Cloud Computing in Case-Based Pedagogy: An Information Systems Success Perspective

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ABSTRACT

Case-based pedagogy has evolved as an important tool for enhancing students’ analytical thinking and problem solving skills, as well as fostering the ability to make decisions under conditions of uncertainty. Due to the rapid development of technologies that allow collaboration and interaction despite geographic and temporal distances, educators are investigating the viability of emerging technologies such as cloud computing as platforms for case-based pedagogical techniques. This paper utilizes information systems (IS) success theory as the foundation of a study to examine case-based pedagogy in a cloud-computing environment. A three-week field experiment followed by a post-test survey is conducted in order to validate hypothesized relationships among cloud computing information quality, cloud computing system quality, cloud computing use, performance expectation in case-based pedagogy, and cloud computing critical mass. Results suggest that information quality has significant influence on not only use of cloud computing for case-based pedagogy, but also increases performance expectation and leads to critical mass. The findings of this study suggest that cloud computing is a viable platform for case-based pedagogy.

Keywords: Case-Based Pedagogy, Cloud Computing, Critical Mass, Information Quality, Information Systems Success

1. INTRODUCTION

The rapid rise in technologies that allow collaboration among individuals regardless of geographic or temporal differences has spurred a shift toward Internet-supported pedagogical practices. Cloud computing is one such set of technologies that allow the management of data and applications over the Internet (Armbrust et al., 2010) and is increasingly being used to bring operational excellence for a wide range of organizations. While there has been a swift rise in popularity of cloud computing in the commercial business setting, little is known about the utilization of cloud computing in pedagogical activities, which are the core business activities of higher education. In this paper, we seek to contribute to current knowledge by examining factors that influence the viability of cloud computing technologies to support case-based pedagogy in higher education.

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The case-based pedagogical technique can be effective in helping students acquire skills in analytical and diagnostic thinking, develop strong persuasive skills, and make decisions under conditions of uncertainty. To reap these benefits, students need to engage in active learning by working in groups, building constructive relationships, sharing knowledge, and regularly exchanging information with others. While it has been shown that these collaborative learning modes are essential to the success of learning through case-based curriculum, the efficacy of supporting them with cloud computing technology remains unanswered.

Information systems success theory has been widely adopted to assess the success of different information systems, such as e-learning systems, knowledge management systems, and electronic commerce (DeLone & McLean, 1992). In order to better understand the efficacy of cloud computing in the context of case-based pedagogy, this study adopts information systems success theory to examine the logical relationships among information quality, system quality, use, performance expectation, and critical mass. We examine these factors in order to address the following research question: What are the factors that influence the success of cloud computing as a platform for case-based pedagogy?

The remainder of this paper is organized as follows. We first develop a research model grounded in the literature based upon the aforementioned constructs, depicted in Figure 1. Hypotheses will then be proposed based upon the research model. The research methodology will be introduced, including a discussion of the data collection procedure and data analysis method. Hypotheses testing results will be reported and discussed, followed by limitations and future research. Academic and practical implications will be presented, and we bring the paper to a close with a conclusion.

2. LITERATURE REVIEW

2.1. Benefits and Challenges of Cloud Computing in Case-Based Pedagogy

The construction of systems meant to facilitate the teaching and learning process requires costly investment in hardware, software, network, training, and maintenance. Scalability is another challenge, as the number of users and the amount of course materials may grow, demanding faster response to learning needs. Cloud computing technology enables the cost-effective delivery of these systems.
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