ITOP0386
ICT

ARC'14
مؤتمر مؤسسة قطر السنوي للبحوث
QATAR FOUNDATION ANNUAL RESEARCH CONFERENCE
Towards World-class Research and Innovation

PLATE: Problem-based learning authoring and transformation environment

10.5339/qfarc.2014.ITOP0386

Mohammed Samaka; Yongwu Miao; John Imagliazzo; Disi Wang; Ziad Ali; Khulood Aldus; Mohamed Ally

Corresponding author :
samaka.m@qu.edu.qa
Qatar University, Doha, Qatar

Abstract

The project entitled Problem-based Learning Authoring and Transformation Environment (PLATE) is housed at Qatar University. It is under the auspices of the Qatar National Priority Research Program (NPRP). The PLATE project seeks to improve student learning using innovative approaches to problem-based learning (PBL) in a cost-effective, flexible, interoperable, and reusable manner. Traditional subject-based learning that focuses on passively learning facts and reciting them out of context is no longer sufficient to prepare potential engineers and all students to be effective. Within the last two decades, the problem based learning approach to education has started to make inroads into engineering and science education. This PBL educational approach comprises an authentic, ill-structured problem with multiple possible routes to multiple possible solutions. A systematical approach to support online PBL is the use of a pedagogy-generic e-learning platform such as IMS Learning Design (IMS-LD 2003), which is an e-learning technical standard useful to script a wide range of pedagogical strategies as formal models. It seeks to research and develop a process modeling approach together with software tools to support the development and delivery of face-to-face, online, and hybrid PBL courses or lessons in a cost-effective, flexible, interoperable, and reusable manner. The research team seeks to prove that the PLATE authoring system optimizes learning and that the PLATE system improves learning in PBL activities. For this poster presentation, the research team will demonstrate the progress it has made within the second year of research. This includes the development of a PBL scripting language to represent a wide range of PBL models, the creation of transformation functions to map PBL models represented in the PBL scripting language into the executable models represented in IMS-LD, and the architecture of the PLATE authoring tool. In addition, the project team designed the run-time environment and developed an initial version of a run-time engine and a run-time user agent. A teacher can instantiate a PBL script and execute a script instance as a course. The user can manipulate the diagram-based script instance in the user agent and the engine will response to the users' actions. Because of this, the system supports the user in executing a course module according to the definition of the PBL script. The research team plans to illustrate that the research and development of a PBL scripting language and the associated authoring and execution environment can provide a significant thrust toward further research of PBL by using meta-analysis, designing effective PBL models, and extending or improving a PBL scripting language. The PLATE project can enable PBL practitioners to develop, understand, customize, and reuse PBL models at a high level by relieving the burdens of handling complex details to implement a PBL course. The research team believes that the project will stimulate the application and use of PBL in curricula with online learning practice by incorporating PBL support into popularly used e-learning platforms and by providing a repository of PBL models and courses.

QSCIENCE.com
An Initiative of Qatar Foundation

مؤسسة قطر
Qatar Foundation
Unlocking human potential