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Research Article

# Utrecht Work Engagement Scale-Student Forms' (UWES-SF) Adaptation to Turkish, Validity and Reliability Studies, and the Mediator Role of Work Engagement between Academic Procrastination and Academic Responsibility

Burhan Çapri<sup>1</sup>  
Mersin University

Bülent Gündüz<sup>2</sup>  
Mersin University

Sinem Evin Akbay<sup>3</sup>  
Mersin University

## Abstract

The primary goal of this study is to complete the adaptation, validity and reliability studies of the long (17 items) and short (9 items) forms of UWES-SF. The secondary goal of this study is to study the mediating role of work engagement between academic procrastination and academic responsibility in high school students. The study group consists of 597 students, who are enrolled into various high schools in Mersin during the academic year of 2013-2014. Confirmatory factor analysis (CFA) was used in order to investigate the factor structure of UWES-SF; Pearson moment coefficient was used for the correlation values between the hidden variables observed in the criterion-related validity study; Cronbach Alpha coefficient was used to determine internal consistency reliability coefficients; inter-item correlation and total-item correlation was calculated to determine item validity and homogeneity. Multiple regression analysis was also used for the mediation test. The results for the Turkish forms of the UWES-SF shows that it can be used in a valid and reliable way on the high school students within the country. Along with this, it was clearly seen in this study that work engagement has a mediating effect between academic responsibility and academic procrastination.

## Keywords

Work engagement • Student exhaustion • Academic procrastination • Academic responsibility • Validity • Reliability

1 **Correspondence to:** Burhan Çapri (PhD), Department of Educational Sciences, Faculty of Education, Mersin University, Mersin Turkey. Email: burhancapri@gmail.com

2 Department of Educational Sciences, Faculty of Education, Mersin University, Mersin Turkey. Email: bgunduz27@gmail.com

3 Department of Educational Sciences, Faculty of Education, Mersin University, Mersin Turkey. Email: sinemakbay85@gmail.com

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Work engagement, which appeared as a positive psychological phenomenon in the fields of work and study, and is one of the positive state indicators of employees regarding work; at first became a popular concept in work and consultancy fields and is lately becoming a popular in academia (Littman-Ovadia & Balducci, 2013; Schaufeli & Bakker, 2010). Work engagement, a positive organizational behavior pattern, which is expressed as the opposite pole or the positive antithesis of burnout, is described as the positive approach of the mind with “vigor,” “dedication,” and “absorption” regarding work (Schaufeli, Martinez, Marquez-Pinto, Salanova, & Bakker, 2002; Schaufeli & Salanova, 2007). Rather than a momentary state, work engagement is described as a constant emotional-cognitive state that is not fixed on any specific item, event person or behavior (Schaufeli & Bakker, 2004; Schaufeli, Martinez et al., 2002).

### **Adaptation Study**

Utrecht Work Engagement Scale–UWES was developed by Schaufeli, Martinez et al. (2002) based on Maslach Burnout Inventory (MBI), in order to measure work engagement, which is conceptualized as the worker’s approach to their work with vigor, dedication and then absorption, the opposite of burnout. The first subscale of UWES “vigor” is defined as the worker’s absorption with and dedication to their work, and fulfilment of their responsibilities with high levels of energy, and this corresponds to the MBI-GF sub factor of exhaustion (decrease of mental energy). The second subscale of UWES is “dedication,” this is defined as the worker’s enthusiastic approach to work and corresponds to the MBI-GF subscale of cynicism (negative attitude towards work). Exhaustion and cynicism which represent the stress dimension of exhaustion (Maslach, Schaufeli, & Leiter, 2001) are at the focal point of burnout, while vigor and dedication is central to work engagement (Schaufeli & Bakker, 2004). In other words, in order to talk about burnout or work engagement, these basic factors are dealt with. Conceptually, the third subscales of MBI-GF and UWES (lack of efficacy and absorption) are not evaluated as opposites of each other. Lack of efficacy in MBI-GF represents a more personal characteristics; while absorption in UWES represents a situation that is a result of vigor and dedication (Langelaan, Bakker, Van Doornen, & Schaufeli, 2006) therefore they cannot be thought of as opposites (Gündüz, Çapri, & Gökçakan, 2013).

