiness for these environments to be assessed. Efforts to achieve this goal may, however, be hampered by a scarcity of suitable instruments for this purpose. The results of the present study suggest that, while further validation efforts would be beneficial, the RPBL holds considerable promise for meeting this important need.