

# Attitude, digital literacy and self efficacy: Flow-on effects for online learning behavior



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## ABSTRACT

Online distance education allows easy and convenient access to learning opportunities. As with other forms of education, high self-efficacy often encourages greater student confidence and autonomy. While self-efficacy has been shown to have positive effects in face-to-face education, its antecedents and consequences in online distance education are less clear. This study addresses this issue. First, it considers two important antecedents: attitude and digital literacy. Second, the study considers the effects of self-efficacy on three important learning behaviors: peer engagement, learning management system (LMS) interaction and course convener interaction. Findings from an online survey of 151 postgraduate business students suggest that positive student attitude and digital literacy significantly contribute to self-efficacy. In turn, self-efficacy has positive effects on peer engagement, learning management system (LMS) interaction and convener interaction.

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## 1. Introduction

Online distance education continues to gain popularity (U.S. Department of Education, National Center for Education Statistics, 2011). This is particularly the case in business-related disciplines, where the nature of content and course delivery tends to lend itself to this teaching approach (Arbaugh, 2000). While much debate has emerged as to the implications of this trend for students (Kirtman, 2009; Yoany, 2006), many studies agree that there is a need for students to take a different approach to their learning journey (Bernard, Abrami, Lou, Borokhovski, et al., 2004; DiMaria-Ghalili, Ostrow, & Kim, 2005). Online distance education involves the physical separation of students and teachers. Common delivery approaches rely on online learning platforms that contain learning materials, assessment tasks, and communication media. While the design of online learning platforms has been found to influence student learning processes (Chu & Chu, 2010), there has been less attention on the factors that determine learning behavior.

Self-efficacy has become a significant determinant of learning success. Indeed, this is important in a variety of contexts, spanning multiple learning stages and disciplines (Zimmerman, 2010). Self-efficacy involves the student's "... judgements of their capabilities to organize and execute a course of action required to attain designated types of performances"

(Bandura, 1986, p. 391). High self-efficacy has been associated with high levels of self-motivation and, ultimately, independent study approaches (Zimmerman, 2000). Indeed, self-efficacy is important in online distance study as a means to overcome the influence of isolation while encouraging productive, self-directed learning (Chu & Chu, 2010; Wu, Tennyson, & Hsia, 2010). Therefore, self-efficacy is an important part of successful online learning.

The present study considers two important sets of issues. In the first instance, the study explores the roles of attitude and digital literacy in achieving self-efficacy. Previous studies suggest that attitude is an important learning influence (Arbaugh, 2000, 2010). However, student attitudes towards online distance education tend to vary from their attitudes to face-to-face teaching. Similarly, digital literacy is an important learning influence (Knutsson, Blåsjö, Hållsten, & Karlström, 2012). Indeed, digital literacy has been associated with learner autonomy (Ting, 2015). Despite recognition that attitude and digital literacy have important learning influences, there has been no attempt to associate these factors with self-efficacy in online distance delivery-based education research. Therefore, the first contribution in the present study is to examine how these factors influence self-efficacy. This is important since it highlights two of the fundamental determinants of self-efficacy.

The second set of focal issues relates to the effects of self-efficacy on online learning behaviors. A near consensus has emerged in the education literature that student learning behaviors have important influences on learning. For example, using social media for teaching purposes is one way to encourage a more informal approach to learning behaviors (Dabbagh & Kitsantas, 2012). While much of the emphasis to date has been on teacher-designed attempts to encourage learning

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behaviors, few studies consider the psychological drivers of student online learning behaviors. Therefore, the present study considers how self-efficacy influences three learning behaviors: peer engagement, LMS interaction and convener interaction. These are three important types of learning behavior that account for a substantial proportion of online learning behaviors. By uncovering the relationship between self-efficacy and these learning behaviors, the present study complements earlier teacher-centric studies of student online learning behaviors by illustrating a fundamental cause of student learning behaviors.

In summary, the study offers a holistic model that includes two important antecedents to self-efficacy and three important outcomes. These findings could help provide important insights for teachers in online distance delivery environments. By focusing on attitudes that contribute positively to self-efficacy as well as digital literacy, teachers can help students build self-efficacy in online distance delivery education environments. This is then likely to contribute positively to online learning behaviors such as peer engagement, LMS interaction and convener interaction. The paper also offers several specific practical suggestions.

