

## *Summary*

# **The Relationship between Self-efficacy and GPA: The Roles of Academic Engagement and Time Management**

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GPA is one of the important criterias both for the students and organizations. As a result, factors related to GPA drawn considerable research attention. Self-efficacy beliefs of students emerged as one of the most important predictors related to GPA (Bandura, 1986; Klomegah, 2007; Schunk, 1995; Zimmerman & Bandura, 1994). Self-efficacy implies a person's evaluation of their capabilities to organize and implement the courses of action that are needed to attain expected performance. People with high self-efficacy therefore perform better at their courses because they have high levels of persistence and they can deal with challenging situations more effectively. Academic engagement is defined as a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption (Schaufeli et al., 2002). Schaufeli and his colleagues (2002) examined the construct validity of work engagement and academic engagement and concluded that these two constructs can be conceptualized as the same. The only difference is academic engagement relates to students' engagement of their courses whereas the latter one is particularly about work. Studies in the organizational psychology showed that work engagement is one of the predictors of work performance (Halbesleben & Wheeler, 2008). To this end, it makes sense to argue that academic engagement will be related to GPA scores of the students. Studies indeed showed that academic engagement is positively related to academic success (Schaufeli et al., 2002). Studies also showed that the relationship between self efficacy and GPA is mediated by academic engagement (Zumbrunn, McKim, Buhs, & Hawley, 2014). Therefore, we hypothesized the mediating role of academic engagement in the relationship between self efficacy and GPA (Hypothesis 1). Different from the previous studies, we included the general self-efficacy beliefs of students. Furthermore, the conceptualization of academic engagement is the opposite of burnout which was operationally

defined and validated by the previous research (Schaufeli et al., 2002).

Time management is conceptualized as individuals' attempts to plan, monitor, and control the use of time such as creating study schedules and allocating time for different activities. In addition to these, time management refers to the ability to accept and organize the duties and engage in certain actions (Kaufman et al., 1991; Wratcher & Jones, 1988). Studies suggested that burnout—which is defined as the opposite of engagement— and time management are negatively related to each other (Lay & Schouwenburg, 1993). Regarding the self-efficacy, Benbenutty (2009) found that time management is directly related to self-efficacy beliefs. As a result of these findings, it is reasonable to suggest time management skill of students would strengthen the relationship between self-efficacy and academic engagement (Hypothesis 2). As the students plan and organize the tasks they would perform, they would get better results, which in turn increase their engagement levels. To this end, we hypothesized that time management would be a moderator that increases the strength of the mediated relationship between self-efficacy, academic engagement and GPA (Hypothesis 3).

### **Method**

#### **Participants**

The study sample consisted of undergraduate students studying in various departments of a university located at İzmir. Three hundred and four students aged between 18 and 39 participated in this study. The mean age was 21.62 ( $SD = 2.14$ ) and 56.3% of the participants were women.

#### **Measures**

**Academic Engagement Scale.** To measure academic engagement of the students, we used 17- item

Utrecht Work Engagement Scale – Student Form (Schaufeli, Martinez, Marques-Pinto, Salanova & Bakker, 2002). The scale has three dimensions namely; Vigor, Dedication and Absorption. The Cronbach Alpha value for the current study was .95.

**Self-Efficacy Scale.** 17-item Self-Efficacy Scale which was developed by Scherer, Maddux, Mercandante, Prentice-Dunn, Jacobs and Rogers (1982) was utilized to measure self-efficacy levels of the students. Yıldırım and İlhan (2009) translated the scale into Turkish. The original scale has two dimensions (General Self-efficacy and Social Self-efficacy); however, the adapted version has ended up with three subscales, namely initiative, persistence and effort. In the current study, unidimensional structure was preferred and Cronbach Alpha score was .89.

**Time Management Scale.** The 27-item Time Management scale developed by Britton and Tesser (1991) was used to measure time management perceptions of participants. The scale was translated in Turkish by Alay and Koçak (2002). It consists of three dimensions namely; Time Planning, Time Attitudes and Time Wasters. For the current study, time planning dimension was used. The Cronbach Alpha score was .90.

### Procedure

The data was collected on the voluntary basis. An informed consent describing the aim of the study, participants' rights, and researchers' contact information was presented to the participants before data collection. The completion of the scale form took approximately 15 minutes on average and participants were given debriefing after they filled out the scales.

### Results

The moderated mediation model was tested with "piecemeal" approach (Hayes, 2013, p.414). In the first step, the mediation model was tested. Then, the hypothesized moderation was tested and finally the moderated mediation model was tested.

