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The role of academic emotions in the relationship between perceived academic control and self-regulated learning in online learning

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ABSTRACT

Self-regulated learning is recognized as a critical factor for successful online learning, and students' perceived academic control and academic emotions are important antecedents of self-regulated learning. Because emotions and cognition are interrelated, investigating the joint relationship between perceived academic control and academic emotions on self-regulated learning would be valuable to understanding the process of self-regulated learning. Therefore, this study examined the role of academic control and self-regulated learning in online learning. The path model was proposed to test the mediating and moderating effects of academic emotions. Data were collected from 426 Korean college students registered in online courses, and a path analysis was conducted. The results demonstrated that enjoyment mediated the relationship between perceived academic control and self-regulated learning, whereas they showed significant moderating effects in the relationship between perceived academic control and self-regulated learning, whereas they showed significant moderating effects in the relationship between perceived academic control and self-regulated learning in online learning, whereas they showed significant moderating effects in the relationship between perceived academic control and self-regulated learning in online learning whereas they showed significant moderating effects in the relationship between perceived academic control and self-regulated learning in online learning whereas they showed significant moderating effects in the relationship between perceived academic control and self-regulated learning in online learning were discussed based on the findings.

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1. Introduction

As Internet and information technology have become more pervasive, online learning has evolved as a common and appealing way of learning. The recent annual report on United States higher education (Allen & Seaman, 2013) specifies that the total enrollment in online courses has reached 20 million, and the number of students taking at least one online course exceeds 6.7 million. This trend is not limited to the U.S. For example, approximately 66% of post-secondary and higher education institutions in Korea offer online courses, and the number of students taking online courses increases every year (Korea Education and Research Information Service [KERIS], 2012). In spite of the rapid growth in the online learning rate, the quality of online learning is often criticized due to its support system, instructional design, technological failures, instructors' facilitation, and factors related to students, among others.

Researchers have attempted to identify the significant factors that predict successful online learning (Joo, Lim, & Kim, 2011; Sun, Tsai, Finger, Chen, & Yeh, 2008; Yukselturk & Bulut, 2007), and self-regulation has been endorsed as one key factor (Allen & Seaman, 2013; Artino, 2008; Dabbagh & Kitsantas, 2009; Puzziferro, 2008; Yukselturk & Bulut, 2007). Self-regulation in the learning context refers to the degree to which students engage in the learning process using metacognition and proper motivation (Zimmerman & Martinez-Pons, 1988). Due to the self-directed nature of online learning, self-regulation is highly demanded in online learning even more than in

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traditional classroom learning (Artino & Stephens, 2009; Dabbagh & Kitsantas, 2009). Academic leaders, however, noted that the insufficient self-regulation of learners impeded the broad adoption of online learning in the field (Allen & Seaman, 2013); hence, more practical implications of promoting self-regulated learning should be sought.

In this study, the social cognitive model proposed by Pekrun (2006) was applied as a theoretical framework to examine the self-regulated learning process. Pekrun posited that students experienced various discrete academic emotions based on their control and value appraisals in the learning context; furthermore, students' emotional experiences were directly related to learners' self-regulation and performance. Academic emotions in the present study refer to achievement emotions that Pekrun and his colleagues defined as "emotions tied directly to achievement activities or achievement outcomes" (Pekrun, Frenzel, Goetz, & Perry, 2007, p.15). Research confirmed that academic emotions were related to self-regulation or learning strategies (Artino & Jones, 2012; Marchand & Gutierrez, 2012; Pekrun, Goetz, Daniels, Stupnisky, & Perry, 2010; Pekrun, Goetz, Titz, & Perry, 2002) and achievement (Artino, La Rochelle, & Durning, 2010; Pekrun et al., 2010). Furthermore, students with high perceived control differed from those with low perceived control in terms of elaboration, motivation, and achievement (Hall, Perry, Chipperfield, Clifton, & Haynes, 2006; Perry, Hladkyj, Pekrun, & Pelletier, 2001). Therefore, perceived academic control and academic emotions were considered as key constructs of self-regulated learning.