UWES was originally developed as 24 items, but after psychometric evaluations 7 non-functional items were removed, the final form of a scaling tool based on self-report with 17 items, consisting of the subscales vigor (6 items), dedication (5 items) and absorption (6 items) were reached (Schaufeli, Martinez et al., 2002). After another following psychometric evaluation, 2 items that were poor or non-functional were removed and a 15 item form of UWES (Schaufeli & Bakker, 2004) was also

used in certain studies (Kutsal, 2009; Salanova, Schaufeli, Llorens, Peiró, & Grau, 2000; Xanthopoulou, Bakker, Kantas, & Demerouti, 2012). At the final stage, a 9 item form of UWES-SF with 3 items in each subscale was developed by Schaufeli and Bakker (2004).

The psychometric qualities of these developed forms were tested on over 30,000 workers in various countries like China, Finland, Greece, Portugal, Spain, South Africa, Sweden, The Netherlands and Turkey. It was reported in these studies that satisfactory results were achieved in the internal consistency of the scales, test and re-test, inter-item correlation and correlation between hidden variables and that the 3 factor structure was confirmed better than the single factor structure (Gündüz et al., 2013; Hallberg & Schaufeli, 2006; Salanova et al., 2000; Salanova, Agut, & Peiró, 2005; Schaufeli, Martinez et al., 2002; Schaufeli & Bakker, 2004; Schaufeli, Taris, & Van Rhenen, 2008; Seppälä et al., 2009; Shimazu et al., 2008; Storm & Rothmann, 2003; Te Brake, Bouwman, Gorter, Hoogstraten, & Eijkman, 2007; Xanthopoulou et al., 2012; Yi-Wen & Yi-Qun, 2005). However, there is also research in the field that does not confirm the three factor structure and recommend a single factor structure (Naudé & Rothmann, 2004; Sonnentag, 2003).

On the other hand, the appearance of work engagement in literature as a concept worked on in the school setting, especially on students, starts with the development of UWES student form (Schaufeli, Martinez et al., 2002). The development process of UWES-SF is similar to the development of MBI-SF. The expressions regarding workplace and working in the worker form were adjusted to classrooms and studying in the student form. Thus, the work engagement idea was conceptualized around attendance to class and study tasks for the UWES-SF.

In the development works of UWES-SF when the first psychometric results on 314 Spanish grad students were observed; the original 3 factor structure was confirmed, the internal consistency coefficients of the 3 subscales (vigor, dedication, absorption) were found to be .78, .84 and .73 respectively, and the relationship between observed variables were reported to be .70 and over, relationship between hidden variables were reported as .90 and over. Also, significant negative relationships were found with the MBI-SF subscales, the highest correlation values were found with the efficacy subscale (-.60 and -.68), which was followed by cynicism (-.22 and -.51) and exhaustion (-.12 and -.20) subscales.

In another study, where Schaufeli, Salanova, González-Romá, and Bakker (2002) worked with 623 Spanish, 727 Portuguese and 311 Dutch grad students, it was reported that the original 17 item scale with 3 factors was not confirmed well enough and after some modifications and the removal of the 3 non-functioning items, the new 14 item scale with 3 factors received better confirmatory results. Also the

Spanish, Portuguese and Dutch samples show the vigor, dedication and absorption subscales have a internal consistency coefficient between .65-.86 and the correlation coefficient between the subscales are between .71-.94. Also, while a significant negative relationship was found with the MBI-SF subscales, the highest correlation value was for efficacy subscale (-.48 and -.69), followed by cynicism (-.25 and -.67) and exhaustion (-.03 and -.30). On the other hand, the relationship between UWES-SF and academic performance was evaluated, while in the Spanish sample a low positive correlation was found for all 3 subscales, for the Portuguese sample only vigor and absorption subscales, and for the Dutch sample only vigor subscale was found to have a low positive correlation.

