






Investigation of University Students' Engagement and Its Relationship to Burnout, Personality Traits, and Academic Achievement

Üniversite Öğrencilerinin Okul Bağlılığı ile Tükenmişlik, Kişilik Özellikleri ve Akademik Başarıları Arasındaki İlişkinin İncelenmesi

Ezgi MOR-DİRLİK*  Erkan KÜLEKÇİ**  Mustafa Öztürk AKCAOĞLU*** 

Received: 15 June 2021

Research Article

Accepted: 20 February 2022

ABSTRACT: In the field of education, researchers have been studying individuals' psychological constructs such as burnout, engagement and personality traits to better understand their commitment. To this end, we examined the relationship among school engagement and burnout, personality traits and academic achievement in a sample of university students ($N=301$). The data were collected through Maslach Burnout Inventory-Student Survey, Utrecht Work Engagement Scale-Students Form and The Quick Big Five Personality Test. In order to test the hypotheses of the study, descriptive statistics, zero-order correlations and multiple regression analyses were performed with SPSS 22.0. In the regression analyses, the stepwise method was preferred to find out the best-fitted method. Results indicated that the relationships among the dimensions of burnout and school engagement were the strongest. On the other hand, only Conscientiousness had a positive medium level of correlation with school engagement among the assessed personality traits. We also found out that school engagement was predicted by Efficacy, Exhaustion, Cynicism, Conscientiousness and emotional stability scores. The findings offered valuable insights to enhance our understanding of the relationships between school engagement and personality traits and burnout.

Keywords: Academic achievement, burnout, personality traits, school engagement.

ÖZ: Eğitim alanında, öğretme ve öğrenme sürecini daha iyi anlamak için araştırmacılar bireylerin tükenmişlik, bağlılık ve kişilik türleri gibi psikolojik özelliklerini incelemektedir. Bu çalışmada, üniversite öğrencilerinin ($N=301$) okul bağlılığı ile tükenmişlik, kişilik özellikleri ve akademik başarı arasındaki ilişki incelenmiştir. Araştırma verileri Maslach Tükenmişlik Envanteri-Öğrenci Formu, Utrecht İşe Bağlılık Ölçeği-Öğrenci Formu ve Hızlı Büyük Beşli Kişilik Testi ile toplanmıştır. Araştırmanın hipotezlerini test etmek için betimsel istatistikler, basit korelasyon ve çoklu regresyon analizleri yapılmıştır. Veri setine en iyi uyum sağlayan modelin belirlenmesinde adimsal regresyon analizi kullanılmıştır. Araştırma bulguları, en güçlü ilişkinin tükenmişlik ve okul bağlılığı boyutları arasında olduğunu göstermiştir. Öte yandan, değerlendirilen kişilik özellikleri arasında sadece sorumluluk ile okula bağlılık arasında pozitif orta düzeyde bir ilişki bulunmuştur. Ayrıca okul bağlılığının yeterlik, tükenmişlik, duyarsızlaşma, sorumluluk ve duygusal denge puanları ile yordanaabileceği bulunmuştur. Araştırma; okul bağlılığı ile kişilik özellikleri ve tükenmişlik arasındaki ilişkilere dair öğretme ve öğrenme sürecine katkı sağlayacak öneriler sunmaktadır.

Anahtar kelimeler: Akademik başarı, tükenmişlik, kişilik özellikleri, okula bağlılık.

* *Corresponding Author:* Asst. Prof. Dr., Kastamonu University, Kastamonu, Turkey, emor@kastamonu.edu.tr, <https://orcid.org/0000-0003-0250-327X>

** Asst. Prof. Dr., Kastamonu University, Kastamonu, Turkey, ekulekci@kastamonu.edu.tr, <https://orcid.org/0000-0001-8486-230X>

*** Asst. Prof. Dr., Kastamonu University, Kastamonu, Turkey, ozturk@kastamonu.edu.tr, <https://orcid.org/0000-0003-2155-4822>

Citation Information

Mor-Dirlik, E., Külekçi, E., & Akcaoglu, M. Ö. (2022). Investigation of university students' engagement and its relationship to burnout, personality traits and academic achievement. *Kuramsal Eğitimbilim Dergisi [Journal of Theoretical Educational Science]*, 15(2), 216-238.

As a requirement of the modern world, individuals are expected to achieve more competencies than they had in previous decades. Today, acquiring the means to reach knowledge gains more importance than the knowledge itself in people's daily and academic lives. Moreover, individuals need to be more adaptive to the changes, think more creatively and decide more effectively in order to become successful at schools and workplaces. The most current educational paradigms and practices position the learner as the main and active part of the teaching and learning processes. In this sense, being an active learner requires one's deploying the affective features besides the cognitive ones. Even these affective features have been underlined as more crucial indicators of the students' success than the cognitive ones (Organisation for Economic Co-operation and Development [OECD], 2016). Hence, the researchers in the field of education have also focused on learners' affective features in their studies at all educational levels, from preschool to higher education.

The value given to the tasks in the learning process by students studying in higher education may differ. Among the reasons for this situation, students' affective characteristics such as attitudes, values, interests, academic self-esteem and self-efficacy, and their engagement in school work have attracted the attention of researchers in both education and psychology (Anderson & Bourke, 2013). That is why it is crucial to understand what contributes to academic engagement. According to Junco and Clem (2015), student participation mainly influences learning outcomes. To this end, Tam (2014) asserts that engagement is a desirable experience in educational practice and a widely explored construct in education research, as the most emphasized area in the design of curricula is learning outcomes rather than content. Furthermore, engagement can help us understand whether differences in academic achievement are due to the fact that some students are often more engaged than others. Over the past decade, researchers have studied these traits to better understand and significantly improve individuals' enthusiasm and energy, namely engagement, in learning environments. In this study, we extended this literature by exploring whether burnout and personality traits play a role in improving student engagement.

Engagement

As a positive psychological construct for indicating commitment, engagement is about individuals' mental states while working or studying. The concept is defined as a "...positive, fulfilling, and work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli & Bakker, 2004, p. 295). The first dimension, vigor, is portrayed by an eagerness to put exertion into work, significant levels of mental durability while working, and constancy in terms of work exercises. Dedication, on the other hand, is related to such positive feelings as excitement, pride, and challenge towards work. Finally, absorption means being motivated and deeply involved in work. Furthermore, it is asserted that energy and involvement are two essential components of engagement (Maslach & Leiter, 2008).

Initially, engagement was thought to be a part of individuals who worked with other people, but today the concept also involves school activities and school life. Therefore, engagement, as a predictor of such qualities as school performance and academic success, involves both cognitive and affective motivation regarding school-related tasks for an extended period of time (Bakker et al., 2015; Casuso-Holgado et al.,

2013; Fuller et al., 2011; Pascarella & Terenzini, 2005; Strauser et al., 2012; Wefald & Downey, 2009). The concept is also regarded as a shield term for the problems related to behavior (Li et al., 2011), academic failure (Willingham et al., 2002) and dropout (Archambault et al., 2009).

A student can feel a sense of engagement by focusing on the learning activity behaviorally, cognitively, and emotionally (Poitras et al., 2013). Students' motivation related to school tasks is also determined by engagement (Roebken, 2007; Stoeber et al., 2011). To this end, by carrying out studies related to engagement, we can also predict the extent to which students will be successful in their future careers (Salmela-Aro et al., 2009). All in all, school engagement refers to students' efforts and investments towards academic goals, to the determination to acquire knowledge and to the will to master the school tasks (Newmann et al., 1992). Because of this, in educational settings, engagement is a popular concept and a topic of interest studied in relation to other psychological constructs. In order to understand engagement better, burnout has been investigated extensively, and all dimensions of engagement were found negatively correlated with the builds of burnout (Salmela-Aro et al., 2009; Schaufeli, Martinez, et al., 2002).

