Chapter 37
Driving Success in e-Learning Portals: Piazza, a Multi-Faculty Collaborative Model

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ABSTRACT

Technological advancements are triggering disruptive inventions in the teaching and learning process. The introduction of massive online courses offers students many opportunities to enroll in any course they choose, transcending geographical barriers. However, online learning puts responsibility for learning on the learners and lack faculty-student and peer-peer direct interactions. The instructor's role also must be redefined to provide support and collaboration in the online environment. Recent research reports poor student retention and completion rates in such courses and there is a lack of effective frameworks and gap in research related to identifying key factors and finding solutions to these problems. A multi-faculty e-learning framework is proposed based on a theoretical model highlighting important factors to address these problems. Experimental results of an ANOVA analysis done on student performance data collected in a multi-faculty setup provided empirical evidence for its effectiveness in improving the student learning outcomes.

INTRODUCTION

Technology has a pervasive influence on society in the way people communicate, and everything they do in all walks of life, including higher education. A plethora of opportunities to apply technology in higher education can add benefits such as productivity gains, cost reduction, and faster time to learn, as well as scalability and speed of diffusion of knowledge. Today there are unprecedented options for the

DOI: 10.4018/978-1-7998-8047-9.ch037

student community to enroll in online courses of their choice and complete at their own pace without time and location constraints, transcending geographical boundaries. However, many challenges and issues, remain inhibiting student engagement and success of e-learning portals in achieving their goals. The major inhibiting factors are the absence of direct contact with instructors in e-learning settings and lack of well-defined frameworks for e-learning portals. Many e-learning researchers have raised concerns over this issue, as the following sections detail. Satisfying student needs in online courses is one of the primary challenges faced in current e-learning scenarios. Also, numerous studies undertaken by the researchers highlight major concerns confronting online courses today such as low rates of student retention, engagement, and successful course completion. Many solutions have been suggested and tried to improve student retention and completion rates by way of providing facilities for different kinds of online interactions and collaborative supports on online learning portals. However, many hidden factors still must be identified and explored further, which could offer a solution to problems faced in online courses today. This research work is one such attempt which to offer solutions to challenges faced in current online courses and learning scenarios. The main objective of this research work is the introduction of a multi-faculty e-learning framework, empirically proving its success in e-learning portals, and illustrating how it addresses some key issues of e-learning today. The multi-faculty e-learning framework is based on a theoretical model constructed as a natural evolution from a single-faculty e-learning model. This framework offers solutions to scalability problems faced in massive open online courses (MOOCs) today. A case study is presented with a real-life example "Piazza", an e-learning portal that supports a multi-faculty collaborative e-learning environment that can facilitate improving student retention and enhancing learning outcomes.

MOTIVATION AND BACKGROUND

Massive Open Online Courses and Student Retention

Many recent research studies highlight the challenges faced by e-learning portals that support MOOCs. The major findings are summarized below.

Adamopoulos (2013) undertook a study of student performance in MOOCs, and the findings revealed very low student retention rates, and sentiment analysis of student responses showed that the professors' role constituted a crucial factor in influencing student retention in online courses. Reisman (2014) made an extensive study of the performance of MOOCs and found that the educational improvements attained through such courses were quite low. In spite of a large targeted audience, 90% of the students withdraw from the course in the middle, and only 3% completed the course successfully. Reisman cites the difficulty of monitoring and supporting thousands of online students in a class with only a few instructors, as the student-instructor ratio would be abnormally high. Ho et al. (2014) contend that in spite of massive registrations for such courses, very few participants (5%) complete the course successfully. Around 35% of the registrants never engaged in the course, 55% engage with less than 50% of the course content, and only 5% of the participants engaged with more than half the course content. Watolla, A-K (2016) tried a variety of teaching approaches including the deployment of multilayer instructors and concluded that distributed teaching offered perceived benefits to the learners. The study was based on a 14-week online course organized by the Goethe-Institute in collaboration with some European universities with 17000 online learners from 170 countries. The study concluded that scaling up would