A Framework for Collaborative and Convenient Learning on Cloud Computing Platforms

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ABSTRACT

The depth of learning resides in collaborative work with more engagement and fun. Technology can enhance collaboration with a higher level of convenience and cloud computing can facilitate this in a cost effective and scalable manner. However, to deploy a successful online learning environment, elementary components of learning pedagogy must be embedded in the technology framework. A cloud computing technology based learning platform built on the proven learning pedagogies will be most successful attempt to facilitate collaborative and convenient learning. Such platform will support the learners to connect and coordinate the online resources in a more efficient, effective and practical way. This paper proposes a new theoretical framework for collaborative and convenient learning on cloud computing technology by reviewing various learning theories and integrating them with the technology framework. Architectural details of the framework have been presented with suitable examples for a better understanding. The work has a lot of significance for deploying cloud computing based collaborative learning solutions in the educational institutions.

KEYWORDS

Collaboration, Connectivism, Social Constructivism, Virtual Collaborative Learning

INTRODUCTION

Group-learning gives opportunities for participation and interaction to the students as well as teachers in a social learning environment (Brindley et al., 2009). It helps the students to work and learn in collaboration, develop critical thinking skills, self –reflection, and co-construction of knowledge. Collaborative learning is carried in small group, focus on learning process, and monitor the individual progress with their learning outcomes (Huang et al., 2013). Pfahl et al. (2004) indicated that collaborative learning improves the learning effectiveness. The learning content, learning methodology, facilities for collaboration and communication among learners, and technical infrastructure are elements of collaborative learning processes in e-learning environment (Helic, 2006). Integration of technology in learning opens up new opportunities that improve teaching and learning (OECD, 2010; Oliver, 2002). According to Moore & Kearsley (1996), technology provides new exciting roads in which teacher can freely put the information and communicate with the learner community. Technology is more successful in education, when it provides convenience in learning to the learners. The learning platform based on technology delivers flexibility in learning that assists in independent learning of students along with motivating them for learning(Moore & Kearsley, 2011; Brindley et al., 2009). In virtual learning platform, students find convenience of working and learning at their own

pace (Raghupathi, 2013). The virtual learning platform provides the collaborative learning beyond the classroom boundaries (Groff, 2013) and allows the students to learn at any time, any place, using any path and with any pace.

Collaborative learning empowers students and teachers, who are physically isolated from each other through online chats, discussion or face to face lectures (Kumar & Sharma,2016). According to the Hernandez et al. (2005), the computer supported collaborative activities offers functionalities desired by the teachers, student and pedagogy experts that can participate in collaborative learning process. Computer supported collaborative platform delivers the self-regulated learning capabilities. In self-regulated learning, individuals can freely choose their goals and develop own strategies for monitoring, regulating, and controlling various aspects that influence learning process and evaluating or analyzing their actions (Azevedo et al., 2010). According to Azevedo (2005), self-regulated learning tools promote the individual motivation, interaction and social elements in learning. This self-regulated collaborative activities made in online platform is referred as virtual collaborative learning. The virtual collaborative learning assists in deep learning, where learner can apply knowledge, analyze and synthesize knowledge and evaluate information (Chapman et al., 2005). Students can view participation as a component for their progress in virtual learning environment (Harasim et al., 1998). Each student can contribute their part of knowledge in the group, hence the virtual collaborative environment engages and motivates the students to contribute and participate during the learning. According to Anderson et al. (2000), the impact of social values and learning environment affects the individual motivation.

Collaborative learning is achieved by forming learning group setting, learning objectives by communication, cooperation and collaborative knowledge (Huang & Liu, 2014).

Collaborative learning environment must gather all the elements needed for collaborative activities and enhancement in knowledge with motivation in learning. Learner should be able to access the learning environment with high level of comfort and flexibility. The collaborative learning environment can be well supported by cloud computing paradigm by providing the necessary technological infrastructure.

CLOUD - COMPUTING BASED VIRTUAL COLLABORATIVE AND CONVENIENT LEARNING

Cloud Computing is a new computing model that be described as the abstraction of resources and services to implement the complex web-based applications (Vidhyalakshmi, & Kumar, 2016). It provides a complete online platform composed of a large number of services used while needed (Sbihi et al., 2013). Cloud computing technology provides scalable and flexible technical infrastructure capabilities as an on-demand service (Singh & Kumar, 2014). Users can access cloud computing resources from any place, anywhere and at anytime via any mobile computing devices such as laptops, mobiles, tablets or smart phones. In cloud computing technology, machines with large data centers can be dynamically provisioned, configured, controlled and reconfigured to deliver services in a scalable manner (Zissis & Lekkas, 2012). Cloud computing allows to efficiently manage upgrades and maintenance, backups, disaster recovery and failover functions (Zaharescu et al., 2012). Cloud computing based collaborative learning is an extension of computer –supported collaborative learning (Huanget al., 2013) and has characteristics that facilitate the online learners. According to Shuangquan (2010), in cloud-based collaborative learning, students themselves are the designers and performers of collaborative learning and hence they learn with active participation. Cloud computing provides real time saving and fair learning evaluation of records and increase the sense of teamwork among students, while developing thinking ability, emotions and personality. Cloud computing assisted collaborative learning support teaching and facilitates learning between teachers and students (Jian, 2011). With collaborative learning, the student needs a convenient learning environment. For convenience in learning the students needs the environment that can be accessed from anywhere and

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