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## Self-efficacy and openness to experience as antecedent of study engagement: an exploratory analysis

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### Abstract

Previous research provides evidence for the association between openness to experience (OTE) and study engagement (SE). People who are open to experience could perceive demands as challenges through which they can learn and broaden their resources promoting engagement. We hypothesized that self-efficacy will fully mediate the relationship of OTE and SE. A two-wave study was conducted with 37 students. The path analysis shows that self-efficacy fully mediates the relationship between OTE and SE both times. This suggests that when people are willing to experience new things, tend to be more engaged if they believe they are capable of overcome the event.

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### 1. Introduction

Recently considerable attention has been given to the study of the positive aspects and the development of optimal psychological and psychosocial functioning of human being (Seligman & Csikszentmihalyi, 2000). Following this perspective, research in psychological engagement, as a positive state of mind, has gain considerable importance in work and academic scenarios. Several authors have addressed study engagement as an important variable related to positive attitudes, behaviors, and performance (i.e. Martínez & Salanova, 2003; Schaufeli, Martínez, Marques-Pinto, Salanova, & Bakker, 2002). In accordance with the study of engagement, several personal resources have been examined in order to understand and promote psychological well-being (Bakker & Demerouti, 2008; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). From these resources self-efficacy is perhaps one the most important since evidence suggest that engaged people, for example at work or studies, present higher levels of self-efficacy (Llorens et al., 2007; Martínez & Salanova, 2003; Xanthopoulou et al., 2007). In recent years, personality traits have also presented association with work and academic engagement providing evidence of extraversion, openness to experience, and conscientiousness as predictive variables of engagement (Komarraju & Karau, 2005; Kim, Shin, & Swanger, 2009; Langelaan, Bakker, van Doornen, & Schaufeli, 2006).

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## 2. Literature Review

Currently, students are exposed to multiple demands that can impact the quality of academic experience (Caballero, Abello, & Palacio, 2006). There are considerable numbers of studies examining the effect of stress, as well as physical, emotional and mental strain in academic contexts (Manzano, 2002; Martinez & Salanova, 2003; Schaufeli et al., 2002). However, considering these increasing demands and the current interest to potentiate and develop strengths and capabilities in order to improve the quality of academic experience, some studies have turned their attention to the examination of the role of engagement as a state of psychological wellbeing in student samples (i.e. Gan, Yang, Zhou, & Zhang, 2007; Martinez & Salanova, 2003; Schaufeli et al., 2002; Salanova, Bresó, Schaufeli, 2005). From the positive psychology perspective, Buck, Carr and Robertson (2008) proposed that educators should be constantly encouraging students to challenge their problem solving and critical thinking skills, thus engaging in the action of flow and creating the skill of initiative. They continue arguing that this translates into developing challenging, meaningful activities that foster intrinsic motivation with the primary focus on improving quality experiences. They encourage educators to “develop a generation of engaged, intrinsically motivated young adults prepared to deal with the mounting complexities of life and capable to take on the emerging challenges of the 21st century” (p. 34).

Engagement is defined as a positive fulfilling state of mind characterized by vigor, dedication, and absorption (Bakker, Schaufeli, Leiter, & Taris, 2008; Salanova & Schaufeli, 2009; Schaufeli, Salanova, González-Romá, & Bakker, 2002). Vigor is characterized by high level of energy, the willingness to invest effort in one's work, and persistent even when encounter difficulties. Dedication is represented by a sense of significance, enthusiasm, inspiration, pride, and challenge. Finally, absorption is characterized by being fully concentrates and deeply engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from work (Schaufeli et al., 2002).

Several researchers have highlighted the importance of study engagement as an important element related to positive attitudes and behaviors as well as with performance. Martínez and Salanova (2003), for example, examined the relationship between study engagement and academic performance, and found that vigor and dedication predict student's success expectations and turnover intentions. Thus, the more vigorous students have better expectations regarding their studies and the less dedicated students have higher turnover intentions. In addition, Schaufeli et al. (2002) found that study vigor and efficacy are positively related to academic performance.

