

The Role of Perceived E-Collaborative Performance in an Extended Theory of Planned Behavior Model

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ABSTRACT

Online web technologies are adopted to improve students' collaborative work. However, the factors that affect students' engagement in online collaboration (e-collaboration) have not been understood in previous studies. This research aimed to examine the extent to which students' intentions to e-collaborate can be explained by the theory of planned behavior. A sample of secondary and tertiary students was used ($N = 175$). The results from the partial least square approach to structural equation modeling (PLS-SEM) indicated that the path coefficients of the relationships partially reinforced the a priori construction of the hypothesized model. In brief, attitudes toward e-collaboration and subjective norms were positively and significantly related to e-collaborative intentions, while perceived behavioral control indirectly predicted e-collaborative intentions via perceived e-collaborative performance. Research and practical implications have been presented in the paper.

KEYWORDS

Group Work, Perceived E-collaborative Performance, PLS-SEM, Theory of Planned Behavior, Web Technology

INTRODUCTION

Nowadays, teachers have become more reliant on Internet tools to improve students' ability in undertaking group assignments. As noted by Cole (2009), online technologies tend to enhance group performance by incorporating two major aspects of learning: social constructivism and collaboration. In the social constructivist school, the co-construction of knowledge is viewed as a result of interdependency of the social and individual processes. In other words, the emphasis on socialization and the respect for individuals are grounded in the process of human interaction by which knowledge is co-constructed through joint efforts (Bruns & Humphreys, 2005). Apparently, social constructivists encourage peer collaboration rather than individual competitive approaches (Duffy & Jonassen, 1992). Peer collaboration, being a term coined by Vygotsky (1978), refers to the state of working with competent peers so as to receive assistance from them (i.e., the zone of proximal development).

Group members' background and experiences are important in knowledge building, which actually involves a collaborative process (Scardamalia & Bereiter, 2003). Such a process can be implemented on the online platform (Cress & Kimmerle, 2008). Online collaboration (a.k.a. e-collaboration) is referred to as the act of working together via the Internet to achieve a common purpose. The technology enhanced learning (TEL) environment (Jenkins et al., 2011) has been established to support students' group work, and its effectiveness has been examined. For example, Hung and Yuen (2010) explored

the utility of social networking technology (one type of Web 2.0 technology) as a supplementary tool for face-to-face courses at two public universities in Taiwan and found that most participating students developed strong feeling of social connectedness and could consolidate their learning experiences. It is also not surprised to find that asynchronous communication tools (e.g., electronic mail) are preferred to synchronous ones (e.g., teleconference) because users prefer to having time for reflection on what is being written rather than immediate responses depending on individual's listening and comprehension capability and speaking skills (Duranti & de Almeida, 2012).

While the application of online technologies in education has been recommended (e.g., Chu, 2008; Hazari et al., 2009; Hung & Yuen, 2010; Kimmerle et al., 2011; Mak & Coniam, 2008; Woo et al., 2011), concerns over whether they really support students' group work have been raised (Naismith et al., 2011). Potential challenges exist in the implementation of these technologies, such as 'lack of time' (Jenkins et al., 2011). Other challenges include information overload, unfamiliarity of technologies, misuse of technologies, and social obstacles (Clarebout & Elen, 2009; Lin & Kelsey, 2009; Naismith et al., 2011).

Recently, Chen and Huang (2012) raised the importance of learner intentions toward web-based learning service systems for interdisciplinary applications. Behavioral intentions can be defined as one's willingness to perform a particular behavior (Ajzen & Fishbein, 2005). Within a cognitive process, three variables, stemming from the theory of planned behavior (TPB), are proposed to predict behavioral intentions (Ajzen & Manstead, 2007). These independent variables are attitudes toward the behavior, subjective norms, and perceived behavioral control. Their effects on behavioral intentions have been found in previous studies (e.g., Armitage & Conner, 2001; Chen & Huang, 2012; Hansen, 2008). Although the application of TPB in studying teaching and learning intentions does not lack (e.g., Chen & Huang, 2012; Teo, 2012), employing the theory to explain students' online collaboration within the context of group assignments is rare. In such a context, the intention to work via the Internet should help facilitate students' e-collaboration.

Moreover, while behavioral intentions have been widely known to be predictive of specific behaviors (Ajzen et al., 2011; Tang & Austin, 2009), some researchers have found the significant relationship between intentions and actual performance (e.g., Gollwitzer & Sheeran, 2006; Wieber et al., 2010). However, the value of perceived performance in a TPB model has not been clearly understood although perceived performance is argued to play a role in explaining behavioral intentions (Chiu et al., 2005). In the present study, important factors that can predict e-collaborative intentions should be identified. Appropriate strategies can be formulated to increase students' intentions to e-collaborate once the relationship with their perceptions on e-collaborative performance has been confirmed. In considering this, the present research aims at examining the role of perceived e-collaborative performance in a model that specifies the factors affecting students' intentions to work collaboratively online.

Given the growing interest among researchers in studying users' intentions to use technologies (Teo, 2012), the present research is significant as it is perhaps the first research to include perceived performance in an extended TPB model of students' intentions toward online collaboration. The findings could help students sustain their roles in group assignments. They can then learn how to become more committed to online collaboration, thereby strengthening their ability in coping with new and advanced technologies. Teachers can also learn how to improve students' perceptions on using technologies for group work.

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