Burnout

While recent research highlights a dynamic relationship between engagement and burnout (Leon et al., 2015), these two concepts have been often investigated within a continuum where the negative experience of burnout and the positive experience of engagement are positioned at two ends (Leiter et al., 2015). The term 'burnout', first introduced by Herbert J. Freudenberger (1975) to express the negative state of workers in health services with heavy workloads, is described as "physical, emotional, or mental exhaustion accompanied by decreased motivation, lowered performance, and negative attitudes toward oneself and others" (APA, n.d.). In fact, this definition includes the three dimensions of burnout, which are underlined in the International Classification of Diseases prepared by the World Health Organization [WHO]. These dimensions are (1) feelings of Exhaustion, (2) increased mental distance from one's job or Cynicism about it, and (3) a sense of ineffectiveness (WHO, n.d.). The same dimensions (i.e., Exhaustion, Cynicism and Reduced Efficacy) also form the three-factor structures of the Maslach Burnout Inventory (MBI), which researchers have frequently used to investigate burnout (Schaufeli, Martinez, et al., 2002). In particular, Exhaustion can be considered "the core symptom" of burnout, and Cynicism or depersonalization refers to psychological distancing while reduced Efficacy implies decreasing personal or professional accomplishment (Leiter et al., 2015).

Burnout generally refers to an apparent mismatch between the mental or physical requirements of the job and the characteristics of the person who does the job (Maslach & Leiter, 2008; Rahmati, 2015). Traditionally, the term has been used or studied within the domain of human services such as health care, social work and education. However, it is experienced by people in various types of occupational groups nowadays, including students as well (Schaufeli, Martinez, et al., 2002). Schaufeli Martinez, et al. (2002) adapted the general definition of burnout for students and described it as "feeling exhausted because of study demands, having a cynical and detached attitude toward one's study, and feeling incompetent as a student" (p. 465).

Student burnout emerges due to school-related stress, course load or other psychological factors in students' lives, which includes activities such as studying long hours, sitting for exams, submitting assignments and dealing with deadlines as well as pressure on school achievement and lack of time for rest and fun (Aypay, 2012; Jacobs & Dodd, 2003; Law, 2007; Yang, 2004). While there are a number of studies in the area of work-related burnout, mainly focusing on burnout among people working in the education and health sectors (Rahmati, 2015; Schaufeli, Martinez, et al., 2002), a limited number of studies have been conducted on the subject of students' burnout and its relationship with other factors such as personality and academic performance (Cazan, 2015; Pala, 2012). For example, Rahmati (2015) investigated academic burnout in university students with a high-low level of self-efficacy in the context of an Iranian university and presented that there was a negative and significant relationship between high self-efficacy and academic burnout. Cazan (2015) examined the relationships among engagement, burnout and academic performance among university students in a Romanian university and pointed out a need to further explore the relationship between burnout and academic performance. Pala (2012) and Gündüz et al. (2012) also aimed to find out the burnout level among undergraduate students in Turkey and stated that the burnout levels might vary depending on department, grade, and course load. Morgan and De Bruin (2010), on the other hand, studied the relationship between burnout and personality traits among South African university students underlying that "students who are emotionally stable, outgoing and hardworking and who maintain good interpersonal relations display lower levels of burnout" (p. 188). They also emphasized that future research in this area should include engagement while exploring the relationship between personality traits and burnout.

Personality Traits

Personality has been widely investigated as a factor that has a determinative effect on engagement and burnout (Ariani, 2017; Morgan & De Bruin, 2010). In personality research, the Five-Factor Model of personality, consisting of five comprehensive areas, neuroticism, extraversion, agreeableness, Conscientiousness, and openness to experience, has been a universal standard since its onset. The first domain, neuroticism, focuses on the negative aspect of personality and is about an inclination towards feeling distressed (McCrae & John, 1992). It is also identified as being emotionally unstable, fearful and irritable (Costa & McCrae, 1980). The studies investigating neuroticism, engagement and burnout revealed that neuroticism is both related to engagement (Langelaan et al., 2006) and burnout (Bakker et al., 2006; Cano-García et al., 2005; Tanculescu, 2019). Furthermore, lower levels of neuroticism signal less burnout or vice versa (Alarcon et al., 2009; Hochwälder, 2006). The second domain extraversion implies a positive outlook and manifests itself with a tendency to be active, self-confident, dominant, enthusiastic (Costa & McCrae, 1980). Some studies demonstrated that extraversion is positively related to engagement because positive emotions contribute to engagement (Langelaan et al., 2006) and are negatively related to burnout (Bakker et al., 2006).

Conscientiousness, the third domain, is represented by such characteristics as responsibility and perseverance (Costa & McCrae, 1992). In addition, Conscientiousness suggests the impulse to complete a task successfully by being

systematic, meticulous, adept, proficient, and reliable (De Raad, 2000). Students with the conscientiousness trait focus on a specific set of goals and work hard to accomplish those (Chowdhury, 2006). Such students tend to be organized, meticulous, disciplined, hardworking, reliable, methodical and purposeful. Accordingly, it is expected that the construct of Conscientiousness is positively associated with engagement (Inceoglu & Warr, 2011; Sulea et al., 2012). Thanks to their qualities, individuals who are more conscientious feel more ready to face problems and have better defense mechanisms against boredom and burnout (Alarcon et al., 2009; Hochwalder, 2006). However, Bakker et al. (2006) found no significant relationship between Conscientiousness and burnout as a result of their research.

The fourth dimension, agreeableness, is portrayed by the tendency to deal with interpersonal relationships (Matthews et al., 2003). According to Costa and McCrae (1992), agreeableness refers to the extent to which an individual cooperates and sympathizes with others. There are not many studies examining the relationship between agreeableness and engagement, and the results of the research did not reveal significant relationships (Kim et al., 2009). Nevertheless, agreeableness can foster supportive relationships with peers, foster personal development and help overcome difficulties (Bakker et al., 2002). On the other hand, there was a negative correlation between agreeableness and burnout (Alarcon et al., 2009).

Lastly, openness to experience, which is explained by an inclination towards being creative, curious, intelligent, and open to new ideas, also reflects the positive side of personality (Costa & McCrae, 1992). Students with such characteristics can actively deal with problems and tailor their work to their own values and preferences. Openness to experience is positively associated with personal success (Wiese et al., 2003) and negatively associated with depersonalization (Bakker et al., 2006), the two dimensions of burnout.

Considering the similar studies analyzing the variables included in this study (e.g., Ariani, 2017; Celik & Oral, 2013), it can be deduced that academic engagement, burnout and students' personality traits are interwoven and affect each other in educational settings. Also in the related literature, the relationship between burnout and engagement has been emphasized. It can be claimed that when one's burnout level is high, his/her academic engagement in school might decrease. The research on burnout is also associated with engagement because of the positive psychology trend. This is a part of the more general emerging trend toward focusing on the strengths of humanity and optimal functioning rather than the weaknesses of the individuals (Seligman & Csikszentmihalyi, 2000).

Personality traits are also considered important in students' engagement and burnout levels. For instance, as mentioned before, extraversion, as a dimension of personality, has been positively correlated with engagement because positive emotions contribute to engagement (Langelaan et al., 2006) and are negatively related to burnout (Bakker et al., 2006). It is clear that personality traits have close associations with all of the variables of this study. For the stated reasons, within the scope of this research, the relationships among these variables were investigated in depth. When the related literature is analyzed, engagement and its relation with burnout have been widely studied; however, there are few studies on the relationship between these constructs and personality. It is expected that the individuals' study habits and engagement levels are

also affected by their personality traits. Especially in Turkey, although a few researchers investigated the relationship between burnout and engagement (e.g., Akbaşlı et al., 2019; Bilge et al., 2014), to the best of our knowledge, there are no studies examining these concepts (i.e., burnout and engagement) with personality traits and students' academic achievement together.

Present Study

The primary purpose of this study is to expand the research carried out on school engagement, burnout, personality and academic achievement by conducting an exploratory study to examine the relationships among these variables. To investigate these relationships, we formulated the following hypotheses:

H1: There is a significant relationship among the students' Utrecht Work Engagement Scale-Students Form (UWES-SF) Scores, personality traits, burnout scores and their grade point average (GPAs).

H2: School engagement is negatively associated with exhaustion and cynicism dimensions and positively associated with the efficacy dimension of the burnout scale.

H3: Personality traits, burnout and academic achievement predict students' school engagement levels.

