Self-efficacy, self-discipline and academic performance: Testing a context-specific mediation model

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In educational psychology, academic self-efficacy and self-regulation of effort have been identified as significant non-cognitive predictors of academic performance in college students, even above and beyond cognitive predictors (e.g., SAT, ACT scores). According to social cognitive theory and research on self-regulated learning, self-regulation of effort mediates the association between individual traits and academic performance. Academic self-efficacy and conscientiousness are two individual traits that predict academic performance in college students. Less attention has been given to the mediation links and the confounding effect of traits on self-regulation of effort. In this study, we defined self-regulation of effort in academic settings as academic self-discipline and examined the relationships between non-cognitive predictors, cognitive predictors, traits, and academic outcomes. We found academic self-discipline mediated the relationship between academic self-efficacy and academic performance, after controlling for conscientiousness and ACT scores. The importance of academic self-discipline in academic performance is addressed.

1. Introduction

Successfully achieving a desired academic long-term goal (e.g., Dean's list, Latin honors) requires both intellect and effort (Robbins et al., 2004). Although research attention is often paid to cognitive factors, such as intelligence and academic aptitude (e.g., SAT, ACT scores), according to social cognitive theory and research on self-regulated learning, self-regulation of effort mediates the association between individual traits and academic performance. Academic self-efficacy and conscientiousness are two individual traits that predict academic performance in college students. Less attention has been given to the mediation links and the confounding effect of traits on self-regulation of effort. In this study, we defined self-regulation of effort in academic settings as academic self-discipline and examined the relationships between non-cognitive predictors, cognitive predictors, traits, and academic outcomes. We found academic self-discipline mediated the relationship between academic self-efficacy and academic performance, after controlling for conscientiousness and ACT scores. The importance of academic self-discipline in academic performance is addressed.

1.1. Academic self-efficacy, self-regulation of effort, and academic performance

Social cognitive theory is based on a reciprocal determinism model in which human behaviors are determined by environmental input and personal agency (Bandura, 1986, 1997). Within this theory, self-efficacy refers to an individual's belief and confidence in their own capacity to organize a course of actions, as well as to engage in the effort necessary to attain a specified goal (Bandura, 1997). Although early experimental studies suggested that self-efficacy and behavioral effort are related (e.g., Bandura & Cervone, 1983), most researchers have focused on the direct relationship between self-efficacy and goal attainment (e.g., Phillips & Gully, 1997). For instance, self-efficacy has been found to be related to various goal attainment related outcomes, such as well-being, health behaviors, job performance, parenting and a wide range of other goal directed behaviors (Eccles & Wigfield, 2002; Jones & Prinz, 2005; Locke & Latham, 2002; Sherwood and Jeffery, 2000). Given the relationship between self-efficacy and effort, it is possible that effort may play a role in the effects that self-efficacy has on goal attainment. However, little is still understood about how effort may influence the relationship between self-efficacy and goal attainment, especially in non-experimental, context-specific settings such as academics.

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Within the field of education research, academic self-efficacy is studied as a context-specific form of self-efficacy (Pajares, 1996; Schunk, 1989; Schunk, 1991). Without academic self-efficacy, students may procrastinate or not initiate the required effort needed to do well in school. Empirical studies consistently demonstrate that academic self-efficacy is related to a number of academic performance outcomes, including retention/persistence and GPA (Larson, Stephen, Bonnit, & Wu, 2014; Lent, Brown, & Larkin, 1986; Robbins et al., 2004; Wright, Jenkins-Guarnieri, & Murdock, 2012). Academic self-efficacy is also indirectly related to academic performance. For example, Bandura, Barbaranelli, Caprara, and Pastorelli (1996) reported that academic self-efficacy leads students to engage in more constructive, prosocial behaviors that contribute to better academic performance. In other words, academic self-efficacy is a key component of the cognitive and behavioral effort needed for both academic retention and academic performance.

In addition to self-efficacy, Bandura (1997) emphasized the importance of context-specific self-discipline, or self-regulation of effort, for achieving long-term goals (e.g., writing a thesis). Specifically, sustained academic effort plays just as important a role as academic self-efficacy, if not even more so, in achieving academic goals and outcomes. Subsequent research on self-regulated learning (Pintrich, 2004; Schunk, 1990; Zimmerman, 1989) built upon Bandura’s work, with results indicating the importance of using individualized regulating strategies (e.g., academic self-discipline) to maintain motivation, affect, and effort as a mediating mechanism for academic success. Past research has consistently identified self-regulated learning as a significant predictor for academic performance (Bidjerano & Dai, 2007; Dörrenbächer & Perels, 2016; Elam, Zeidner, & Aharon, 2009). More specifically “effort regulation,” a specific aspect of self-regulated learning, has been identified as the strongest predictor for academic performance (Richardson et al., 2012; Sitzmann & Ely, 2011). Pintrich (2004) also suggested that self-regulated learning functions as a “mediator between personal and contextual characteristics and actual achievement or performance” (p. 388). In support, Komarraju and Nadler (2013) similarly demonstrated in an empirical study that “effort regulation” mediated academic self-efficacy on academic performance. Thus, self-regulated learning plays an important mediating role in the link between academic self-efficacy and academic performance.

