Problem-Based Learning Blending Formative Assessments and Technology

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Abstract:

As millennials enter the workforce in the globalised interconnected world of the future, it is time to bring about revolutionary changes into the way we transfer knowledge and skills to our students. By applying constructivist Problem-Based Learning (PBL) approaches in education, teachers can effectively brand their sessions to be effective through a clear focus on real-life challenges and issues faced by professionals, businesses and the economies of today (Chickering & Ehrmann, 1996). It is time to retire the centuries' old lecture method of one-way classroom communication and focus on facilitating active learning by inspiring creative solutions and higher-order thinking skills for authentic industrial problems. This paper discusses the application of PBL techniques in the classroom for formative assessments. It focuses on motivating learning among students through PBL techniques with clear links to the target profession while blending technology. As the students of the new generation have a higher affinity to interact using the digital medium, it is highly crucial that teachers embrace technology tools to train students through problem solving techniques (Dervan, 2014).

The paper begins with a review of problem-based learning approaches and analyses the success achieved when implementing problem-based learning in vocational education within a classroom. Since Problem-based learning involves collaborative team work by students, appropriate new age technology tools are presented to showcase their effectiveness in transferring knowledge and skills. The study focuses on two specific tools that are applicable to the learning and development of students in business studies and other subjects that are usually taught in a class-room setting. It begins with a look at the utility of PowerPoints' multimedia tools including online resources in conducting formative assessments. Here Scenario-based learning methods are explored, to solve real-life problems, when teaching and training business management related subject areas. The use of FILA table in the problem-based learning process (Hmelo-Silver, 2004) is explored. The study also discusses an overview

of one of the popular new-age classroom technology tools, the ‘Socrative’ app and smartphones, which can facilitate active learning in classrooms and improve student performance (Coca and Slisko, 2013). Many interesting technology features of the app are explored, including the ‘Space Race’ feature where students can collaborate and compete with each other in teams to solve real-life and simulated organisational problems and challenges using their mobile phones. Another feature analysed is the ability of the students to brain-storm for ideas when dealing with complex issues that can have multiple solutions (Pata, 2016), using the ‘voting’ feature. Also, the ‘Exit Ticket’ feature in the app is explored to collect student feedback for a plenary session, in order to ascertain the effectiveness of the problem-based learning session. The study concludes with a conceptual framework that illustrates the findings of the study. Suitable suggestions and a conclusion are provided with regards to how the tools can be successfully implemented in a class-room setting.

Keywords: Formative Assessments; Socrative; Space-Race; game based-learning; mobile devices; scenario-based learning

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