In this study, GPA was used as an indicator of students' academic achievement, and other psychological constructs were investigated via measurement tools, which are described in detail in the following section.

Method

As mentioned before, this study's main goal is to explore the relationships among school engagement, burnout, and academic achievement levels of undergraduate students. To this end, the study was tailored as descriptive research and adopted a correlational design in order to describe existing relationships between two or more variables without any manipulation and intervention to the variables (Fraenkel & Wallen, 2003).

Participants

The data were collected from a total of 307 volunteer undergraduate students (105 males and 202 females) using a non-probabilistic convenience sampling procedure in the spring term of the 2019-2020 academic year. The sample consisted of students in the second (41%) and third (56%) of their studies in the faculty of education at a state university in Turkey. The participants' ages ranged from 18 to 21 years.

Only two respondents were excluded from the data set because their personal information or scale forms were mostly incomplete. Moreover, in order to investigate univariate and multivariate normality assumptions, outliers were analyzed via calculating Z scores and Mahalanobis scores. As a result, four respondents were also removed due to the violation of these assumptions.

Data Collection Tools

The data were collected through personal information form, Maslach Burnout Inventory-Student Survey (MBI-SS), Utrecht Work Engagement Scale-Students Form

(UWES-SF) and The Quick Big Five Personality Test (QBFPT). The researchers developed a personal information form to collect details of the participants such as their gender, age, school year and grade point average (GPA). GPA was used as an indicator of academic achievement in this study.

Maslach Burnout Inventory-Student Survey (MBI-SS)

A Turkish version of MBI-SS was used to assess burnout. The original inventory is developed by Schaufeli, Salanova, et al. (2002) and consists of 13 items and 3 subscales. The subscales include Exhaustion (5 items), Cynicism (4 items) and Efficacy (4 items). The items are scored on a 5-point Likert scale from 1-Never to 5-Always. High scores in Cynicism and Exhaustion and low scores in Efficacy show high levels of burnout in scoring. For each participant, three different burnout scores are calculated. There are a few adaptations of this inventory to the Turkish language (Balkis et al., 2011; Capri et al., 2011). Upon considering the available adaptations of the inventory, we found several inconsistencies among the adapted versions. The items did not reflect the Turkish meaning, and also several vague expressions were detected among the adapted inventories. Hence, a new adaptation study for the MBI-SS was administered by the researchers.

For the new adaptation study, firstly, two different English language teaching experts translated the inventory into Turkish. After the first translation of the items, the back translation method was applied, and the Turkish form of the inventory was again translated into Turkish by two different experts in the Turkish language teaching program. The preliminary analyses were conducted with the data gathered from 128 undergraduate students. Although there are several criteria that should be considered for the sample size and the applicability of CFA in the related literature, none of those rules provides an exact size of sample based on the number of items. For this reason, Tabachnick and Fidell (2001) proposed that the sample size should be arranged in accordance with the item loadings, which means that if the item loadings are high, the sample size can be smaller than the expected level.

In order to investigate the structural validity of the scale scores, Confirmatory Factor Analysis (CFA) was applied, and Maximum Likelihood Estimation (MLE) was used considering the normality of the items. Following the CFA, the item loadings were initially analyzed and ranged from .66 to .85, which indicated a high level of explained variance. Later, items' t values were checked and all of them were significant. The p-value of the proposed model was significant, as well. Thus, the model-data fit indexes were analyzed and the results were interpreted based on Kline's (2011) recommended values. For the fit indexes such as GFI, AGFI, NFI and NNFI; values higher than .90 are accepted as a good fit. Root Mean Square Error of Approximation (RMSEA) was used as misfit indices, with RMSEA <.06 considered very good and <.010 acceptable (Schermmelleh-Engel et al., 2003). Hu and Bentler (1999) suggested an RMSEA of less than .06 as a cut-off criterion. Nearly the same values are valid for SRMR, which shows the misfit, too. A rule of thumb is that the SRMR should be less than .05 for a good fit (Hu & Bentler, 1995), whereas values smaller than .10 may be interpreted as acceptable. The estimated fit indexes from the CFA are presented in Table 1 and interpreted below based on the provided cut-off values.

Table 1
Model Adaptation Index Based on MBI-SS CFA Results

Scale	Analysis	χ^2	<i>sd</i>	χ^2/sd	GFI	AGFI	RMSEA	NFI	NNFI	CFI	SRMR
MBI-SS	3-Factor	239.15	87	2.74	.87	.82	.090	.92	.94	.95	.040
	3-Factor (Modified)	193.06	86	2.24	.89	.85	.076	.93	.95	.96	.038

Based on the model-data fit values, it was found that the original three-factor structure of the scale was preserved. When the findings of the unmodified analysis were examined, it was observed that every index pointed to acceptable and good results. The χ^2/sd value was found below 3, which showed a perfect fit, also GFI, NFI, NNFI, CFI and SRMR values indicated a good to mediocre fit. A rule of thumb, AGFI and GFI for these indexes is that .90 indicates a good fit relative to the baseline model, while values greater than .85 may be considered an acceptable fit. Then it may be said that these indexes indicate acceptable levels of fit. However, the RMSEA value seemed to have a poor fit with a value of slightly over .08. In the modified model, the value decreased below .08, indicating an acceptable fit. When the proposed modifications were analyzed, one modification that would make a contribution to model-data fit was determined, which was associated with the error variant in items 11 and 14. These items were in the same subscale and had very similar expressions. Hence, the suggested modification was made and after the modification, an increase in every good-fit index was observed. Furthermore, a decrease in χ^2 and RMSEA showed that the modification improved the model-data fit quality. These results demonstrated that the scale, composed of 13 items and three factors with a sufficiently high level of structure validity, assesses the Turkish students' burnout levels in a valid and reliable way.

Utrecht Work Engagement Scale-Students Form (UWES-SF)

UWES-SF, on the other hand, assesses the level of positive work-related fulfillment and absorption. Although it was developed to determine work satisfaction, it was adapted for students by Schaufeli, Martinez, et al. (2002). It has two forms; a long form consisting of 17 items and a short form including nine items. In this study, the short form of the scale was preferred. The scale includes three subscales, Vigor (3 items), Dedication (3 items) and Absorption (3 items). The items are scored as 0-Never and 6-Always. At the scoring phase, both total scores and subscale scores are calculated. Higher scores obtained from the scale mean that students' engagement levels are high.

The original form of the scale was adapted to Turkish by Eryılmaz and Doğan (2012). In the adaptation process, a back-translation method was utilized and the Turkish form of the scale was administered through online and face-to-face methods. The psychometric properties of the adapted scale were investigated with CFA, the test-retest method and inter-consistency of the scale were analyzed. The adapted form of the scale was found valid and reliable in the assessment of individuals' work engagement.

The Quick Big Five Personality Test (QBFPT)

QBFPT aims to assess the personality traits of individuals based on the Big Five Personality Theory with five factors. These are extraversion (E), openness to experience

(O), neuroticism (N), agreeableness (A) and Conscientiousness (C). The original scale was developed by Vermulst and Gerris (2005) and adapted to Turkish by Morsunbul (2014). The scale is composed of 5 factors and 30 yes-no items. The factor structure of QBFPT was confirmed in the adaptation study. Besides, item analysis showed that test items worked well to measure personality traits. Lastly, the reliability of the test scores was investigated by the test-retest method and Cronbach alpha coefficients. The results showed that the Turkish version of the test was capable of producing similar results at different times and that the items had internal consistency ($r=.88$).

Analysis of Data

The data were analyzed in line with the hypotheses of the research. In the preliminary analyses, item analyses, as well as reliability and validity tests, were carried out on each subscale. After examining the subscale scores, the analyses that may reveal the relationships among the variables were applied. Then, descriptive statistics, zero-order correlations, regression analyses were performed. Before conducting the regression analysis, the assumptions (normality, linearity, extreme values and multicollinearity) were tested.

For the data analyses, Lisrel 8.71 and SPSS 22.0 were used. At the adaptation phase of the MBI-SS, Lisrel 8.71 (Jöreskog & Sörbom, 2004) was used in order to perform CFA. Pearson moment correlations were calculated to reveal the relationships among the variables. Finally, stepwise regression analysis was applied to create the regression equation of the students' engagement levels.

