Instructor scaffolding for interaction and students' academic engagement in online learning: Mediating role of perceived online class goal structures

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A B S T R A C T

The purpose of this study was to examine the relationship between instructor scaffolding for interaction and students' academic engagement in an online learning environment mediated by perceived class goal structures. Path analysis was used to explore the relationships among the variables. The data from 158 college students revealed that online instructors' scaffolding for interaction had a significantly positive influence on students' behavioral and emotional engagement and negative influence on behavioral and emotional disaffection mediated by perceived mastery goal structure in an online course. The link between instructors' scaffolding for interaction and behavioral engagement was also mediated by perceived performance-approach goal structure. Unlike the other two class goal structures, perceived performance-avoidance goal structure was not associated with instructors' scaffolding for interaction, but it was negatively associated with behavioral and emotional disaffection.

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1. Introduction

Academic engagement is a key contributor to the success of students' learning experiences (Gonida, Voulala, & Kiosseoglou, 2009; Skinner, Furrer, Marchand, & Kinderman, 2008; Wolters, 2004). Research has focused on two aspects of academic engagement: behavioral and emotional engagement. Skinner et al. (2008) defined behavioral engagement as students' effort, attention and concentration to the content, and involvement in the class. Emotional engagement refers to students' enthusiasm, interest, enjoyment, vitality, and zest with regard to the class. A plethora of empirical studies have consistently shown that academic engagement is a significant predictor of student achievement, class attendance, retention, and academic resilience (Skinner et al., 2008). Thus, engaging students academically is an important goal in teaching and learning practice (Gonida et al., 2009; Skinner et al., 2008; Sun & Rueda, 2012).

Academic engagement seems more important in online learning environments, where students often lack support from others (e.g., instructor and peers) and feel emotionally isolated (Artino & Jones, 2012; Cho & Summers, 2012; Dabbagh & Kitsantas, 2012). In a study of online dropout rates, Levy (2007) found that online students experience higher dropout rates than students in conventional face-to-face classroom settings. An analysis by Lee and Choi (2011) indicated that the significant online course dropout rate may be in part caused by students' engagement issues, which are often the result of a lack of social interaction in online courses; thus, supporting students' academic engagement is vital, particularly in online learning environments (Lee & Choi, 2012; Shi, 2010; Sun & Rueda, 2012).

Considerable online studies have shown that online instructors' scaffolding for interaction plays an important role in promoting academic engagement among students (Cho & Kim, 2013; Yang, Tsai, Kim, Cho, & Laffey, 2006). For example, Cho and Kim (2013) found that online instructors' scaffolding for social interaction is likely to facilitate college student engagement in self-regulated learning. Mullen and Tallent-Runnels (2006) found that students' perception of academic and affective support were positively related to perceived learning, task value, and course satisfaction in online courses. In addition, Yang et al. (2006) found that the more college students perceive they are connected to the online instructors, the more likely they perceive self-efficacy and task value in online learning settings. Furthermore, Shea, Li, and Pickett (2006) reported that online instructors' efforts to facilitate interaction, such as questioning and providing feedback, are positively related to students' perceived connectedness and learning. They concluded that the instructor's active role in guiding and orchestrating student interaction is the most significant factor in determining online students' engagement.

Despite the importance of instructor scaffolding for social interaction in online learning environments, very few studies have been conducted to investigate the mechanism through which instructors' scaffolding for interaction relates to student engagement in online learning environments. The current study investigated how instructor scaffolding for interaction influences students' academic engagement mediated by perceived class goal structures in online learning environments. Goal structure refers to the way students perceive motivational emphasis in their own classroom. Perceived class goal structures were hypothesized to mediate the relationship between online instructors' scaffolding for interaction.
social interaction and student engagement. In other words, online instructors' scaffolding for social interaction was hypothesized to predict the establishment of class goal structures, which in turn predict the extent to which students are academically engaged and disengaged.

