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Knowledge sharing behaviors in e-learning community: Exploring the role of academic self-efficacy and sense of community



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ABSTRACT

The purpose of this study was to explore the structural relationships between knowledge sharing behaviors (KSB), academic self-efficacy (ASE) and sense of community (SoC) of university students in e-learning community. The study was carried out with students who joined Facebook learning community that was created for the Computing I course which was taught with blended learning method. Data were collected from 316 university students by utilizing three self-report instruments: KSB scale, ASE scale (sub-scales: 'social status', 'cognitive applications' and 'technical skills') and classroom community (CC) scale (sub-scales: 'connectedness' and 'learning'). The path analyses with structural equation modeling (SEM) further verified that students' KSB were related to their ASE and SoC in e-learning community. The results of the study revealed that the ASE and SoC of the students positively affect their KSB. And in terms of sub-scales, the connectedness to the community, learning perception in the community, the self-efficacy of the students on the cognitive applications in the courses and their social status in the community positively affect KSB. However, students' self-efficacy perceptions on their technical skills affect KSB positively but its affect size was smaller compared to other sub-scales. Further research studies and implications are presented and discussed.

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1. Introduction

Over the past decade, with the integration of information and communication Technologies (ICT) to learning environment and processes and with the changes in pedagogical practices, there is an increasing tendency towards student-centered and virtual community-based modes of learning (Deng & Tavares, 2013; Rovai & Jordan, 2004). Such Web 2.0 tools and environments as instant messaging, e-mails, forums, wiki, blog, social networks and web conferences are used in creating virtual learning communities, which are considered as alternative channels supporting learning within and outside the classroom. Besides, it is seen that the use of social media for educational purposes is becoming widespread (Jong, Lai, Hsia, Lin, & Liao, 2014).

It can be said that social media is now especially used in creating virtual learning communities (Barczyk & Duncan, 2013; Lambić, 2016). As for the researchers, with such features of Facebook, accepted and used as the most popular social network, as synchronous and asynchronous communication options, tagging,

posting, creating and organizing groups, advanced knowledge sharing and management, its utilization as a virtual community environment has started to be widespread (Baker, Bricout, Moon, Coughlan, & Pater, 2013; Lee, Yen, & Hsiao, 2014; Pi, Chou, & Liao, 2013). In addition, with the mobile communication technologies that are becoming widespread, the use of the Facebook as a virtual community is strengthening because its acceptance and utilization is higher compared to other platforms (Baker et al., 2013; Mazman & Usluel, 2010).

According to social constructivist paradigm, learning emerges as a result of various interactions that the individual gets into with the social environment s/he lives in and through the construction of knowledge on the mind (Vygotsky, 1978). With its features the Facebook contributes to the interactions between the student, teacher and the content elements in the community and thus, supports the creation of a social constructivist virtual learning community (Ellison, Steinfield, & Lampe, 2007). To illustrate, a student in the community can also learn by observing the discussions about something that some other student shared. Studies indicate that using the Facebook as a virtual community environment could contribute to the increase in cognitive and social presence perceptions in the community (Baker et al., 2013). In this

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respect, the communities in the Facebook strengthens the social dimension of learning in terms of socio-cognitive learning theories (Chiu, Hsu, & Wang, 2006). On the other hand, as for Deng and Tavares (2013) these features of the Facebook indicate that this environment could be used as a learning management system (LMS) beyond being a social interaction environment.

Research indicates that the use of the Facebook as an online community environment could play a significant role in affecting people's knowledge and attitudes (Boon, Pitt, & Salehi-Sangari, 2015; De Valck, Van Bruggen, & Wierenga, 2009). In addition, it is indicated that using the Facebook could be useful in ensuring the diffusion and exchange of knowledge in minutes, increasing the cooperation and interaction among learners (Chiu et al., 2006), ensuring motivation (Deng & Tavares, 2013), increasing the engagement of the learners in the learning process and ensuring the continuity of this engagement (Junco, 2012; Sánchez, Cortijo, & Javed, 2014). As for the researchers, with these given features of the Facebook, it is an important community that could be used in supporting online learning processes as well as interactions in the traditional classroom environments (Mazman & Usluel, 2010; Wang, Woo, Quek, Yang, & Liu, 2011).