Ethical Procedures

This study was carried out with the approval of the Kastamonu University Ethics Committee (2020-3/12). Before starting the survey, the participants were informed through a consent form which involved the confidentiality of given responses, the objectives and aim of the study and so on. The researchers guaranteed anonymity and data confidentiality.

Results

Preliminary Analysis

Item analyses were performed, and discriminations and popularities of the items were calculated. These analyses were performed based on the scales and subscales. Firstly, the results of the UWES-SF items were analyzed and showed that the item means ranged from 1.69 to 3.25, indicating that most of the participants preferred low values for the items. Then, corrected item-total correlations, the discrimination power of the items, were calculated and it was found that item discrimination indexes ranged from .58 to .75. As for the item discrimination index, values higher than .40 are accepted as highly discriminative items (Crocker & Algina, 1986). Based on this cut-off value, we can conclude that these items are highly discriminative. The internal consistency of the scale scores was investigated with Cronbach's alpha coefficient, which was calculated as .89. Lastly, the items' contribution to the internal consistency was investigated and it was found that all of the items improved the total scale reliability.

The second measure used in the study was the MBI-SS. The validity and reliability of the scores of the inventory were analyzed at the sub-scale level. Item discriminations indexes, item means and reliability coefficients were estimated and it was found that all of the items have high discriminative power ($r_{jx}=.49; .74$). In addition, Cronbach's Alpha coefficients of three subscales were (Exhaustion, $r=.87$, Cynicism, $r=.87$ and Efficacy, $r=.79$) higher than .70, meaning that the subscale scores are highly reliable. Moreover, each item contributed to the total reliability of the scale. Based on these findings, it can be concluded that the scores of MBI-SS are valid and reliable.

The last measurement tool used in this study was the QBFPT. Item discrimination indexes ranged from .50 to .81, which indicates high discrimination power. Item means were found between 3.59 and 5.33, revealing that most participants were prone to selecting mid-points for the items. For reliability, Cronbach's alpha coefficients were estimated for each subscale and the coefficients ranged between .78 and .88, which indicates medium-high internal consistency. It was also determined that all of the items contributed to the reliability of the subscale scores. Lastly, the descriptive statistics of the scale scores were calculated and these values were presented in Table 2.

Table 2

Descriptive Statistics of the Scale Scores

Scale/ Inventory	Sub-scales	n of items/ cases	Min.	Max.	Mean	SD	Skew- ness	Kurtosis
QBFPT	Agreeableness	5	20.00	42.00	35.44	4.097	-.65	.60
	Extraversion	5	7.00	42.00	26.12	7.70	-.06	-.63
	Conscientious- ness	5	9.00	42.00	30.50	7.07	-.53	-.18
	Neuroticism	5	6.00	41.00	25.03	6.55	.08	-.03
	Openness to experience	5	14.00	42.00	32.84	4.48	-.23	.23
UWES-S	Engagement	9	9.00	44.00	23.71	7.00	.23	-.40
	Exhaustion	4	7.00	35.00	21.48	6.57	.17	-.46
MBI-SS	Cynicism	5	4.00	28.00	15.73	5.88	.05	-.55
	Efficacy	6	12.00	42.00	29.37	5.75	-.12	-.07
GPA	-	279	2.00	4.00	2.96	.31	-.06	.27

When the results were investigated, it was concluded that the participant group was heterogeneous according to the research variables based on the minimum and maximum scores. The standard deviation values, which are relatively high, also confirmed the results. Mean values showed that most of the students tended to choose the average values. Skewness and Kurtosis values ranged between -1 and 1, indicating that the scores are distributed normally (Tabachnick & Fidell, 2001).

The Results of Correlation and Regression Analyses

Firstly, in order to test the first hypothesis of the study, the relationships among the variables were investigated and Pearson product-moment correlations were computed to examine the intercorrelations. The computed correlation coefficients were presented in Table 3.

Table 3

The Pearson Product-Moment Correlations among the Research Variables

Pearson Correlation	UWES-S	Agree.	Extra.	Cons.	Neu.	Open.	Exhaustion	Cynicism	Efficacy	GPA
UWES-S	1.00									
Agree.	.29**	1.00								
Extraversion	.12*	.31**	1.00							
Cons.	.34**	.25**	.02	1.00						
Neuroticism	.14**	.19**	.49**	.14*	1.00					
Open.	.23**	.47**	.34**	.07	.19**	1.00				
Exhaustion	-.60**	-.27**	-.13**	-.25**	-.35**	-.14**	1.00			
Cynicism	-.62**	-.24**	-.07	-.25**	-.23**	-.09	.74**	1.00		
Efficacy	.62**	.46**	.22**	.34**	.24**	.38**	-.48**	-.55**	1.00	
GPA	.22**	.19**	-.01	.25**	-.05	-.03	-.09	-.16*	.32**	1.00

In Table 3, the correlation coefficients between the research variables were presented and the values showed that nearly all variables were correlated with each other significantly. This finding proved the study's first hypothesis, which was "H1=There is a significant relationship among the students' UWES-S scores, personality traits, burnout scores and GPAs." The relationships among the dimensions of Burnout inventory ($r=.74$; $.55$; $.48$, $p<.001$) and UWES-S were the strongest. The strongest positive correlation, considered as a large effect size based on Sink and Stroh's guideline (2006), was observed between Efficacy and UWES-S ($r=.62$), meaning that students with a relatively high efficacy subscale score will likely have a high engagement score and vice versa. The other two dimensions of MBI-SS were also correlated with UWES-S scores but negatively ($r=-.62$; $-.60$). Results further indicated that only Conscientiousness had a positive medium level of correlation with UWES-S from the assessed personality traits. Lastly, the GPA was found positively correlated with UWES-S; however, this relationship was found below the medium level. These findings verified the second hypothesis of the study that was "H2: School engagement is negatively associated with exhaustion and cynicism dimensions and positively associated with the efficacy dimension of the burnout scale."

Stepwise multiple regression was conducted to investigate how well the subscale scores of Burnout and Personality inventories and students' GPAs would predict the students' engagement scores. Before conducting the regression analysis, normality, linearity, extreme values and multicollinearity assumptions were tested. Normality was checked at univariate and multivariate levels. For the univariate level, skewness and

kurtosis values were calculated and they ranged between -.85 and .77, which indicates that the values have a normal distribution (Tabachnick & Fidell, 2001). In order to analyze the extreme values, Z scores and Mahalanobis distances were calculated. For Z scores, 3 and -3 were accepted as boundary values (Field, 2013) and it was found that there were no cases including extreme values. In addition, Mahalanobis distances showed that there was not any case including an extreme value. The linearity of the variables was investigated in terms of scatter plots and it was found that all graphs had a form of an ellipse. Thus, it was concluded that this assumption was met for all the research variables. Lastly, the variance inflation factors (VIFs) and tolerance values (TVs) were computed to measure multicollinearity. All the VIFs of the predictor variables in the regression models were less than 3.0, which indicates that the multicollinearity of the variables does not affect the regression estimates. Also, all of the TVs of the predictors were calculated higher than .10, which shows there is no multicollinearity among the predictors (Tabachnick & Fidell, 2001). All of the predictors were included in the model for the regression analyses, and five different models were produced. The regression and Beta coefficients of the predictors according to the proposed models are presented in Table 4 below.