Finally, [Schaufeli and Bakker \(2004\)](#) who released the UWES handbook, conducted an investigation for both the original long (17 items) and short (9 items) forms on 527 Dutch university students, and completed a psychometric analysis for single factor and 3 factor characteristics. While it was reported that 3 factor analysis results were more confirmative than single factor results in both long and short forms, it was also emphasized that the best results were received from the 3 factor short form. It was stated, that the fact that the internal consistency coefficients for the short form (.70-.84) were all above .70, which was accepted as the criterion, supports this result. Also under the light of the correlation values between observed and hidden variables, it was mentioned that the 3 factor short form represents the work engagement of students better than the long form and that it can be used by getting the total points. On the other hand, the correlation the short form with the subscales of MBI-SF was found to be the highest in the efficacy subscale (-.46 and -.56), followed by the cynicism subscale (-.26 and -.60) and the exhaustion subscale (-.00 and -.16). There was no significant difference between sexes, but a positive relationship with low correlation was reported for the age variable, showing that older students felt more work engagement.

In our country, it is seen that many different researchers adapted the UWES and conducted research on various occupation groups at parallel time frames ([Bal, 2008](#); [Erim, 2009](#); [Gündüz et al., 2013](#); [Güneşer, 2007](#); [Öner, 2008](#); [Turgut, 2011](#)). But the UWES-SF was only used in the scope of two different studies. One of these ([Kutsal, 2009](#)), involved 657 high school students and used the 15 item form, naming it the Utrecht School Devotion Scale (USDS) in order to benefit from the scale dependent validity of the MBI-SF adaptation. At the end it was reported that, the 15 item 3 factor scale was not confirmed well enough, and after the 4 non-functioning items were removed and some modifications were made, the 11 item 3 factor structure gave better confirmatory results. The internal consistency coefficients for the subscales named “effort” (3 items), “dedication” (4 items) and “absorption” (4 items) were found to be .80, .79 and .75, respectively, and also the test re-test that was conducted with 3 week intervals provided very high reliability results.

In the other study, Çapri, Gündüz, and Akbay (2013) aimed to examine the predictive effect of burnout, work engagement and hopelessness points on life satisfaction points; they used the translation form of UWES adapted by Gündüz et al. (2013) to be used on workers. In order to make this translation of UWES applicable to the student population of the study, they made the same adjustment that Schaufeli, Martinez et al. (2002) did and replaced “work” with “study” and only analyzed factor structure. In the light of all these theoretical explanations and conducted research, considering that student burnout is an erosion of work engagement in the school setting, the psychometric characteristics of both the original 17 item UWES form and the short 9 item UWES form need to be applied and comparatively analyzed on the students in our country, and contributed to the literature. Thus, a valid and reliable measurement of students’ work engagement, who are in a very stressful developmental stage and are trying to overcome their responsibilities, can be completed and a buffer could be created to help them cope with their burnout. For this reason, the primary objective of this study, is to conduct the adaptation, validity and reliability studies of UWES-SF’s long (17 items) and short (9 items) forms and 3 factor analyses on the high school students of our country.

It is thought that the aforementioned measuring tools are not only contributing to field work, but also provide support in the exploration and understanding of academic procrastination and responsibility structures that are often researched in students’ academic lives. It was aimed with the scope of this study to create a model in examining the mediating effect of school engagement between academic procrastination and academic responsibility.

### **Work Engagement, Academic Procrastination and Academic Responsibility**

When you look at it from a psychological perspective, the basic activities of a student (attending class, mandatory activities such as completing assignments and goal based tendencies like passing exams) can be classified as “work” and mean the same as a “job” (Schaufeli & Taris, 2005). Students’ work engagement reaction to school/class tasks, is held as an important factor that contributes to their healthy development and academic success (Li & Lerner, 2011; Motti-Stefanidi & Masten, 2013; Taominen-Saoni & Salmela-Aro, 2013).

Students’ engagements with their class assignments are parallel to the workers’ engagements with their work. Students’ work engagement regarding school and class assignments consists of three dimensions; vigor (emotional), dedication (cognitive) and absorption (behavioral) (Salmela-Aro & Upadyaya, 2012; Schaufeli, Martinez et al., 2002). Within this frame, the “vigor” dimension of engagement means being energetic while studying; “dedication” means the student is applying themselves to their classes enthusiastically and finding their work meaningful. The “absorption”

dimension describes the situation where the student is concentrated at a maximum level and gets so involved with their studies that they lose track of time.