1.2. Conscientiousness and academic performance

Significant attention has also been given to exploring the relationship between trait conscientiousness, particularly that of self-discipline, and academic performance (Chamorro-Premuzic & Furnham, 2003; Corker, Oswald, & Donnellan, 2012; O’Connor & Paunonen, 2007; Poropat, 2009; Trapmann, Hell, Hirn, & Schuler, 2007). Past research has suggested that self-discipline—as a facet of conscientiousness—is a strong predictor for long-term academic performance among big-five personality traits (Lievens, Ones, & Dilchert, 2009). These studies suggest that although academic performance may be largely determined by individual differences in personality traits that manifest in behavioral effort, context-specific effort in academic settings likely still play an important role in academic performance.

Moreover, personality scholars have posited that trait conscientiousness affects context-specific effort. McAdams and Pals (2006), for instance, proposed in their hierarchical structure of the big-five model the concept of “characteristic adaptation,” or the “contextualized motivational, social-cognitive, and developmental variable” affected by big-five personality traits, culture, and life experience. According to the theories, it is reasonable to posit that facets of trait conscientiousness affect individualized self-regulation of effort. Empirical studies have confirmed the existence of proximal mediating variables for conscientiousness in academic performance. Corker et al. (2012), as well as Noftle and Robbins (2007), found in cross-sectional and longitudinal studies that “academic efforts” mediated the relationship between conscientiousness and academic performance.

1.3. The mediational model

To the best of our knowledge, the relationships between all the aforementioned constructs have not been previously studied in academic settings. While past research suggests that academic self-efficacy is related to academic self-discipline, contextualized self-regulation of effort and trait conscientiousness were not taken into account (e.g., Komarraju & Nadler, 2013). Similarly, while other studies have examined the association between trait self-discipline and self-regulation of effort in academic contexts (Bidjerano & Dai, 2007; Zimmerman & Kitsantas, 2014), their relationships to academic performance have not been explored.

Other studies have also found medium to large correlations among conscientiousness, academic self-efficacy, and contextualized self-regulation of effort (e.g., Elam et al., 2009; Le, Casillas, Robbins, & Langley, 2005; Muenks, Wigfield, Yang, & O’Neal, 2016). For example, Bidjerano and Dai (2007) found a correlation of 0.42 between “effort regulation” and conscientiousness. Zimmerman and Kitsantas (2014) also reported a strong correlation between two latent constructs of self-discipline and self-regulated learning \( r = 0.87 \), providing further evidence of the relationship between the two. Similarly, Trautwein, Lüdtke, Roberts, Schnyder, and Niggli (2009) found that there was a dual pathway of conscientiousness and academic self-efficacy via “academic effort” in predicting academic performance in adolescents. Thus, based on past theory and research, it is reasonable to say that contextualized self-regulation of effort (i.e., academic self-discipline) mediates academic self-efficacy, and that its effect is confounded by dispositional conscientiousness (i.e., trait self-discipline).

1.4. Rationale for the current study

Based on past theory and research, we propose to test a mediational model between self-efficacy, academic self-discipline, and performance. Specifically, we hypothesize that the relationship between academic self-efficacy and academic performance will be mediated by academic self-discipline, such that academic self-efficacy initiates academic self-discipline, which in turn functions as a more proximal factor to achieve academic goals (i.e., GPA). This model further includes standardized test scores (ACT scores) and the self-discipline facet of conscientiousness as covariates. ACT scores is included as a covariate, as it is a significant cognitive predictor for academic performance and academic self-efficacy (e.g., Galla et al., 2014; Gore, 2006; Richardson et al., 2012; Robbins et al., 2004), but has not been found to have a strong relationship with conscientiousness (Noftle & Robbins, 2007; Richardson et al., 2012). As conscientiousness has been found to predict academic performance (Trautwein et al., 2009), it may influence academic self-efficacy as a distal and more global trait (Caprara, Vecchione, Alessandri, Gerbino, & Barbaranelli, 2011; McIlroy, Poole, Ursavas, & Moriarty, 2015). Thus, in the hypothesized model, we covaried ACT scores with academic self-efficacy, academic self-discipline, and GPA, and the self-discipline facet of conscientiousness with academic self-efficacy, academic self-discipline, and GPA in a sample of college students.

2. Methods

2.1. Participants and procedure

A total of 366 undergraduate college students participated in the study from a large mid-western public university. Students were recruited from undergraduate psychology courses during the fall 2011 and spring 2012 semesters. 177 students from the fall 2011 semester completed the survey, while 189 students from the spring 2012 semester completed the same survey. The survey was conducted online and
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