Table 4

The Results of Stepwise Multiple Regression Analysis

				Standardized	Collinearity			
	R	R ²	Adjusted R ²	Coef.*	T	Sig.	Tolerance	VIF
1 (Constant)					1.08	.28		
Efficacy	.62	.39	.38	.62	13.09	.00	1.00	1.00
2 (Constant)					6.98	.00		
Efficacy				.43	8.87	.00	.77	1.31
Exhaustion	.71	.50	.50	-.39	-7.95	.00	.77	1.31
3 (Constant)					7.92	.00		
Efficacy				.38	7.40	.00	.69	1.46
Exhaustion				-.25	-3.94	.00	.45	2.22
Cynicism	.72	.53	.52	-.23	-3.56	.00	.41	2.44
4 (Constant)					6.53	.00		
Efficacy				.34	6.65	.00	.65	1.55
Exhaustion				-.24	-3.82	.00	.45	2.23
Cynicism				-.23	-3.53	.00	.41	2.44
Conscientiousness	.73	.54	.53	.11	2.43	.02	.87	1.15
5 (Constant)					7.06	.00		
Efficacy				.36	6.92	.00	.64	1.56
Exhaustion				-.28	-4.39	.00	.42	2.39
Cynicism				-.22	-3.37	.01	.41	2.45
Conscientiousness				.11	2.56	.01	.87	1.15
Neuroticism	.74	.55	.54	-.11	-2.56	.01	.87	1.16

Dependent Variable (Constant): UWES-S

In Table 4, the produced regression models and related statistics were presented. The first model was composed of the constant value and Efficacy scores of students. Efficacy was found as the strongest predictor in the regression model. Its Beta coefficient was the highest; thus, it was included in the model first. In the second model, Exhaustion was added to the model and this variable increased the total adjusted R2 from .38 to .50. In the next step, Cynicism was entered into the model and the total adjusted R2 reached .52. Standardized coefficients of Exhaustion and Cynicism were found negative, which indicates that if the students' UWES-S scores increase, the subscale scores of Efficacy and Exhaustion will decrease. In the fourth model, Conscientiousness was included in the model and the explained variance increased to .53. In the last step, students' emotional stability scores were included in the model and it became the last predictor variable of the model. Its beta coefficient was found to be the same as the precedent predictor, Conscientiousness. As a result of regression analysis, the final model consisted of five variables explaining .54 of students' engagement scores. Also, the beta weights presented in all models were found significant, and while two of the predictors had a positive influence, three of them had a negative influence on the UWES-S scores of the students. These results indicate that the students' engagement could be predicted by their Efficacy, Exhaustion, Cynicism, Conscientiousness and emotional stability scores.

Students' GPAs, the sub-scale scores of openness to experience, agreeableness and extraversion were not included in any model due to the low Beta coefficients. These results showed that the third hypothesis of the study, "H3=Personality traits, burnout and academic achievement predict students' school engagement level.", was confirmed partially. As a result of regression analysis, the composed regression model can be stated as:

$$yI=21.38+0.36*Efficacy+-0.28*Exhaustion+-0.22*Cynicism+0.11*Conscientiousness+-0.11*Neuroticism$$

Discussion

The primary purpose of this study is to extend the research carried out in the area of school engagement, burnout and personality by conducting descriptive research to investigate the correlation and prediction relationships among these variables. The results indicated that the highest mean score obtained by the students for personality traits was agreeableness while the lowest was neuroticism, which was also supported by some other studies (Burke & Witt, 2004; Côté & Moskowitz, 1998; Jensen & Patel, 2011; Saling et al., 2019; Templer, 2012). On the other hand, levels of engagement and all dimensions of burnout were moderate among the participants, as also reported by Akbaşlı et al. (2019).

The first hypothesis of the study was that there is a significant relationship among the students' engagement scores, personality traits, burnout scores and GPAs. The results revealed that engagement scores had significant relationships with all the research variables. Although some studies underlined the associations and implied that engagement improves academic achievement (Bilge et al., 2014; Crossan et al., 2003; King, 2015; Zhu, 2010), the results of this study highlighted that there was a positive but low relationship between GPA and engagement. Some other researchers also reached similar results, and even in some studies, researchers did not observe a significant correlation between these variables. For instance, Appleton et al. (2006)

reported that the relationship between engagement and GPA was weak. Chen et al. (2013) and Shernoff (2010) stated that no significant correlation between student engagement and GPA. This could be because students with higher grades acquire the abilities required to comprehend the content faster; therefore, they spare less time to study. On the contrary, as also expressed by Lei et al. (2018), students with low grades could have problems in mastering the skills that compose the base for learning the content, so even if they engage more, they cannot get high grades.

As for the relationship between engagement and personality traits, we found a significant correlation between engagement and all dimensions of QBFPT. Upon examining the coefficients, we found that the correlations were positive but low for all dimensions except for Conscientiousness. Kim et al. (2009) and Douglas et al. (2016) also supported the finding by stating that of all the personality inventory dimensions, only Conscientiousness was significantly correlated with engagement. Based on the findings, we might posit that the students with a high conscientiousness personality trait, identified by organized, principled, responsible, forward-thinking, persistent and goal-oriented characteristics, tend to lead their energy to school-related tasks, exams and activities and, as a result, feel a strong sense of engagement.

For the second hypothesis, we tested whether the students' engagement levels were negatively associated with exhaustion and cynicism dimensions and positively associated with the efficacy dimension of the burnout scale. As stated in the hypothesis, the direction of Pearson coefficients showed that UWES-S and Exhaustion and Cynicism were negatively correlated while there was a positive and high relationship between Efficacy. This finding is also in line with the results of other studies reporting that the students with a high level of engagement have a lower level of Exhaustion and Cynicism and a higher level of Efficacy (Fiorilli et al., 2017; Hakanen et al., 2006; Maricuțoiu et al., 2017; Prins et al., 2010; Salmela-Aro & Read, 2017; Salmela-Aro et al., 2011; Schaufeli, Salanova, et al., 2002; van Beek et al., 2013; Virtanen et al., 2018; Zhang et al., 2007). Therefore, we can say that students who have relatively weak school engagement tend to exhibit the features of burnout.

As for the last hypothesis, the prediction of students' school engagement level by personality traits, burnout and academic achievement was tested. The results of regression analysis pointed out that the scores of two dimensions of personality inventory (Conscientiousness and neuroticism) and all dimensions of burnout (Efficacy, Exhaustion and Cynicism) predicted engagement significantly. Kim et al. (2009) also reported that Conscientiousness and neuroticism were primary predictors of engagement. To this end, we can conclude that students with high Conscientiousness, characterized by being proficient, efficient, organized and determined, tend to complete the tasks on time, drive their energy to work, and feel a strong sense of competence resulting in a high level of engagement in schoolwork. Based on the regression model, we can also assert that students who show signs of burnout feel less engaged and might have problems focusing on learning activities behaviorally, cognitively, and emotionally. On the one hand, it can be claimed that students with high Efficacy, the ability to perform a school task to a satisfactory or expected level, are expected to have a higher engagement level. On the other hand, students who feel emotionally exhausted and psychologically distant are assumed to have a lower level of engagement, as also explained by Maricuțoiu et al. (2017). Llorens-Gumbau and Salanova-Soria (2014) and

Salmela-Aro and Upadyaya (2014) have also reported similar findings, who found that all dimensions of burnout predicted engagement.

GPA and three other dimensions of personality inventory (agreeableness, extraversion and openness to experience); however, did not significantly predict students' engagement. Shernoff and Schmidt (2008) could not also establish a prediction relationship between engagement and GPA. Hence, the finding is relatively surprising, as there is no prediction relationship between engagement and extraversion. It was initially suggested that the influence of extraversion on engagement would be positive due to the high energy level that extroverts often have. The result of the present study also indicates that agreeableness, extraversion and openness to experience could have a limited impact on improving school engagement. The finding is in line with previous results revealing that engagement and all dimensions of QBFPT do not have a strong predictive relationship (Kim et al., 2009). Some other studies, on the other hand, revealed different dimensions of QBFPT could be a predictor of engagement. For example, Douglas et al. (2016) stated that openness is one of the significant predictors of engagement.

Conclusion, Limitations, and Implications

The present study showed that Conscientiousness and neuroticism as personality traits and burnout levels of students are effective factors in predicting the level of school engagement. In order to enhance students' attention, curiosity, interest, and motivation, we can modify the educational environments to minimize the factors causing burnout such as pressure on school achievement, excessive amount of homework, and lack of time for rest. Moreover, developing learning tasks and realistic targets that build on students' own strengths, interests and needs is invaluable in the improvement of school engagement. These adjustments in the educational settings will also lead to a decrease in students' state of emotional, physical burnout and mental distance from schoolwork.

