Activity Theory to Guide Online Collaborative Learning Instructional Design

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ABSTRACT

Learning Management Systems (LMS) are facing challenges to improve its traditional focus on individual learning towards social learning. Despite the great success in distributing learning materials and managing students, the availability of the read and write features of social networking applications had encouraged educators to move their learning spaces toward a more interactive applications. Collaborative learning builds its character from social learning, had been established as an activity that enhances students’ knowledge building, team learning and sharing of knowledge among peers. Developing online collaborative learning activity poses many challenges as this involves developing many components to support the learning environment. Therefore it is important to understand each component’s contribution to help guide students learning by themselves socially. Activity theory provides a descriptive framework to elaborate the process of the six components involved in an online collaborative knowledge building activity. This study combines quantitative and qualitative method to collect data from survey, system log and collaborative messages posted in the customised Learning Management System (LMS) called e-Kolaborasi System. Findings suggest that online collaborative learning instructions based on the LMS system were able to assist students in their online collaborative learning activities. Nevertheless the students could only abide the rules to conduct collaborative activities during two periods of time which are during their free time and after practical sessions. This response indicates the reasons as to why the students were not able to give quick feedbacks to their community members.

Keywords: Activity Theory, Computer-Supported Collaborative Learning, Instructional Design, Knowledge Building, Learning Management System, Online Collaborative Learning, Qualitative Method, Quantitative Method, Teachers Training

DOI: 10.4018/jssoe.2012040102
INTRODUCTION

Online collaborative learning has become an interesting activity for students since it involves casual communication among friends and teachers. Many social networking applications support communication for educational purposes. Computer-Supported Collaborative Learning (CSCL) suggests using proper instruction to ensure meaningful learning for students when using computers as the artefacts of collaborative learning. Understanding of learning processes may help educators improve instructions and then redesign learning strategies based on the current needs. In addition, there is a need to understand human engagement with digital technology and all efforts to use that knowledge to design more useful and pleasing artefacts (Kaptelinin & Nardi, 2009). Human behaviour had been a study of usability and usefulness in computer systems development (Mwanza, 2001). Current issues of human behaviour in technology-mediated environment need to address collaborative context as learning method has progressed from individual learning towards social learning. This development has prompted this study to apply activity theory as to guide student activities in an online collaborative learning environment.

ACTIVITY THEORY

The foundation works of Activity theory was inspired by many studies related to human activity. Mostly cited studies are from the Russian/Soviet region which recognises Vygosky’s work as the initial researcher. Learners’ (subject) response to an activity are due to a stimulus or object (objective) and the stimulus-response (S-R) chain uses mediated artefacts (i.e sign, language, tools) to complete its learning activity (Vygosky, 1978). In the late 1970s and early 1980s through two publications; the English translation of Leont’ev’s Activity, Consciousness, and Personality (1978), and collection papers of Leont’ev’s further explored the interaction between the subject and their learning objectives (Kaptelinin & Nardi, 2009). Also known as Cultural-Historical Activity Theory (CHAT), the theory has been identified as one of the theories of learning implicit in the CSCL research community, besides neo-Piagetian conflict, social practice, Deweyan transactional inquiry and Bakhtinian dialogicality theories (Stahl, 2000). It is acknowledged as a descriptive tool to analyse human behaviour and their activities in the process of learning through technology mediated environment. It focuses on practice but it is primarily a descriptive tool rather than a prescriptive theory (Kaptelinin & Nardi, 2009; Jonassen & Rohrer-Murphy, 1999). The activity triangle model represents an outline of the various components of an activity system into a unified whole (Mwanza & Engestrom, 2005). Activity itself is both defined by and defines context which works as an outer container in which human behave in certain ways when in contact with other people, settings, object and artefacts (Jonassen & Rohrer-Murphy, 1999).

Activity theory has evolved into three generations. Vygosky’s theory being the first generation, circles on individual level of learning (Jonassen, 1999). The second generation of activity theory added the element of community, rules and distribution of tasks in the activity triangle. These elements show that the learning environment should also take into account the inter-relationship between individual learning and group learning as well as other elements involved in learning (Engestrom, 2001). As the activity system continues to grow, it makes internal changes. The third generation considers developments in various fields to extend the boundaries of learning. These areas include the manager of the learning environment, training, technical support and so on. This new environment known as expansive learning apply five principles of mutual relationship between elements, has many points of view, renewable systems, has room for change and has a vast transformation cycle (Engestrom, 2001).

Activity theory had been used to analyse organisation activity system (Robertson, 2008), e-learning environment (Mwanza & Engestrom,
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