A model for the effects of online social networks on learning

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Online social networks enabled by social networking software, such as Facebook or Google Plus, provide opportunities for e-learning and affect the behaviour of learners that participate in them. Based on social network theory, social learning theory, and theory of planned behaviour, we propose a model explaining the effects of online social networks on learning success.

Keywords: learning success, online social networks

Introduction

A social network is a structure formed by people and by connections between people, with the connections enabling interactions and exchange of information and influence (Knoke, 2008). The recent emergence of online social networks enabled by social networking software, such as Facebook or Google Plus, resulted in renewed interest in social networks in e-learning research. Social networking software can be used by instructors to create e-learning experiences. More importantly, learners may use social networking software in ways that affect their learning engagement and learning outcomes even independently, outside the control of the instructors.

Online social networks differ from offline social networks because they are not constrained by space. Online social networks can be built very fast because it is easy to establish connections and because it is easy to discover potential connections by using Internet search. Therefore, it is easy for a learner engaged in online social networks to connect to a broad variety of individuals (both other learners and non-learners). Consequently, social networks have a potential to influence learners in profound and unexpected ways.

The view that online and offline social networks can affect learning engagement and outcomes is consistent with a number of well-established theories emphasizing connections between individuals. Social constructivism (Vygotsky, 1978) asserts that learning happens via learners' interactions enabling negotiation of meanings. Social learning theory (Bandura, 1977) asserts that that individuals learn by observing others (models) and by copying behaviours perceived to lead to desirable outcomes. The theory of planned behaviour (Ajzen, 1991) suggests that an individual's behaviour is affected by subjective norm— the perceived beliefs of the individual's peers. Nonetheless, learning thus attained may differ from what instructors aim to achieve; for example, social networks may be used to learn strategies for achieving formal success by superficial learning with minimal learner engagement.

The existing research evidence on the effects of offline and online social networks is mixed. Thomas (2000) found a positive relationship between the learner's connectedness in an offline social network and learning outcomes. Cho et al. found that better-connected distance learners achieved better outcomes in an online learning environment. Yu et al. (2010) found that learners more involved in social networking using Facebook performed better academically.

In contrast, Junco and Cotton (2011) found that the use of instant messaging negatively affected learning outcomes and Junco (2012) found that the use of Facebook resulted in diminished student engagement. Both studies attributed negative effects to cognitive effort associated with social networking. In our view, subjective norm influenced by social networking peers is a plausible alternative explanation. Indeed, Junco also found that the use of Facebook resulted in increased involvement in co-curricular activities. Subjective norm may explain both of the effects discovered by Junco.

In summary, both the relevant theories and the empirical evidence suggest that even though the use of social networking software and the resulting online social network may promote higher learner engagement and better learning outcomes, the effect (including its sign) is moderated by the quality of the online social network. Based on this view, we propose the model of the effects of online social networks presented in Figure 1.
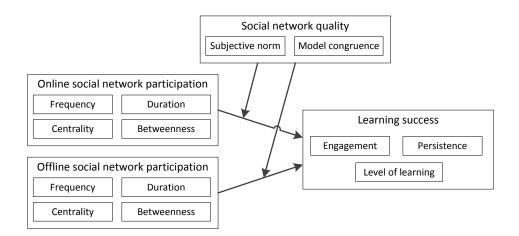
Figure 1: Effects of social networks on learning success

In the model, social network participation encompasses the duration and the frequency of online and offline contacts as well as the learner's structural role in the social network. The learner's structural role characterises the likelihood for the learner to be influenced by the network from the perspective of how the learner is connected. The structural role—a concept from the social network theory (Knoke, 2008)—is measured by centrality (the number of peers connected to, directly and indirectly) and betweenness (the extent to which the learner is important for maintaining the connectivity in the network). Social network quality encompasses the social norm induced by the network and the extent to which the models provided by the network are congruent with the learning objectives as seen by the institution of learning. Finally, learning success encompasses learner engagement, the level of learning, and learner persistence at pursuing the long-term educational objectives.

The model suggests that instructors and institutions of learning should seek ways to improve the quality of online social networks in which their learners engage. Even though online social networks are difficult to influence, they may be more open than offline networks (Cook, 2008); therefore, positive interventions may be possible.

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