Hypothesis 1 predicted that academic engagement mediates the relationship between self-efficacy and GPA. The mediation model was tested with PROCESS Model 4 (Hayes, 2012) and the overall model reached significance,  $R^2 = .12$ ,  $F(2, 301) = 20.27$ ,  $p < .001$ . The total effect of self-efficacy on GPA was significant ( $b = .14$ ,  $SE = .07$ ,  $t = 2.08$ ,  $p = .04$ ). When academic engagement was introduced to the model, self-efficacy GPA relationship became non-significant ( $b = -.01$ ,  $SE = .07$ ,  $t = -.16$ ,  $p > .05$ ) which indicates full mediation. Lastly, self-efficacy – academic engagement relationship ( $b = .77$ ,  $SE = .12$ ,  $t = 6.88$ ,  $p < .001$ ) and academic engagement – GPA relationship ( $b = .19$ ,  $SE = .03$ ,  $t = 5.98$ ,  $p <$

.001) was significant. To test the significance of indirect effect, bootstrapping with 2000 resamples were created to place bias corrected 95% confidence intervals around estimates. The indirect effect was significant (coefficient = .15, 95% CI [.09, .22]). Thus, Hypothesis 1 was supported.

Hypothesis 2 asserted that time management moderates the relationship between self-efficacy and academic engagement. The moderation was tested with SPSS PROCESS Model 1 (Hayes, 2012). The independent variables were mean centered prior to analyses and the model was significant,  $R^2 = .34$ ,  $F(3, 300) = 50.50$ ,  $p < .001$ . The main effect of time management ( $b = .82$ ,  $SE = .09$ ,  $t = 8.97$ ,  $p < .001$ ), the main effect of self-efficacy ( $b = .37$ ,  $SE = .11$ ,  $t = 3.38$ ,  $p < .001$ ) and the time management – self-efficacy interaction ( $b = .33$ ,  $SE = .14$ ,  $t = 2.37$ ,  $p = .018$ ) were found significant. To further refine the dynamics of the interaction, the relationship between self-efficacy and academic engagement was graphed at the plus and minus 1 standard deviation values of time management. The results indicated that as time management skills of participants increased, the relationship between self-efficacy and academic engagement strengthened. As a result, Hypothesis 2 was also supported.

Hypothesis 3 predicted that academic engagement mediates the relationship between self-efficacy and GPA and this mediation was further moderated by time management. To test this model, SPSS PROCESS Model 7 (Hayes, 2012) was used. Bootstrapping with 2000 resamples was implemented to estimate bias corrected 95% confidence intervals at the plus and minus one standard deviation of time management. The results showed that while at the low time management condition the mediation model was not significant; coefficient = .03, 95% CI [-.02, .08], at the high time management condition it reached significance; coefficient = .12, 95% CI [.06, .20]. These results indicate that hypothesis 3 was supported.

### Discussion

The first hypothesis showed that academic engagement mediates the relationship between self-efficacy and GPA. This result highlights that academic engagement is an important factor in self-efficacious children's academic success. Bresó and his colleagues (2011) aimed to improve academic engagement and academic success of students by improving their self-efficacy levels. We believe that along with improving self-efficacy, it is important to increase students' awareness of academic engagement. For example, regarding the engagement, psychological detachment is an important factor. It is defined as not occupying mind with work related issues outside of work and since job engagement and academic engage-

ment has shown to be conceptually similar (Schaufeli et al., 2002), factors improving job engagement can also be applicable for academic engagement.

The second hypothesis showed that time management improves the relationship between self-efficacy and academic engagement. The results indicated that even if a student believes in his self-capabilities, he will not be engaged in work he does unless a good time management takes place. The study results are in line with the literature. For example, Misra and McKean (2000) found that time management protects students from work stress. In this study we showed moderation of time management over self-efficacy – academic engagement relationship. Students who plans and organizes their action would probably be more successful in their assignments which in turn positively affects their engagement in subsequent tasks.

Lastly the significant third hypothesis suggests that the mediation of academic engagement over self-efficacy – GPA relationship exists when time management skill of students is high. This finding offers original contribution to the related literature by introducing a boundary condition to self-efficacy – academic engagement – GPA relationship. The work and organizational psychology literature provides indirect support to this claim. Highly engaged employees can focus their work effectively and do not let non-work related thoughts and problems disrupt their mind (Sonnentag & Jana, 2016). These studies did not include time management directly to their model however, it can be inferred that engaged employees would also have good time management skills because of the detachment between work and non-work domains. This result is especially important because it shows that a skill that can be learned (time management) can improve effect of relatively stable personality trait (self-efficacy) over academic engagement. To this end, designing intervention programs that increase time management skills of students would also improve their academic engagement levels and ultimately their GPA.