Accordingly, Salanova, Martínez, Bresó, Llorens and Grau (2005) suggested that past academic success enhances levels of efficacy beliefs and people's beliefs of their capabilities to organize and execute the courses of action required to produce given attainments (Bandura, 1997). Self-efficacy, in turn, increases engagement, and boosts future efficacy beliefs. This provides evidence supporting the idea of an “upward spiral” related to engagement, self-efficacy, and performance. Salanova and colleagues (2005) also pointed out the relevance of efficacy beliefs in the mediation between past success and engagement, as well as for student's academic success. Other studies based on the social cognitive theory (Bandura, 1997) provided evidence indicating that self-efficacy, as a personal resource, strongly correlates with engagement and academic performance in student and employees samples (i.e. Llorens, Bakker, Schaufeli, & Salanova, 2007; Martínez & Salanova, 2003). Recently, Ouweneel, Le Blanc and Schaufeli (2011) found in a two-wave questionnaire study with a sample of university students that the standardized effect of T1 personal resources (including academic self-efficacy, hope, and optimism) on T2 study engagement appeared to be significant. In addition, they showed that there was a reciprocal relationship among positive emotions, personal resources, and study engagement. They concluded that over time, positive emotions are positively related to personal resources and vice versa, and personal resources are positively related to study engagement and vice versa.

As another individual aspect, some personality traits, particularly openness to experience, conscientiousness and extraversion have related to engagement as well (i.e. Kim, Shin, & Swanger, 2009; Komarraju et al., 2005; Langelaan, Bakker, van Doornen, & Schaufeli, 2006). Although intelligence or cognitive abilities have been traditionally used as predictors of academic experience, especially of performance, recent research has shown that personality variables have much to offer (O'Connor & Paunonen, 2007). Komarraju et al. (2005) found that openness to experience explain more of the variance of study engagement. People who are open to experience could perceive demands as challenges through which they can learn and broaden their resources promoting engagement.

Openness involves active imagination, aesthetic sensitivity, attentiveness to inner feelings, preference for variety, and intellectual curiosity (McCrae, 1987). According to O'Connor and Paunonen (2007), evidence regarding the relationship between openness to experience and academic performance, for instance, is inconsistent. However, they found substantial variation in the magnitude of the effect sizes, which suggest that one or more unknown variables are responsible for determining whether openness to experience exerts a positive or null influence on academic performance. Recently, Caprara, Vecchione, Alessandri, Gerbino and Barbaranelli (2011) conducted a longitudinal research with the aim to examine the pathways through which traits and academic self-efficacy beliefs contribute to academic performance in a sample of junior-high school students. They presupposed that “self-efficacy beliefs may mediate, at least, in part, the influence of basic traits and specific abilities and performances by sustaining the cognitive, affective and motivational process leading to successful performance” (p.79). In summary, they found that academic self-efficacy beliefs partially mediated the contribution of traits to later academic achievement. They concluded that personality traits, specifically openness to experience and conscientiousness, and self-efficacy beliefs might play a major role in the promotion of academic achievement. This coincided with previous studies conducted among university students, which suggest a positive association between openness to experience and academic self-efficacy (Peterson & Whiteman, 2007); however, this study did not explore the association of these variables with academic achievements.

The aim of this study is to explore the effect of openness to experience and self-efficacy on study engagement in a sample of university students. Based on the review of literature it seems that individual differences and beliefs have an effect in study engagement. We hypothesized that self-efficacy fully mediates the relationship between openness to experience and study engagement. We also analyzed if these relationships remains stable over time.

### 3. Method

We conducted a longitudinal study with a convenience sample of 37 graduate students (Master and Ph.D.) who were employed at the time of the study, from a university in Puerto Rico. The sample was composed of 25% males and 75% females, who completed a survey at the beginning (T1) and at the end (T2) of the academic semester. The average age was 29.31 ( $SD = 9.13$ ). To measure openness to experience we utilized five items of the *Big Five Personality Inventory* developed in Puerto Rico (Andújar, De Jesús, Rosario, & Vélez, 2001; ( $\alpha = .86$ ). To measure academic self-efficacy we used the *Academic Self-efficacy Scale* (Salanova et al., 2005) ( $\alpha = .86$ ), and to measure study engagement we used the *Utrecht Study Engagement Scale* (Schaufeli, Salanova et al., 2002) ( $\alpha = .93$ ). We analyzed data with the Statistical Package for Social Sciences (SPSS 19) and AMOS 19. We conducted a correlation analysis including openness to the experience, academic self-efficacy, and study engagement. Intercorrelations between the variables ranged from .33 - .55. All correlations were positive and significant. Then we proceed to test the mediating role of academic self-efficacy in the relationship of openness to experience and study engagement, following Baron and Kenny (1986) mediation steps.