Every individual has choices that they need to make, work they need to undertake and responsibilities that they need to fulfil in their lifetime. The concept of responsibility is defined as “a person accepting the consequences of their own behavior or any event that falls under their jurisdiction” in the Turkish Language Society dictionary. Responsibility: is the personality trait that shows how much control and discipline a person has. People who are at the higher end of this dimension, are organized, determined people who act based on a plan. The people who are at the lower end of this dimension are described as careless, easily distracted and unreliable (Arthur & Graziano, 1996). Yalom (1999) describes a responsible person as someone who respects themselves and others, handles their own work in order not to be an unnecessary burden to anyone, realizes their own self-worth and holds themselves accountable for everything that is related to them. Academic responsibility is defined as; a students’ ability to identify their assigned tasks in the academic setting, define themselves in the academic field and their inner motivation to complete their tasks at the appropriate time frame (Akbat, Çapri, & Gündüz, 2013). Almost every individual postpones their activities or tasks and responsibilities that they need to complete to a further date for various reasons, in other words, they procrastinate (Reisinger & Brownlow, 1996; Senecal, Koestner, & Valerand, 1995). Procrastination is, generally, defined as “postponing, delaying or putting off of a task or decision to another time” (Haycock, McCarthy, & Skay, 1998, p. 317; Kachgal, Hansen, & Nutter, 2001, p. 14; Milgram, Mey-Tal, & Levinson, 1998, p. 297). Milgram and Tenne (2000) describe postponing of work to the last possible minute, delaying and avoiding the task or decision making, as a personality trait or a situational tendency. Ellis and Knaus (1977) define postponing behavior as the struggle in completing daily responsibilities due to a lack of organization and time management.

When the field literature regarding procrastination is examined, it can be seen that most of the studies were conducted on students and most were focused on academic procrastination, which is a type of procrastination. Senecal et al. (1995) define academic procrastination behavior as a person avoiding starting academic tasks until they feel a high level of anxiety. Ellis and Knaus (1977) define academic procrastination as preparing for an exam or completing a homework at the last possible minute. Rothblum, Solomon, and Murakabi (1986) define academic procrastination behavior as a two stage situation; postponing academic tasks most or all of the time and feeling anxiety due to the postponed task most or all of the time. As it can be understood from these descriptions, academic procrastination is not only delaying a task but also experiencing the stress and anxiety due to that delay (Akbat, 2009).

It is observed that when the definitions of academic procrastination and academic responsibility were made, they were not thought of as being separate from each other. Coming from the definitions made for both of these concepts; the conviction that a person needs to be more disciplined, more planned, more decisive and namely be more responsible to reduce academic procrastination behavior, can be made. Research findings also show that there is a negative relationship between academic procrastination and responsibility (personal trait) (Çelikkaleli & Akbay, 2013; DiazMorales, Cohen, & Ferrari, 2008; Johnson & Bloom, 1995; Lee, Kelly, & Edwards, 2006; Watson, 2001).

When looked at from this frame, it is expected that students with higher academic engagement levels will show more responsible behavior and less academic procrastination. According to Wonglorsaichon, Wongwanich, and Wiratchai (2014), a student's engagement with their class assignments have an important role in their learning process and success. Students with higher levels of engagement also have more school devotion and don't have attendance problems. Studies show the results of engagement and it's predictive effect in students' academic achievements, positive sense of self and well-being (Li & Lerner, 2011; Salmela-Aro & Upadyaya, 2012; Şirin & Rogers-Şirin, 2005; Taominen-Saoni & Salmela-Aro, 2013).

The high school period, where profession selections have not been made yet, represents a critical stage in a person's life. In this stage, students face major responsibilities such as making decisions to shape their future, creating a course of action and academic plans for their chosen profession and university which should be based on their performance and talents, and following through with these plans. It is stated that as a result of not creating developmental, preventative and fixative solutions to these problems, the academic failure rate of students are increasing and the youth is facing serious time and economical loss (Türküm, 2007). It is thought that the mediating role of engagement between procrastination and responsibility should be examined, since engagement is related to both academic responsibility and academic procrastination, along with many other fields in the school that are related to the students. When it is considered from a life assignment angle, student life and in particular high school can be looked at as a crossroads where decisions that can affect a person's academic, occupational and personal life is made. It is personally and socially expected that responsible behaviors increase and procrastination behaviors decrease in this process. Therefore, it can be educationally, personally and professionally beneficial for students, to study variables that can affect both of these parameters. Since academically responsible individuals will be more engaged with their school related assignments, it is thought that they will have a lesser tendency towards academic procrastination. This research model that was created based on this hypothesis, was not encountered in any national or international literature. It can be