2. Instructor scaffolding for interaction and students' academic engagement

Moore (1989) suggested that three types of interactions are important when it comes to describing online learning. These interactions are learner-content interaction, learner-instructor interaction, and learner-learner interaction. Instructor scaffolding for interaction refers to instructors' implementation of instructional strategies to promote learner-instructor and learner-learner interaction. Previous researchers have consistently documented the critical role of instructors' scaffolding for interaction in increasing students' academic engagement (Skinner et al., 2008). In research conducted in a traditional classroom setting, Skinner et al. (2008) found that students' perceived instructor scaffolding for interaction is positively associated with behavioral and emotional engagement and negatively related to behavioral and emotional disaffection. Research conducted in online learning environments revealed similar results (Shea et al., 2006; Shi, 2010). Shea et al. (2006) found that online instructors' directed facilitation of discourse is positively associated with students' perceived connectedness and perceived learning. The instructor's directed facilitation includes providing guidance toward understanding course topics, acknowledging student participation, and encouraging students to explore new concepts. In addition, Shi (2010) found that online instructors' scaffolding for interaction is related to student behavioral engagement and intellectual engagement in synchronous online discussion. Shi assessed instructor's scaffolding for interaction with the number of instructor postings and levels of instructor facilitation measured with Xin's (2002) five-level moderating rubric. Behavioral engagement was measured with the number of times students accessed the system and the number of student postings. Intellectual engagement was assessed with higher-order thinking and interactivity with the use of multiple coding schemes (e.g., Garrison, Anderson, & Archer, 2001). Furthermore, Cho and Kim (2013) found that instructor scaffolding for interaction exerted a significantly stronger impact on students' self-regulation for interaction than any other variables, such as demographics, prior online experience, perceived importance of interaction, and mastery goal orientation. Examples of instructor scaffolding for interaction include encouraging students to share concerns or problems about topics, providing regular announcements about course expectations, and monitoring group collaborations among students. Taken together, previous studies demonstrated that instructors' scaffolding for interaction has a positive implication for students' academic engagement.

3. Online class goal structures and students' academic engagement

Class goal structure has been conceptualized to understand motivational characteristics of the classroom (Ames, 1992). Classroom goal structure is defined by primary emphases or messages instructors try to convey through instructional practices and policies in a classroom learning environment to communicate reasons or purposes for student learning (Urdan, 2004). Research has shown that classroom goal structures have a significant implication for students' motivation and achievement (Wolters, 2004). Three types of class goal structures are often discussed by researchers:

1. Mastery goal structure focuses on developing student competence; therefore, instructors in this type of classroom environment promote student engagement in academic work to master skills and emphasize improved understanding about content.
2. Performance-approach goal structure focuses on demonstrating student competence relative to other students; therefore, instructors in this type of classroom environment emphasize students' superior ability to others.
3. Performance-avoidance goal structure focuses on hiding student incompetence relative to others; therefore, instructors in this type of classroom support student engagement in academic work to avoid demonstrating lack of ability (Midgley et al., 2000).

Few researchers have investigated the relationships between perceived class goal structure and their relationship with student engagement in an online learning environment, yet the concept of class goal structure has been well-established and documented in traditional face-to-face classrooms (Karabenick, 2004; Turner et al., 2002). For example, Turner et al. (2002) found that students who perceived mastery class goal structures are less likely to show avoidance behaviors, such as not seeking help, not trying new ways to solve problems, or procrastinating. In addition, Karabenick (2004) found that students who perceived mastery class goal structures are less likely to seek help. Previous studies conducted in face-to-face learning environments have shown that students' perceived class goal structures exert a significant influence on academic engagement, warranting examination of these relationships in an online learning context as well.

4. Instructor scaffolding for interaction and class goal structure

Instructors' efforts to promote interactions significantly influence students' perceptions of class goal structures (Patrick, 2004; Patrick, Kaplan, & Ryan, 2011). Patrick (2004) suggested that students' perceptions of instructors' efforts to promote interactions, such as time investment and commitment to supporting students' learning, tend to lead students to perceive mastery goal structure. In their research, Patrick et al. (2011) reported that the concept of perceived class mastery goal structure overlap with aspects of perceived classroom climate, such as classroom mutual respect, instructor emotional support, instructor academic support, and task-related interaction items. These studies imply that instructors' scaffolding for interaction is central to create positive class goal structures; however, no empirical research has been conducted to investigate how instructor scaffolding for interaction is associated with perceived class goal structures in online learning environments.

5. Purpose of the present study

The primary purpose of the current study was to examine how an instructor's scaffolding strategies for interaction influence students' academic engagement through the mediating role of perceived class goal structures in online learning environments. We hypothesized that instructor scaffolding for interaction would be positively associated with students' perceived class mastery goal structure and performance-approach goal structure, whereas it would be negatively related with their perceived performance-avoidance goal structure. Perceived class mastery goal structures were hypothesized to relate positively to students' emotional and behavioral engagement and negatively to emotional and behavioral disaffection. Perceived performance-avoidance goal structures were predicted to show opposite patterns of association; however, perceived performance-approach goal structures were predicted to be associated with both positive and negative types of engagement given the complex nature of the construct. In addition, instructors' scaffolding for interaction was hypothesized to affect students' behavioral and emotional engagement through the mediation effect of perceived class goal structures. We developed a model that depicts the hypothesized associations among the variables and chose path analysis to test the hypothesized model because it is considered to be more relevant compared to multiple regression when testing a model with