### 4. Results

Following the four steps to test mediation recommended by Baron and Kenny (1986), we tested the fully mediation model, where academic self-efficacy mediates the relationship between openness to experience and study engagement. Our results show that openness to experience positively predicts study engagement in T1 and T2 (first step). Likewise, openness to experience positively predicts academic self-efficacy in T1 and T2 (second step). Also, academic self-efficacy positively predicts study engagement in T1 and T2 (third step). Then we tested the path between openness to experience and study engagement with academic self-efficacy as a mediator (fourth step). The relationship between openness to experience and study engagement was not significant, which indicates that academic self-efficacy fully mediates this relationship in T1 and T2. To further test the mediation of the model, we conducted the Sobel's test for mediation in both times. For T1 Sobel's test = 2.67 ( $SE = .36$ ),  $p = .00$ , and for T2 Sobel's test = 2.42 ( $SE = .42$ ),  $p = .01$ . Both tests indicated that academic self-efficacy fully mediates the relationship between openness to experience and study engagement.

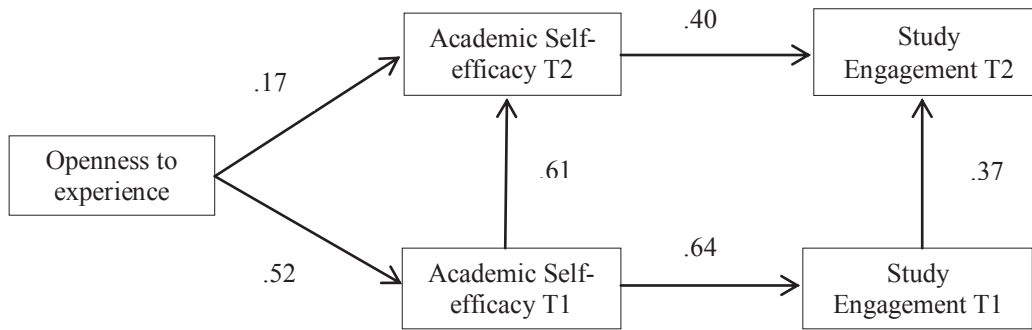


Figure 1. Path Analysis to test mediation

Table 1. Fit indexes for the models

Model	$\chi^2$	DF	$p$	NFI	IFI	TLI	CFI	RMSEA	$p$
Partial Mediation	3.57	2	.16	.95	.98	.84	.97	.15	.19
Full Mediation	4.11	4	.39	.95	.99	.99	.99	.02	.43

## 5. Discussion

The aim of this study was to examine the mediating role of academic self-efficacy in the relationship of OTE and SE at two moments in time. Results support our initial hypothesis suggesting that a self-efficacy belief fully mediates the relationship between OTE and SE. As previous studies have showed, self-efficacy is an important variable to increase SE. Even more, personal dispositions can increase self-efficacy beliefs and in turn increase SE. The evidence provided in this study suggest that when people are willing to experience new things, it may be in part because they feel more self-efficacious which in turn increment levels of engagement. As openness to experience is characterized by creativity, intellectual curiosity, and imagination it is important that when individuals are engaged in new academic activities, they also perceive that they have the capabilities and resources to live this new event in order to experience positive psychological states. Although we did not examined objective academic performance or achievement variables as possible consequences in this model, we believe that being engaged at studies could increase academic performance as previous studies have suggested (i.e., Schaufeli et al., 2002). Future studies can incorporate these variables in the research models (e.g. GPA, academic success) in order to examine the effect of personality traits, and personal beliefs the experience of psychological well-being and in the academic performance as well. Is not only to be open to try new things in life what make us love what we do. That is only part of the story. What we have learned, is that to fall in love to whatever we do in life, we have to believe that we can overcome the obstacles that we will find down the road, and doing it with a positive attitude.

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