In these communities where knowledge sharing is the main activity, encouraging people to share knowledge, increasing their motivation to share knowledge as well as the frequency of sharing knowledge can be counted as the main problems encountered in the process of online knowledge sharing process (Lin, Hung, & Chen, 2009). Therefore, it is necessary to determine the factors that encourage or prevent individuals' behaviors in knowledge sharing process (Alakurt, 2013; Wang, & Noe, 2010). Research on online communities emphasize that the sense of community (SoC) and self-efficacy perceptions could be critical factors on KSB (Hau & Kang, 2016; Hau & Kim, 2011; Lin et al., 2009). When the literature is reviewed, it is seen that there is a range of studies looking into the relationships between KSB, SoC and self-efficacy perceptions. However, it is seen that most of the existing studies are carried out on organizational settings and on communities of professional development and that mostly such tools as forums, blogs etc. are used as the community (Chen & Hung, 2010; Hau & Kang, 2016; Lai & Chen, 2014; Papadopoulos, Stamatii, & Nopparuch, 2013). However, considering the fact that the use of virtual communities for courses has been spreading recently, there is a need for determining the factors effecting knowledge sharing in these communities. In their research on knowledge sharing Wang and Noe (2010) emphasize this case, and point out that there is a need for studies on social networks, self-efficacy and community culture/climate under the cultural contexts, individual characteristics and community structure factors.

When the literature is reviewed, it is seen that only recently studies looking into the use of the Facebook as a learning community on KSB have started (Kaewkitipong, Chen, & Ractham, 2016; Kwahk & Park, 2016). Besides, the use of the Facebook as a learning community, where teachers and students are together, on the SoC and its affect on KSB in the community are topics to be looked into. Also, it is seen that in most of the studies on online communities, the self-efficacy perception is towards a certain objective/competency. It is believed that in academic self-efficacy (ASE) perceptions of the students could be a determining factor in virtual learning communities intended to be used for courses. How ASE perceptions could affect KSB is an issue in question. Therefore, the main purpose of this study is to explore the structural relationships between the KSB of the students on the Facebook based virtual learning communities and their SoC and ASE and thus, to contribute to the expansion of the depth and flow of the research.

2. Literature review

When the literature is reviewed, it is seen that there are studies looking into the relationship between the self-efficacy perceptions in online communities and KSB. However, it is seen that these studies are mostly carried out on employees in organizational settings and thus, the self-efficacy perception is discussed within this framework and effects KSB positively in the aforementioned studies (Chou, Lin, Lu, Chang, & Chou, 2014; Hsu, Ju, Yen, & Chang, 2007; Lin et al., 2009). In addition, in Kwahk and Park's (2016) study on employees it is seen that knowledge and self-efficacy positively influences knowledge-sharing activities in social media contexts. In Lai and Chen's (2014) study on posters and lurkers in online communities it is seen that the impact of knowledge self-efficacy on intentions to share knowledge was significant in posters whilst it was not significant on lurkers.

It is seen that the research looking into the of self-efficacy in online communities intended for educational purposes on KSB is limited and most of these research is about the professional development of teachers (Tseng & Kuo, 2014; Van Acker, Vermeulen, Kreijns, Lutgerink, & Van Buuren, 2014). In addition to that, in their study, Zhang, Pablos, and Xu (2014) examined cultural differences in knowledge sharing in virtual classrooms and found that the impact of self-efficacy on knowledge sharing could change from one culture to another. According to this study, in groups from Beijing and Hong Kong self-efficacy affects knowledge sharing positively; whilst it does not in the group from the Netherlands. Research indicate that studies carried out on KSB in different cultures is necessary (Van Acker et al., 2014; Tseng & Kuo, 2014; Zhang, Pablos, & Xu, 2014).

It is seen that research looking into the impact of SoC on knowledge sharing is limited with organizational settings. For example, in Chen, Chuang and Chen's (2012) study in which they looked into the knowledge management systems (KMS) quality, KMS self-efficacy, organizational climate and attitude on the intention to share knowledge in electronic manufacturing firms in Taiwan, they found that KMS self-efficacy and organizational climate affect attitude toward share knowledge and intention to share knowledge. In their study, Bock, Zmud, Kim, and Lee (2005) also found that organizational climate affect employees' intention to share knowledge. In a study by Hau and Kang (2016) on the innovation-related knowledge sharing among online user communities, it was seen that innovation-related knowledge sharing, self-efficacy and controllability of online community systems affect perceived behavioral control, and that affect innovation-related knowledge sharing.

When the results are evaluated in overall terms, it is seen that in communities where Facebook is used as a learning community and which involve student, teacher and course content elements, there is a need for research showing the impact of the ASE perceptions of the students and the online classroom community climate on KSB. Therefore, this study is believed to contribute to the literature in order to fill this gap and to explore the results of the research findings in educational communities rather than organizational settings and to examine the use of social networks in this context.

3. Theoretical background and hypotheses

3.1. The relationship between knowledge sharing behaviors and sense of community

McMillan and Chavis (1986) defines a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together (cited in. Rovai,

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