expressed that this research model, which will be tested in the scope of the secondary objective of this research, will be useful for this field. The acquired findings will be able to shed light on new research, which will support the newly researched areas of student burnout and work engagement, which will help achieve the individual's, schools' and society's general expectations from a student - which is academic well-being. It can also be said that the acquired findings will support school based psychological counselling and educational and personal guidance studies. Starting from this point, the secondary objective of the study is to examine the mediating role of work engagement between academic procrastination and academic responsibility in high school students.

## Method

### Research Model

The primary goal of this study is to complete the adaptation, validity and reliability studies of the long (17 items) and short (9 items) forms of UWES-SF, developed by [Schaufeli, Martinez et al. \(2002\)](#). The secondary goal of this study is to study the mediating role of work engagement between academic procrastination and academic responsibility in high school students. This study which is conducted in line with the two objectives, have a descriptive research quality in the scanning model.

### Study Group

To create the study group, data was collected from a total of 700 volunteer high school students enrolled in various types of high schools in the Mersin area for the academic year of 2013-2014, who were chosen by the simple randomized sampling method. The data of 23 students, 14 girls and 9 boys, were excluded because their personal information or scale forms were incomplete. On the other hand, in order to examine the single variable and multivariable normality assumptions of the remaining data and to determine the outliers; distortion values, z scores and Mahalanobis distance coefficients were checked, the data of 48 girls and 32 boys, a total of 80 students were excluded from evaluation. In light of these results, the study group consisted of 339 girls (56.8%) and 258 boys (43.2%), for a total of 597 students. 264 were in Year 9 (44.2%), 183 were in Year 10 (30.7%), 87 were in Year 11 (14.6%) and 63 were in Year 12 (10.6%). Out of the students whose age range varied between 13 and 21, 125 (20.9%) were enrolled in regular high school, 145 (24.3%) were enrolled in occupational high school, 152 (25.5%) were enrolled in Anadolu high school and 47 (7.9%) were enrolled in a science high school.

## Data Collection Tools

**Utrecht Work Engagement Scale-Student Forms (UWES-SF).** The original UWES-SF form, developed by [Schaufeli, Martinez et al. \(2002\)](#) is a seven graded *Likert* type scale consisting of 17 items and three subscales. The “Vigor [I]” subscale consists of 6 items (1, 4, 8, 12, 15, 17), “Dedication [D]” consists of 5 items (2, 5, 7, 10, 13) and the “Absorption [A]” subscale consists of 6 items (3, 6, 9, 11, 14, 16). The scale items were scored as “0 - Never” and “6-Always”. During scoring, a total point and subscale points can be acquired for each person. As the score increases, work engagement is increased. The short UWES-SF form with 9 items, developed by [Schaufeli and Bakker \(2004\)](#) has three subscales with 3 items each. The scoring and evaluation of the short scale is the same as the original scale, and the internal consistency coefficients for the subscales of the short form are .73, .76 and .70 respectively, while the coefficient for the total scale is measured as .84. In this adaptation study, a 5 level grading (never, sometimes, occasionally, usually, always) was adapted for both scaling tools, for the same reasons that are mentioned for the MBI-SF. Within the scope of this study, the internal consistency coefficients for the subscales and total of the long (17 items) form were observed between .79 and .93; while the internal consistency coefficients for the subscales and total of the short (9 items) form varied between .72 and .88.

