

Effect of Peer Interaction among Online Learning Community on Learning Engagement and Achievement

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ABSTRACT

This article explores whether a learning community can affect students' learning achievement and engagement. Besides, this study also analyzed whether degree centralities of peer interaction affect learning achievement and learning engagement based on social network analysis. While the experimental group combined the English learning system with the online learning community, the control group was simply using the English learning system. The results indicated that the students' engagement from the online learning community were higher than the ones who used the English learning system only, although the learning achievement is not significant difference between these two groups. Moreover, higher interaction learners from the online learning community revealed better performance in learning achievement and student engagement. Other than that, the learners who played the "Center" emerged with a higher learning achievement as well as the students' engagement than the "Periphery" ones. The research provides suggestions for online learning with learning communications as well.

KEYWORDS

English Learning System, Facebook, Learning Engagement, Learning, Online, Online Learning Community, Peer Interaction, Social Role

INTRODUCTION

Nowadays, online learning is a favorite format for educational experiences because of its adaptability and customizability to students' needs. Allen and Seaman (2016) stated in their report that 5.8 million American students were enrolled online courses in 2014, with 2.85 million students taking all of their courses. They also noted 63.3 percent of higher education academic leaders have agreed that online learning will become essential to their long-term strategy. It is an advantage of online learning that students can learn at their own pace without any limitations in time or space. However, also it is a disadvantage when the motivation and participation during the online course cannot be maintained long-term without assistance. To resolve the problem, researchers have proposed sending reminders and learning content through email (Hayati, Jalilifar, & Mashhadi, 2013; Hodges, 2008; Hodges & Kim, 2010) or a short message service (SMS) (Hayati et al., 2013) to foster study. Nevertheless, these systems remain a solo endeavor, and the relationship difficulties that are frequently recounted by students remain, including the lack of interaction between students (Park, 2007; Safford & Stinton,

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2016), difficulty in initiating and maintaining communication (Rice & Carter Jr, 2016), the ambiguity of posted messages, and technical problems (Park & Choi, 2009; Vayre & Vonthron, 2017).

Many researchers pointed out that peer interaction is an essential part of learning (Aghae & Keller, 2016) and an essential element in online learning in recent studies (Aghae & Keller, 2016; C. H. Lai, Tho, & Liang, 2017; Robson, 2016; Yemen-Karpuzcu, Ulusoy, & Işıksal-Bostan, 2017; Yu-Tzu, Ming-Puu, Chia-Hu, & Pu-Chen, 2017). Yemen-Karpuzcu et al. (2017) introduced the interaction between students as "...an important requirement for learning since it provides opportunities for them to formulate ideas, reveal their understanding, and reflect on their thoughts." Also, the engagement in peer interaction push students to construct ideas genuinely, and also increases their achievement (Aghae & Keller, 2016). However, there have been a limited number of studies assessing how to use ICT in peer interaction efficiently (Liu, Chen, & Tai, 2017; Yemen-Karpuzcu et al., 2017) and what are the influencing factors on learners' peer interaction experiences (L. S. Anderson & Hildenbrand, 2009) and quality outcomes (Aghae & Keller, 2016; Carini, Kuh, & Klein, 2006; Yang & Wu, 2011; Yu-Tzu et al., 2017).

During past few years, with the popularity of social network sites (SNSs), online learning communities have attracted the attention of educators and researchers. Several researchers have suggested the use of SNSs as an educational tool for online courses to enhance students' self-regulated learning (Dabbagh & Kitsantas, 2012), self-efficacy (Gökçearsan & Alper, 2015), knowledge construction (K.-W. Lai, 2015), social presence (Brennan, 2016; Dunlap & Lowenthal, 2009; M Joyce & Brown, 2009) and peer interaction (Aghae & Keller, 2016; C. H. Lai et al., 2017; Nkhoma et al., 2015). Lim and Richardson (2016) stated that there is a positive correlation between the intensity of using social networking sites and students' perceptions of using those for educational purposes. Following the grow of SNSs, recently, social network analysis (SNA) has been extensively used to discover the patterns of the relationship between actors in SNSs (Freeman, 2004). SNA has been applied increasingly by educational researchers to understand the relationship among students in learning communities. Moreover, SNA was found to be helpful it provides a mathematical manner to measure students' engagement through their positions in a social network (Freeman, 2004). This can help to enhance the understanding of students' engagement in an online learning community (Richardson, Maeda, Lv, & Caskurlu, 2017). The methods for scientific measurement and calculation used in identifying and analyzing the social network are differs from the ones used in the analysis of quantitative research in social sciences. There are some measurements are currently employed in SNA to describing the students' positions in a network, or identifying the inter-student relations, such as degree centrality, between centrality. The SNA is used to analyze the structures of any type, which are in relation to one another or to the institutions, individuals or groups within the social structure (Freeman, 2004). Determining the actors' roles through SNA is very important to understand the effects of the roles on the network structures (Ergun & Usluel, 2016). However, there is a limited number of studies that investigate the effect of degree centralities in students' learning achievement and engagement.

Therefore, this study aimed to explore whether learning community can affect students' learning achievement and engagement. Besides, this study also analyzed whether degree centralities of peer interaction affect learning achievement and learning engagement based on the social network analysis.

LITERATURE REVIEW

Online Learning Community

An Online Learning Community can be in many forms such as a bulletin board system, blog, or chat room is an organized forum for a free exchange of ideas, within the confines of an electronic vessel. Palloff and Pratt (2007) defined an Online Learning Community as "a virtual environment for participants in which these elements are present, group members can feel safe in expressing themselves

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