## 2. Literature review

An important element of student learning behaviors relates to students' self-concept. This includes the ways in which students perceive their role as a student. It provides a lens through which students interpret a learning experience. Self-efficacy is identified as a way to summarize the beliefs an individual student has about their ability to successfully learn from a course of study (Shen, Cho, Tsai, & Marra, 2013). As such, self-efficacy is an important part of their self-concept. High self-efficacy is closely associated with feelings of autonomy and the ability to self-regulate a learning process (Bernard et al., 2004). These are important in an online learning environment (Chu, 2010; Chu & Chu, 2010).

Encouraging self-efficacy is a key objective for teachers. Teachers often try to inspire students to take ownership of their own learning experience since it can increase the depth of student engagement while also reducing the onus on the teacher to deliver student learning outcomes (Zimmerman, 2000, 2010). To support self-efficacy, teachers can take certain approaches to designing online materials and assessments while also encouraging peer support (Bandura, 2010; Shen et al., 2013). However, few studies consider the student perspective in terms of self-efficacy antecedents, particularly in terms of attitudes and online learning capabilities.

While self-efficacy is an important goal, few studies consider the specific online learning behaviors outcomes that self-efficacy promotes. Self-efficacy has been identified as an important determinant of student learning behaviors (Bandura, 2010; Yoany, 2006). However, studies tend to focus on the cognitive and selective process outcomes of self-efficacy (Bandura, 2010). This neglects the motivational and

affective elements. A greater understanding of these elements may reveal some of the influences of self-efficacy on specific learning behaviors, where current studies only provide general descriptions of self-directed or autonomous behaviors as self-efficacy outcomes (Chu, 2010; Chu & Chu, 2010).

## 3. Hypothesis development

This section presents the hypotheses for the study (see Fig. 1 for a conceptual model). Section 3.1 presents the arguments for hypotheses one and two. Hypothesis one focuses on the effects of student attitudes on self-efficacy. Hypothesis two focuses on the effects of digital literacy on self-efficacy. Section 3.2 presents the arguments for hypotheses three, four and five. These later three hypotheses focus on the effects of self-efficacy on three student learning behaviors: peer engagement, LMS interaction and convener interaction.

### 3.1. Student attitudes, digital literacy and self-efficacy

#### H1. Student's positive learning attitude contributes positively to self-efficacy in online distance education

Student attitude can be a powerful influence on learning behavior (Arbaugh, 2010; Bernard et al., 2004). For example, lower performance is commonly associated with a poor attitude (Sadik & Reisman, 2004). Attitudes also inform student reactions to incentives (Love, Love, & Northcraft, 2010). Student attitudes involve an underlying set of values regarding a phenomenon of interest. This includes the beliefs about the credibility and effectiveness of teachers (Andersen, Norton, & Nussbaum, 1981; Obermiller & Ruppert, 2012). Of particular interest in the present study are student attitudes towards using online distance learning process. More specifically, the study considers the role of information and communications technology (ICT) as a means to achieve learning outcomes. Student online learning experiences primarily involve interactions with the online learning space (or learning management system). However, other information technology uses are also important. Previous studies identify email (Webster & Hackley, 1997), social media (Dabbagh & Kitsantas, 2012) and telecommunications (Valtonen et al., 2012) as significant learning vehicles.

A key difficulty facing many teachers lies in creating positive student attitudes. The payoffs in doing so include reductions in disruptive behaviors as well as higher personal investment in learning processes (Bernard et al., 2004; Sadik & Reisman, 2004). More specifically, student attitudes that associate learning processes with positive attributes such as personal interest and enjoyment are more likely to support positive learning behaviors. If an attitude is negative or dismissive, there is little

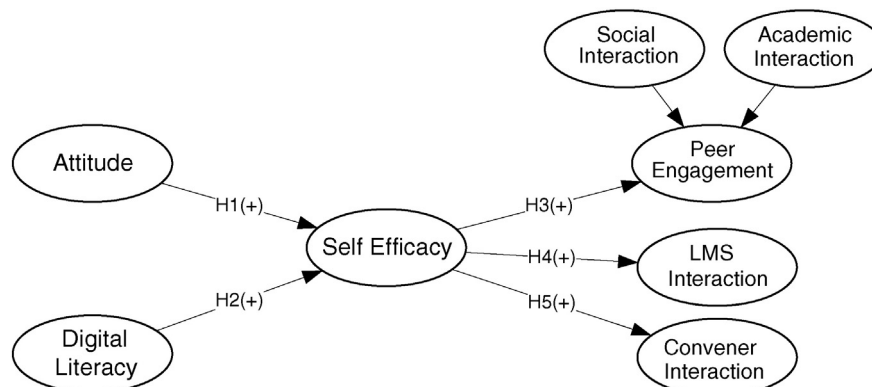


Fig. 1. Conceptual model.

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