**Maslach Burnout Inventory-Student Form (MBI-SF).** The “Maslach Burnout Inventory-Student Form” (MBI-SF) developed by [Schaufeli, Martinez et al. \(2002\)](#) and adapted to Turkish, and studied for validity and reliability by [Çapri, Gündüz, and Gökçakan \(2011\)](#) was used in the study. MBI-SF, which is an adaptation of Maslach Burnout Inventory-General Form ([Schaufeli, Leiter, Maslach, & Jackson, 1996](#)) aimed at students, consists of 13 items and 3 subscales. The Exhaustion [EX] subscale has 5 items, Cynicism [CY] and Efficacy [EF] subscales have 4 items each. The scale items are scored in the style of “1 never” and “5 always”. A high score in the exhaustion and cynicism subscales and a low score in the efficacy subscale (it is scored inversely) shows burnout. In scoring, three different burnout points are calculated for each person. [Ergin \(1992\)](#) who previously translated the Maslach Burnout Inventory (MBI) developed by [Maslach and Jackson \(1981\)](#) for people who work in environments where they are face to face with people, has stated that the 7 grade scoring style is not appropriate for Turkish culture. For this reason, a 5 grade scoring (never, sometimes, occasionally, usually, always) was adopted. The Cronbach Alpha internal consistency coefficients that were calculated to determine the reliability of the scale was found as .76, .82 and .61, respectively, while the test-retest reliability results were found as .76, .74 and .73, respectively. Within the scope of this research, the Cronbach Alpha reliability coefficients of the scale were calculated as .76, .80 and .64, respectively.

**Academic Responsibility Scale (ARS).** The scale, developed by Akbay et al. (2013) consists of 25 items. It is a 5 grade *Likert* type scale. The lowest possible achievable score is 25 and the highest possible score is 125. The Cronbach  $\alpha$  coefficient for the total scale was found to be .91. The item total test correlations for the points received from each question of the scale and for the total score was said to vary between .41 and .62. The increase in scores mean that the individuals are showing academically responsible behavior. The internal consistency of this scale was found to be .94 in this study.

**Academic Procrastination Scale (APS).** The APS, developed by Çakıcı (2003) has 12 negative and 7 positive items, a total of 19 items. It is a 5 grade *Likert* type scale, and it is scored in a single directional way that if a person says “it doesn’t reflect me at all” to an item involving academic procrastination they receive 1 and if they say “it reflects me completely” they receive 5 points. The lowest possible achievable score is 19 and the highest possible score is 95. A high score received from this scale shows that a student is an academic procrastinator. The Cronbach Alpha coefficient for the 1st factor of the scale is .84. The Cronbach Alpha reliability coefficient for the entire academic procrastination scale is .92. Test-retest correlation coefficient of the APS was found to be .89, calculated after applying it to 65 high school students with a 17 day interval. The test-retest reliability coefficient for the 1st factor was calculated as .80 and for the 2nd factor as .82. Within the scope of this study, the Cronbach Alpha reliability coefficient for the total scoring of the scale was found to be .82. The academic procrastination scale was used single dimensionally in this study.

**Personal Information Form.** This form was created by the researchers to receive the sex, age, school grade level and high school type information of the students that are a part of the study group.

### Data Analysis

After the data collection process was finished, the acquired data was prepared to be used by the computer to conduct appropriate statistical applications. Confirmatory factor analysis (CFA) was used in order to investigate the factor structure of UWES-SF, which forms the primary objective of the study. CFA was conducted using Lisrel 8.71 (Jöreskog & Sörbom, 2004). Maximum Likelihood (ML) method was used in the analyses. In order to evaluate the adaptation quality of the model, various adaptation index criteria was used. The oldest and most commonly used statistics regarding model-data adaptation with CFA is  $\chi^2$  (chi-square).  $\chi^2$  adaptation statistics is sensitive to the sample size, and causes problems especially with samples with more than 250 members. In order to eliminate this problem, using other adaptation indexes along with  $\chi^2$  is recommended (Bentler, 1990). In this direction, commonly