The findings of the study and the discussion presented are limited to the following issues. First, the preference of convenient sampling to collect data may limit the generalizability of the findings. Therefore, it can be suggested that future studies include a more representative sample of university students. The second limitation of the study is the use of self-report measures whose limitations are well documented in the research and social science literature. Especially when evaluating positive behavior, the results of self-report measures should be carefully interpreted. Despite these, this study has crucial practical implications for the researchers, as well. This study has gone some way towards enhancing our understanding of the relationships between school engagement and both personality traits and burnout. Additional studies carried out with a more representative sample of university students and with the support of qualitative data would help us explore these interrelationships among these constructs thoroughly.

Statement of Responsibility

The study was conducted and reported with equal collaboration of the researchers. The researchers had equal roles in the tasks for conceptualization, resources, data collection and analysis, reporting, drafting, reviewing and editing.

Conflicts of Interest

There is no conflict of interest to disclose.

Author Bios:

Ezgi Mor Dirlik is an assistant professor at the department of Measurement and Evaluation, Faculty of Education, Kastamonu University. She got her bachelor degree from Foreign Language Education Department of the of Middle East Technical University, Turkey. She completed her PhD in the Measurement and Evaluation Department of Ankara University in 2017. Her research interests include Item Response Theory, scale development, reliability, and validity. In addition, she has publications on teacher education and psychological constructs that may affect the teacher education efficacy.

Erkan K ulekçi is an assistant professor at the Faculty of Education, Kastamonu University. He earned a master's degree in TESOL at the University of Pennsylvania, USA and received his doctoral degree in ELT and Applied Linguistics at the University of Warwick, UK. His main research interests are foreign language teaching, the concepts of authenticity and autonomy in ELT and classroom discourse.

Mustafa  zt rk Akcaođlu is an assistant professor in Curriculum and Instruction at Kastamonu University, Department of Educational Sciences, Faculty of Education. He was involved in national and international projects that involved language learning through computers, multiculturalism, gender discrimination and history. In particular, Dr. Akcaođlu has been studying on curriculum development and evaluation and multicultural education and culturally relevant pedagogy. To increase cultural awareness, he has been instructing curriculum development courses both at the graduate and undergraduate levels.

References

- Akbaşlı, S., Arastaman, G., Gün, F., & Turabik, T. (2019). School engagement as a predictor of burnout in university students. *Pamukkale University Journal of Education*, 45, 293-309. <https://doi.org/10.9779/PUJE.2018.234>
- Alarcon, G., Eschleman, K. J., & Bowling, N. A. (2009). Relationships between personality variables and burnout: A meta-analysis. *Work and Stress*, 23(3), 244-263. <https://doi.org/10.1080/02678370903282600>
- Anderson, L. W., & Bourke, S. F. (2013). *Assessing affective characteristics in the schools*. Routledge. <https://doi.org/10.4324/9781410605443>
- APA. (n.d.). *APA dictionary of psychology*. <https://dictionary.apa.org/burnout>
- Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: *Validation of the student engagement instrument*. *Journal of School Psychology*, 44(5), 427-445. <https://doi.org/10.1016/j.jsp.2006.04.002>
- Archambault, I., Janosz, M., Fallu, J.-S., & Pagani, L. S. (2009). Student engagement and its relationship with early high school dropout. *Journal of Adolescence*, 32(3), 651-670. <https://doi.org/10.1016/j.adolescence.2008.06.007>
- Ariani, D. (2017). Why am I burnout and engaged? The role of motivation and personality. *Journal of Psychological and Educational Research (JPER)*, 25(2), 61-89.
- Aypay, A. (2012). Secondary School Burnout Scale (SSBS). *Educational Sciences: Theory and Practice*, 12(2), 782-787.
- Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2002). Validation of the Maslach burnout inventory-general survey: An internet study. *Anxiety, Stress and Coping*, 15(3), 245-260. <https://doi.org/10.1080/1061580021000020716>
- Bakker, A. B., Van Der Zee, K. I., Lewig, K. A., & Dollard, M. F. (2006). The relationship between the big five personality factors and burnout: A study among volunteer counselors. *The Journal of Social Psychology*, 146(1), 31-50. <https://doi.org/10.3200/SOCP.146.1.31-50>
- Bakker, A. B., Vergel, A. I. S., & Kuntze, J. (2015). Student engagement and performance: A weekly diary study on the role of openness. *Motivation Emotion*, 39(1), 49-62. <https://doi.org/10.1007/s11031-014-9422-5>
- Balkıs, M., Duru, E., Buluş, M., & Duru, S. (2011). Tükenmişliğin öğretmen adayları arasındaki yaygınlığı, demografik değişkenler ve akademik başarı ile ilişkisi. *Pamukkale University Journal of Education*, 29, 151-165.
- Bilge, F., Tuzgol Dost, M., & Cetin, B. (2014). Factors affecting burnout and school engagement among high school students: Study habits, self-efficacy beliefs, and academic success. *Educational Sciences: Theory Practice*, 14(5), 1721-1727. <https://doi.org/10.12738/estp.2014.5.1727>
- Burke, L. A., & Witt, L. (2004). Personality and high-maintenance employee behavior. *Journal of Business and Psychology*, 18(3), 349-363. <https://doi.org/10.1023/B:JOB.0000016711.90781.58>

- Cano-García, F. J., Padilla-Muñoz, E. M., & Carrasco-Ortiz, M. Á. J. (2005). Personality and contextual variables in teacher burnout. *Personality and Individual Differences, 38*(4), 929-940. <https://doi.org/10.1016/j.paid.2004.06.018>
- Capri, B., Gunduz, B., & Gokcakan, Z. (2011). Maslach burnout inventory-student forms Turkish: Reliability and validity study. *Journal of Cukurova University Faculty of Education, 40*(1), 134-147.
- Casuso-Holgado, M. J., Cuesta-Vargas, A. I., Moreno-Morales, N., Labajos-Manzanares, M. T., Barón-López, F. J., & Vega-Cuesta, M. (2013). The association between academic engagement and achievement in health sciences students. *BMC Medical Education, 13*(1), 1-7. <https://doi.org/10.1186/1472-6920-13-33>
- Cazan, A.-M. (2015). Learning motivation, engagement and burnout among university students. *Procedia-Social Behavioral Sciences, 187*, 413-417. <https://doi.org/10.1016/j.sbspro.2015.03.077>
- Celik, G. T., & Oral, E. L. (2013). Burnout levels and personality traits-The case of turkish architectural students. *Creative Education, 4*(2), 124-131. <https://doi.org/10.4236/ce.2013.42018>
- Chen, D., Yang, C., Bear, G., & Zhen, S. (2013). *School engagement as mediator between school climate and achievement*. Annual Convention of The National Association of School Psychologists, Seattle, WA, USA.
- Chowdhury, M. (2006). Students' personality traits and academic performance: A five-factor model perspective. *College Quarterly, 9*(3), 1-9.
- Costa, P. T., & McCrae, R. R. (1980). Influence of extraversion and neuroticism on subjective well-being: happy and unhappy people. *Journal of Personality and Social Psychology, 38*(4), 668-678. <https://doi.org/10.1037/0022-3514.38.4.668>
- Costa, P. T., & McCrae, R. R. (1992). Multiple uses for longitudinal personality data. *European Journal of Personality, 6*(2), 85-102. <https://doi.org/10.1002/per.2410060203>
- Côté, S., & Moskowitz, D. S. (1998). On the dynamic covariation between interpersonal behavior and affect: Prediction from neuroticism, extraversion, and agreeableness. *Journal of Personality and Social Psychology, 75*(4), 1032-1046. <https://doi.org/10.1037/0022-3514.75.4.1032>
- Crocker, L., & Algina, J. (1986). *Introduction to classical and modern test theory*. ForthWorth, TX.
- Crossan, B., Field, J., Gallacher, J., & Merrill, B. (2003). Understanding participation in learning for non-traditional adult learners: Learning careers and the construction of learning identities. *British Journal of Sociology of Education, 24*(1), 55-67. <https://doi.org/10.1080/01425690301907>
- De Raad, B. (2000). *The big five personality factors: The psycholexical approach to personality*. Hogrefe & Huber Publishers.
- Douglas, H. E., Bore, M., & Munro, D. (2016). Coping with university education: The relationships of time management behaviour and work engagement with the five factor model aspects. *Learning and Individual Differences, 45*, 268-274. <https://doi.org/10.1016/j.lindif.2015.12.004>