The social cognitive model (Pekrun, 2006) illustrated how control and value appraisals, academic emotions, and learners' behaviors were linked. At the same time, it implied that academic emotions act as mediators between control and value appraisals and learners' behaviors. In addition, Boekaerts (2007) argued that students evaluated their controllability, especially when they experienced negative emotions to see whether they had sufficient control to address the situations. She mentioned that students performed differently corresponding to the perception of controllability with negative emotions. This implied the interplay between emotion and cognitive information, which could enhance, moderate or restrain motivation and behaviors in human learning (Boekaerts, 2007; Meyer & Turner, 2002; Op't Eynde, De Corte, & Verschaffel, 2007; Ruthig et al., 2008). The discussion above suggested that academic emotions were important factors in the process of learning, but understanding the role of academic emotions seemed complicated. Furthermore, some researchers claimed that discrete academic emotions would have a different role and effects during the learning process (Pekrun et al., 2002). Therefore, the present study aimed to examine the role of discrete academic emotions as the control-value theory posited and the moderating effects of discrete academic emotions as the control-value theory posited and the moderating effects of discrete academic control and self-regulated learning.

Although there were various discrete emotions, three discrete academic emotions – enjoyment, anxiety, and boredom – were selected. Two guidelines were applied to choose the discrete emotions. First, the most frequently reported emotions in the context of learning were chosen (Pekrun et al., 2002). Second, in terms of valence (positive vs. negative) and activation (activating vs. deactivating) (Pekrun, 2006; Pekrun et al., 2010), discrete emotions representing the different dimension of academic emotions were chosen. For example, enjoyment is a positive and activating emotion; anxiety is a negative and activating emotion; boredom is a negative and deactivating emotion during classroom learning. Research testing the joint relations of emotions is limited in the field; thus, this study contributes to extend the understanding of the critical role of academic emotions in the self-regulated learning process as well as to propose implications for promoting self-regulated learning in online courses.

2. Theoretical background

2.1. Self-regulated learning in online learning

Self-regulated learning is defined as "an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features of the environment" (Pintrich, 2000, p. 453). Typical self-regulated learners frequently utilized various cognitive and metacognitive strategies to accomplish their learning goals; moreover, they managed time, effort, and the physical learning environment to optimize their performance. In addition, they sought help from instructors or peers when they were faced with learning difficulties (Pintrich & De Groot, 1990; Pintrich & Garcia, 1991). More self-regulated learners usually performed better than those who were less self-regulated because self-regulated learners actively engaged in their learning (Zimmerman & Martinez-Pons, 1988).

The benefits of self-regulated learning were also found in online learning. Yukselturk and Bulut (2007) described that successful online learners recognized their responsibilities, reviewed the material regularly, completed assignments on time, reflected on their own learning process, and participated in online discussions. On the contrary, unsuccessful online learners did not allocate enough time to complete tasks or to prepare for tests, and they did not put sufficient effort into studying and also failed to maintain their initial motivation throughout the learning process. These contrasting characteristics were similar to those of self-regulated learners and non-self-regulated learners. Furthermore, the failure in self-regulation led to academic procrastination (Ferrari, 2001; Wolters, 2003), which increased the chance of dropouts. High procrastinators tended to disorganize their learning and use less cognitive and metacognitive strategies (Howell & Watson, 2007). Ample research in the online learning context indicated significant relationships between self-regulated learning and achievement (Barnard-Brak, Lan, & Paton, 2010; Bell & Akroyd, 2006; Puzziferro, 2008), persistence (Artino, 2009), and satisfaction (Artino, 2009; Puzziferro, 2008). Overall, self-regulated learning was an important factor in successful online learning, involving learners' motivation, cognition, behavior, and performance.

2.2. Academic emotions

Emotions in academic settings were often neglected because people believed emotion was opposite to rational thinking, which hindered effective teaching and learning (Cleveland-Innes & Campbell, 2012; Dirkx, 2008). However, emotions cannot be ignored because learning may be either fostered or laden with emotional experience (Dirkx, 2008; Lehman, 2006). In a well-established work on academic emotions, Pekrun and colleagues (Pekrun, 2006; Pekrun et al., 2002, 2007; Pekrun & Stephens, 2010) proposed a control-value theory that described how discrete academic emotions were related to learning. The control-value theory explained that environmental factors such as cognitive quality, task demands, autonomy support, and goal structures influenced students' control and value appraisals. Furthermore, students

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