used adaptation indexes like  $\chi^2/sd$ , GFI (Goodness of fit index; Jöreskog & Sörbom, 1981), AGFI (Adjusted goodness of fit index; Jöreskog & Sörbom, 1981), RMSEA (Root mean square error of approximation; Steiger & Lind, 1980), CFI (Comparative fit index; Bentler, 1990), RMR (root mean square error of approximation), SRMR (Standardized root mean square error of approximation) were used. For  $\chi^2/sd$  a value of 3 or lower shows good adaptation, and values up to 5 show sufficient adaptation (Kline, 1998; Marsh, & Hocevar, 1988). It is acceptable for the GFI, AGFI and CFI values to be over .90, if it is over .95 it is said to be well adapted (Hu & Bentler, 1999; Schermelleh-Engel, Moosbrugger, & Müller, 2003). On the other hand RMSEA, RMR and SRMR index values below .05 points to very close model data adaptation; up to .08 is acceptable adaptation; and  $\geq .10$  shows poor model data adaptation (Browne & Cudeck, 1993; Schermelleh-Engel et al., 2003). The correlation values between the subscales of Maslach Burnout Index-Student Form (MBI-SF), whose adaptation study was completed by Çapri et al. (2011) to determine the criterion related validity of the scales, and the UWES-SF observed and hidden variables were calculated using *Pearson* moment correlation coefficient. Cronbach Alpha coefficient was used to determine internal consistency reliability coefficients; inter-item correlation and total-item correlation was calculated to determine item validity and homogeneity. Criteria was set as .70 and above for Cronbach Alpha coefficients and .40 and above for item total test correlations (Nunnally & Bernstein, 1994). In addition to this, t-test was used to see if the scale points varied based on gender and *Pearson* moment coefficient was calculated to determine the relationship between the variables, age and perceived success. To examine “the mediating role of work engagement between academic procrastination and academic responsibility in high school students” as the secondary objective of the study, a multi regression analysis was used in data interpretation. The mediating effect was done according to the model recommended by Baron and Kenny (1986). The assumptions of the multiple regression analysis were tested before data analysis. A normal and linear spread of the data was observed after testing.

## Findings

Findings related to the primary objective of the research are included in this section.

### Translation Studies Regarding the Scales

The translation study of UWES-SF original long (17 items) and short (9 items) was carried out in two phases. Firstly the scales were translated to Turkish and afterwards a translation reliability study was conducted. In the first phase, the items in the English original version of the scale were translated to Turkish by the researchers and 9 experts working in the fields of Psychological Counselling and Guidance, and English Education. The experts were asked to remain faithful to the original text and

to be understandable by our society, they completed these translations separately and the translated texts were evaluated together to choose the best possible translation for each item. Afterwards, this form was presented to the opinion of 3 experts in the field of Turkish Education, for them to evaluate the use of grammar and language rules. Lastly, the researchers controlled the items and gave them their final state, this is how the Turkish forms became ready to be used in research. In the second phase, in order to provide evidence for the translation reliability and to determine the equivalence of the Turkish forms, 45 4th year English Teaching students were subjected to the Turkish and English forms with a 3 week interval. The correlation coefficient for the points acquired by this application is .78 for the long form (17 items) and .76 for the short form (9 items). To conclude, the high correlation between the results of the Turkish and English UWES-SF forms was accepted as an evidence to the appropriate translation and reliability of the Turkish scale.

**Validity Studies Regarding the Scales**

**Structure validity.**

**Confirmatory Factor Analysis.** Confirmatory factor analysis (CFA) was used in order to investigate the single and three factor structure of UWES-SF’s long (17 items) and short (9 items) forms which were subjected to adaptation studies. Model adaptation index according to UWES-SF confirmatory factor analysis results are presented in Table 1.

Table 1  
*Model Adaptation Index According To UWES-SF Confirmatory Factor Analysis Results*

Scales	Analysis	$\chi^2$	sd	$\chi^2/sd$	GFI	AGFI	RMSEA	NFI	NNFI	CFI	SRMR
UWES-SF-Long Form (17 Items)	1 Factor	463.09	119	3.89	.92	.89	.070	.97	.98	.98	.039
	1 Factor (Modified)	395.13	118	3.34	.93	.91	.063	.98	.98	.98	.037
	3 Factor	459.85	116	3.96	.92	.89	.071	.97	.98	.98	.039
	3 Factor (Modified)	387.74	115	3.37	.93	.91	.063	.98	.98	.98	.036
UWES-SF-Short Form (9 Items)	1 Factor	151.55	27	5.61	.95	.91	.088	.97	.96	.97	.040
	1 Factor (Modified)	85.97	26	3.30	.97	.95	.062	.98	.98	.99	.031
	3 Factor	86.96	24	3.62	.97	.94	.066	.98	.98	.99	.035
	3 Factor (Modified)	75.34	23	3.27	.97	.95	.062	.98	.98	.99	.029

When the unmodified analysis findings regarding the confirmatory factor analysis are examined, it is seen that every result except the UWES-SF short form (9 items) single factor analysis points to acceptable confirmatory results. When the single factor analysis of UWES-SF short form (9 items) is observed, the  $\chi^2/sd$  value which was expected to be between 3-5 is found to be a little higher than the acceptable level.