- Eryılmaz, A., & Doğan, T. (2012). Subjective well-being at work: Investigating of psychometric properties of Utrecht work engagement scale. *Turkish Journal of Clinical Psychiatry, 15*(1), 49-55.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. Sage.
- Fiorilli, C., De Stasio, S., Di Chiacchio, C., Pepe, A., & Salmela-Aro, K. (2017). School burnout, depressive symptoms and engagement: Their combined effect on student achievement. *International Journal of Educational Research, 84*, 1-12. <https://doi.org/10.1016/j.ijer.2017.04.001>
- Fraenkel, J. R., & Wallen, N. E. (2003). *How to design and evaluate research in education*. McGraw-Hill.
- Freudenberger, H. J. (1975). The staff burnout syndrome in alternative institutions. *Psychotherapy: Theory, Research & Practice, 12*(1), 73-82. <https://doi.org/10.1037/h0086411>
- Fuller, M., Wilson, M., & Tobin, R. (2011). The national survey of student engagement as a predictor of undergraduate GPA: A cross-sectional and longitudinal examination. *Assessment Evaluation in Higher Education, 36*(6), 735-748. <https://doi.org/10.1080/02602938.2010.488791>
- Gündüz, B., Çapri, B., & Gökçakan, Z. (2012). Üniversite öğrencilerinin tükenmişlik düzeylerinin incelenmesi. *Dicle Üniversitesi Ziya Gökalp Eğitim Fakültesi Dergisi, 19*, 38-55.
- Hakanen, J. J., Bakker, A. B., & Schaufeli, W. B. (2006). Burnout and work engagement among teachers. *Journal of School Psychology, 43*(6), 495-513. <https://doi.org/10.1016/j.jsp.2005.11.001>
- Hochwälder, J. J. S. B. (2006). An empirical exploration of the effect of personality on general and job-related mental ill health. *Social Behavior and Personality: An International Journal, 34*(9), 1051-1070. <https://doi.org/10.2224/sbp.2006.34.9.1051>
- Hu, L., & Bentler, P. (1995). Evaluating model fit. In R. H. Hoyle (Ed.), *Structural equation modeling. Concepts, issues and applications* (pp. 76-99). London: Sage.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: A multidisciplinary journal, 6*(1), 1-55. <https://doi.org/10.1080/10705519909540118>
- Inceoglu, I., & Warr, P. (2011). Personality and job engagement. *Journal of Personnel Psychology, 10*(4), 177-181. <https://doi.org/10.1027/1866-5888/a000045>
- Jacobs, S. R., & Dodd, D. (2003). Student burnout as a function of personality, social support, and workload. *Journal of College Student Development, 44*(3), 291-303. <https://doi.org/10.1353/csd.2003.0028>
- Jensen, J. M., & Patel, P. C. (2011). Predicting counterproductive work behavior from the interaction of personality traits. *Personality and Individual Differences, 51*(4), 466-471. <https://doi.org/10.1016/j.paid.2011.04.016>
- Jöreskog, K. G., & Sörbom, D. (2004). *LISREL 8.72 [Computer software]*. In Scientific Software International.

- Junco, R., & Clem, C. (2015). Predicting course outcomes with digital textbook usage data. *The Internet and Higher Education*, 27, 54-63. <https://doi.org/10.1016/j.iheduc.2015.06.001>
- Kim, H. J., Shin, K. H., & Swanger, N. (2009). Burnout and engagement: A comparative analysis using the Big Five personality dimensions. *International Journal of Hospitality Management*, 28(1), 96-104. <https://doi.org/10.1016/j.ijhm.2008.06.001>
- King, R. B. (2015). Sense of relatedness boosts engagement, achievement, and well-being: A latent growth model study. *Contemporary Educational Psychology*, 42, 26-38. <https://doi.org/10.1016/j.cedpsych.2015.04.002>
- Kline, R. (2011). Convergence of structural equation modeling and multilevel modeling. In Williams, M., & Vogt, W. P. (Eds.), *The SAGE handbook of innovation in social research methods* (pp. 562–589). Sage Publications. <https://doi.org/10.4135/9781446268261>
- Langelaan, S., Bakker, A. B., Schaufeli, W. B., van Rhenen, W., & van Doornen, L. J. (2006). Do burned-out and work-engaged employees differ in the functioning of the hypothalamic-pituitary-adrenal axis? *Scandinavian Journal of Work, Environment and Health Psychology Report*, 32(5), 339-348. <https://doi.org/10.5271/sjweh.1029>
- Law, D. W. (2007). Exhaustion in university students and the effect of coursework involvement. *Journal of American College Health*, 55(4), 239-245. <https://doi.org/10.3200/JACH.55.4.239-245>
- Lei, H., Cui, Y., & Zhou, W. (2018). Relationships between student engagement and academic achievement: A meta-analysis. *Social Behavior and Personality: An International Journal*, 46(3), 517-528. <https://doi.org/10.2224/sbp.7054>
- Leiter, M. P., Maslach, C., & Frame, K. (2015). Burnout. In R. L. Cautin & S. O. Lilienfeld (Eds.), *The encyclopedia of clinical psychology*. John Wiley & Sons, Inc. <https://doi.org/10.1002/9781118625392.wbecp142>
- Leon, M. R., Halbesleben, J. R., & Paustian-Underdahl, S. C. (2015). A dialectical perspective on burnout and engagement. *Burnout Research*, 2(2-3), 87-96. <https://doi.org/10.1016/j.burn.2015.06.002>
- Li, Y., Zhang, W., Liu, J., Arbeit, M. R., Schwartz, S. J., Bowers, E. P., & Lerner, R. M. (2011). The role of school engagement in preventing adolescent delinquency and substance use: A survival analysis. *Journal of Adolescence*, 34(6), 1181-1192. <https://doi.org/10.1016/j.adolescence.2011.07.003>
- Llorens-Gumbau, S., & Salanova-Soria, M. (2014). Loss and gain cycles? A longitudinal study about burnout, engagement and self-efficacy. *Burnout Research*, 1(1), 3-11. <https://doi.org/10.1016/j.burn.2014.02.001>
- Maricuțoiu, L. P., Sulea, C., & Iancu, A. (2017). Work engagement or burnout: Which comes first? A meta-analysis of longitudinal evidence. *Burnout Research*, 5, 35-43. <https://doi.org/10.1016/j.burn.2017.05.001>
- Maslach, C., & Leiter, M. P. (2008). *The truth about burnout: How organizations cause personal stress and what to do about it*. John Wiley & Sons.
- Matthews, G., Deary, I. J., & Whiteman, M. C. (2003). *Personality traits*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511812736>

