Chapter 100
Cloud Computing for Teaching Practice: A New Design?

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ABSTRACT

Recently researchers have shown an increased interest in cloud computing technology. It is becoming increasingly difficult to ignore cloud computing technology in education context. However, rapid changes in information technology are having a serious effect on teaching framework designs. So far, however, there has been little discussion about cloud computing benefits in domains of teaching frameworks which propels us to study and redesign teaching frameworks considering cloud computing. The purpose of this paper is to review recent research into cloud computing and features which can be improved with this new technology. This paper studied several researches through literature to determine the main impact of cloud computing on “planning and preparation” and “instruction” domains as two main domains of teaching framework. Light will be then shed on the impact and potential benefits of cloud computing on teaching framework. The paper closes by proposing to design an evaluation table based on cloud computing artifacts to enhance teaching practice and highlights its offerings for educational institutions.

1. INTRODUCTION

In the history of education, information technology has been thought of as a key factor in education improvement and change. New technologies such as the internet help to make learning independent on a large scale with vast resources at low cost. New technologies force higher education to change its structure. Peter Drucker said “thirty years from now the big university campus will be a relic. Universities won’t survive” (Lenzner & Johnson, 1997). Today’s Cloud computing has been known...
as the most significant new technologies and is considered as a model for enabling on demand network access to shared computing resources that have capability of rapidly providing and releasing with minimal management effort (Sriram & Khajeh-hosseini, 2010). Institutes of higher education have started to use cloud to gain more flexibility. Cloud computing prepares effective information systems operating for higher education without additional investment in computer and network equipment (Ercan, 2010). Higher education facilities encourage students to use available cloud based applications for academic and non-academic purposes (Ercan, 2010). In one study it was found that educational institutes are eager to use cloud computing because most of them suffer from economic crisis; CC in Africa is an example in which CC is a powerful tool to continue to improve education (Nabil Sultan, 2009). Cloud computing introduces a new supplement, consumption pattern and delivery model for IT related services through the internet (Sasikala, 2011). Recent developments in information technology heightened the need for determining the potential benefits of cloud computing as a new paradigm in education domain. In recent years, factors such as large class size, the diversity of students and changes in student needs play a significant role in examining learning and teaching approaches (Saunders & Klemming, 2003). Over the years, the emergence of new technologies has changed university structure and has brought many benefits resulting in increasingly effective and efficient learning and teaching. New technologies such as cloud computing paradigm prepare opportunities for university by preparing an environment with which to use available resources for teaching and learning processes.

In addition, rapid changes in IT are having a serious effect on teaching. There are a number of standards and frameworks used by the teaching profession. The idea of determining effective instruction behaviors for teachers is not a new concept (Witcher & Onwuegbuzie, 1999). More recently, literature has emerged that offers findings about the impact of cloud computing on teaching and learning. One major concern in early cloud computing and education research concerned the impact of technology on the redesign of teaching frameworks. In addition, no research has been found that concerns cloud-based teaching framework, which we pointed out in our previous work which introduces the first version of Cloud-Based Teaching Framework founded on Danielson Teaching Framework. In this study, we attempted to review recent research into cloud computing in two domains of Danielson teaching framework, and to provide an introductory design for a teaching framework for use in an educational environment using cloud computing technologies.

2. LITERATURE REVIEW

The past six years have seen an increase in research done in the area of cloud computing for educational contexts. In 2009, Sultan pointed to cloud computing implications in terms of education such as improving efficiency, cost and convenience for the educational sector, availability of an awesome computing power through cloud computing for research purposes and increased adoption for economic reasons (Nabil Sultan, 2009). In education domain, Sasikala (2011) published a paper in which he reported growth of the economy in rural areas without proper infrastructure. User access to file storage, e-mail, databases, and other university applications anywhere on-demand and a decrease in the capital and total costs of IT in higher education (Sasikala, 2011). In 2012, Gupta pointed to cloud computing in education in the current financial crisis, and reported cloud computing provides a cost free and robust service, providing quick and effective communication with anytime anywhere access. In addition, it enables global collaboration and helps teachers and students in organizing their classroom presentations and schedules (Gupta, 2012).