- McCrae, R. R., & John, O. (1992). An introduction to the five-factor model and its applications. *Journal of Personality, 60*(2), 175-215. <https://doi.org/10.1111/j.1467-6494.1992.tb00970.x>
- Morgan, B., & De Bruin, K. (2010). The relationship between the big five personality traits and burnout in South African university students. *South African Journal of Psychology, 40*(2), 182-191. <https://doi.org/10.1177/008124631004000208>
- Morsunbul, U. (2014). The validity and reliability study of the Turkish version of quick big five personality test. *Dusunen Adam The Journal of Psychiatry and Neurological Sciences, 27*(4), 316-322. <https://doi.org/10.5350/DAJPN2014270405>
- Newmann, F. M., Wehlage, G. G., & Lamborn, S. D. (1992). The significance and sources of student engagement. In F. M. Newmann (Ed.), *Student engagement and achievement in American secondary schools* (pp. 11-39). Teachers College Press.
- Organisation for Economic Co-operation and Development [OECD]. (2016). *PISA 2015 results (Volume I): Excellence and equity in education*. PISA, OECD Publishing, Paris. <https://doi.org/10.1787/9789264266490-en>
- Pala, A. (2012). The burnout level among faculty of education students at Celal Bayar University. *Procedia-Social Behavioral Sciences, 69*, 1766-1774. <https://doi.org/10.1016/j.sbspro.2012.12.126>
- Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research* (Volume 2). Jossey-Bass.
- Poitras, J., Stimec, A., & Hill, K. (2013). Fostering student engagement in negotiation role plays. *Negotiation Journal, 29*(4), 439-462. <https://doi.org/10.1111/nej.12036>
- Prins, J. T., Hoekstra-Weebers, J. E., Gazendam-Donofrio, S. M., Dillingh, G. S., Bakker, A. B., Huisman, M., Jacobs, B., & Van Der Heijden, F. M. (2010). Burnout and engagement among resident doctors in the Netherlands: A national study. *Medical Education, 44*(3), 236-247. <https://doi.org/10.1111/j.1365-2923.2009.03590.x>
- Rahmati, Z. (2015). The study of academic burnout in students with high and low level of self-efficacy. *Procedia-Social Behavioral Sciences, 171*(16), 49-55. <https://doi.org/10.1016/j.sbspro.2015.01.087>
- Roebken, H. (2007). The influence of goal orientation on student satisfaction, academic engagement and achievement. *Electronic Journal of Research in Educational Psychology, 5*(3), 679-704.
- Saling, L. L., Cohen, D. B., & Cooper, D. (2019). Not close enough for comfort: Facebook users eschew high intimacy negative disclosures. *Personality and Individual Differences, 142*, 103-109. <https://doi.org/10.1016/j.paid.2019.01.028>
- Salmela-Aro, K., Kiuru, N., Leskinen, E., & Nurmi, J.-E. (2009). School burnout inventory (SBI) reliability and validity. *European Journal of Psychological Assessment, 25*(1), 48-57. <https://doi.org/10.1027/1015-5759.25.1.48>
- Salmela-Aro, K., & Read, S. (2017). Study engagement and burnout profiles among Finnish higher education students. *Burnout Research, 7*, 21-28. <https://doi.org/10.1016/j.burn.2017.11.001>
- Salmela-Aro, K., Tolvanen, A., & Nurmi, J.-E. (2011). Social strategies during university studies predict early career work burnout and engagement: 18-year

- longitudinal study. *Journal of Vocational Behavior*, 79(1), 145-157. <https://doi.org/10.1016/j.jvb.2011.01.002>
- Salmela-Aro, K., & Upadaya, K. (2014). School burnout and engagement in the context of demands–resources model. *British Journal of Educational Psychology*, 84(1), 137-151. <https://doi.org/10.1111/bjep.12018>
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25(3), 293-315. <https://doi.org/10.1002/job.248>
- Schaufeli, W. B., Martinez, I. M., Pinto, A. M., Salanova, M., & Bakker, A. B. (2002). Burnout and engagement in university students: A cross-national study. *Journal of Cross-cultural Psychology*, 33(5), 464-481. <https://doi.org/10.1177/0022022102033005003>
- Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies*, 3(1), 71-92. <https://doi.org/10.1023/A:1015630930326>
- Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of psychological research online*, 8(2), 23-74.
- Seligman, M., & Csikszentmihalyi, M. (2000). Positive psychology. *American Psychologist*, 55(1), 5-14. <https://doi.org/10.1037/0003-066X.55.1.5>
- Sheroff, D. J. (2010). Engagement in after-school programs as a predictor of social competence and academic performance. *American Journal of Community Psychology*, 45(3-4), 325-337. <https://doi.org/10.1007/s10464-010-9314-0>
- Sheroff, D. J., & Schmidt, J. A. (2008). Further evidence of an engagement–achievement paradox among U.S. high school students. *Journal Youth Adolescence*, 37(5), 564-580. <https://doi.org/10.1007/s10964-007-9241-z>
- Sink, C. A., & Stroh, H. R. (2006). Practical significance: The use of effect sizes in school counseling research. *Professional School Counseling*, 9(9), 401-411. <https://doi.org/10.5330/prsc.9.4.283746k664204023>
- Stoeber, J., Childs, J. H., Hayward, J. A., & Feast, A. R. (2011). Passion and motivation for studying: predicting academic engagement and burnout in university students. *Educational Psychology*, 31(4), 513-528. <https://doi.org/10.1080/01443410.2011.570251>
- Strauser, D. R., O'Sullivan, D., & Wong, A. W. (2012). Work personality, work engagement, and academic effort in a group of college students. *Journal of Employment Counseling*, 49(2), 50-61. <https://doi.org/10.1002/j.2161-1920.2012.00006.x>
- Sulea, C., Virga, D., Maricutoiu, L. P., Schaufeli, W., Dumitru, C. Z., & Sava, F. A. (2012). Work engagement as mediator between job characteristics and positive and negative extra-role behaviors. *Career Development International*, 17(3), 188-207. <https://doi.org/10.1108/13620431211241054>
- Tabachnick, B., & Fidell, L. (2001). *Using multivariate statistics* (4th ed.). Boston, MA.

- Tam, M. (2014). Outcomes-based approach to quality assessment and curriculum improvement in higher education. *Quality Assurance in Education*, 22(2), 158-168. <https://doi.org/10.1108/QAE-09-2011-0059>
- Tanculescu, L. (2019). The relationship between the big five personality factors and their facets and burnout: A study among additional-job holders. *Romanian Journal of Psychological Studies*, 7(1), 44-55.
- Templer, K. J. (2012). Five-factor model of personality and job satisfaction: The importance of agreeableness in a tight and collectivistic Asian society. *Applied Psychology*, 61(1), 114-129. <https://doi.org/10.1111/j.1464-0597.2011.00459.x>
- van Beek, I., Kranenburg, I. C., Taris, T. W., & Schaufeli, W. B. (2013). BIS- and BAS-activation and study outcomes: A mediation study. *Personality and Individual Differences*, 55(5), 474-479. <https://doi.org/10.1016/j.paid.2013.04.013>
- Vermulst, A., & Gerris, J. (2005). QBF: Quick big five personality test manual. LDC Publications.
- Virtanen, T. E., Lerkkanen, M.-K., Poikkeus, A.-M., & Kuorelahti, M. (2018). Student engagement and school burnout in Finnish lower-secondary schools: Latent profile analysis. *Scandinavian Journal of Educational Research*, 62(4), 519-537. <https://doi.org/10.1080/00313831.2016.1258669>
- Wefald, A. J., & Downey, R. G. (2009). Construct dimensionality of engagement and its relation with satisfaction. *The Journal of Psychology*, 143(1), 91-112. <https://doi.org/10.3200/JRLP.143.1.91-112>
- WHO. (n.d.). *ICD-11 for mortality and morbidity statistics*. <https://icd.who.int/browse11/1-m/en#/http://id.who.int/icd/entity/129180281>
- Wiese, L., Rothmann, S., & Storm, K. (2003). Coping, stress and burnout in the South African police service in KwaZulu-Natal. *Journal of Industrial Psychology*, 29(4), 71-80. <https://doi.org/10.4102/sajip.v29i4.124>
- Willingham, W. W., Pollack, J. M., & Lewis, C. (2002). Grades and test scores: Accounting for observed differences. *Journal of Educational Measurement*, 39(1), 1-37. <https://doi.org/10.1111/j.1745-3984.2002.tb01133.x>
- Yang, H.-J. (2004). Factors affecting student burnout and academic achievement in multiple enrollment programs in Taiwan's technical-vocational colleges. *International Journal of Educational Development*, 24(3), 283-301. <https://doi.org/10.1016/j.ijedudev.2003.12.001>
- Zhang, Y., Gan, Y., & Cham, H. (2007). Perfectionism, academic burnout and engagement among Chinese college students: A structural equation modeling analysis. *Personality and Individual Differences*, 43(6), 1529-1540. <https://doi.org/10.1016/j.paid.2007.04.010>
- Zhu, X. X. (2010). A study of the relationship between fear of failure, learning engagement and academic performance in high school students [Master's thesis]. Hebei Normal University. <https://www.doc88.com/p-5794120159939.html>



This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0). For further information, you can refer to <https://creativecommons.org/licenses/by-nc-sa/4.0/>