On the other hand, since the  $\chi^2/sd$  value is sensitive to sample size, it is expressed that it needs to be evaluated along with other adaptation indexes (Bentler, 1990; Jöreskog and Sörbom, 2004) therefore the other values were looked at as well. Even though the RMSEA value seems to show a poor adaptation with a value slightly over .08, the AGFI value is acceptable, and the GFI, NFI, NNFI, CFI and SRMR values all show good adaptation levels. In this situation, considering all of the acquired model adaptation indexes, it can also be thought that the UWES-SF short form (9 items) single factor analysis is also on acceptable confirmatory levels. On the other hand, when the recommended modifications are observed, one modification that provides enough correction for every analysis and fits the theoretical environment stands out. The error variants in items 1-4 were associated with this modification. These items, which are theoretically under the same sub factor, were seen to have almost the same expression and therefore presented to experts to get their opinion. After getting the approval of field experts, the suggested modification was made and after the acquisition of values from the model adaptation index, the rise of every value into good and valid levels for UWES-SF long (17 items) and short (9 items) forms were observed. Based on these results, it can be said that the UWES-SF long (17 items) and short (9 items) forms have sufficiently high levels of structural validity and the scales' single factor and three factor structures are both confirmed.

UWES-SF's correlation values between observed and hidden variables; inter item correlation and item total correlation values; sex, age, perceived academic success and Cronbach Alpha internal consistency coefficients are presented in Table 2.

Table 2  
 UWES-SF's Correlation Values Between Observed and Hidden Variables; Inter Item Correlation and Item Total Correlation Values; Sex, Age, Perceived Academic Success and Cronbach Alpha Internal Consistency Coefficients

Scales		1	2	3	Sex	Age	PAS	CBHV	IIC	ITC	Cronbach Alpha
UWES-SF-Long Form (17 Items)	1. UWES-SF	1			-	.06	.37**		.22-.63	.93	.93
	2. Vigor	.94**	1		-	.06	.35**		.34-.61	.83	.83
	3. Dedication	.92**	.79**	1	-	.04	.35**	.97	.29-.58	.79	.79
	4. Absorption	.95**	.83**	.80**	-	.05	.35**	1.00 .99	.30-.58	.83	.83
UWES-SF-Short Form (9 Items)	1. UWES-SF	1			-	.03	.36**		.32-.62	.88	.88
	2. Vigor	.85**	1		-	.06	.28**		.38-.61	.72	.72
	3. Dedication	.91**	.66**	1	-	.03	.34**	.89	.45-.51	.74	.74
	4. Absorption	.90**	.63**	.74**	-	.003	.35**	.81 1.00	.44-.58	.74	.74

\* $p < .05$ , \*\* $p < .01$  (PAS: Perceived Academic Success; CBHV: Correlation Between Hidden Variables; IIC: Inter Item Correlation; ITC: Item-Total Correlation).

When Table 2 is observed, it stands out that both the long (17 items) form and short (9 items) form of the UWES-SF has high levels of significant positive correlation for the total and subscales. While the values of observed inter item correlations for the long form (17 items) of the UWES-SF varied between .79 and .83, the hidden inter

item correlation values varied between .97 and 1.00. At the same time, it must be noted that the inter item correlation and item total correlation values for the UWES-SF long form (17 items) are significant. On the other hand, for the short form (9 items) of UWES-SF, the observed inter item correlation varied between .63 and .74, while the hidden inter item correlation varied between .81 and 1.00. The inter item correlation and item total correlation values for the UWES-SF short form (9 items) were found to be significant. The fact that the values for both the long and short forms have high correlation and significance, means that the three related sub factors are the sub factors of the work engagement structure.

Also, based on theoretical explanations, both the long (17 items) and short (9 items) form of UWES-SF was examined regarding the variables sex, age and perceived success, in order to provide evidence of the validity of the scales. When the results in Table 2 are observed, it can be seen that related to sex, no significant difference was calculated on any value for both long (17 items) and short (9 items) form of UWES-SF; no significant difference was observed related to age either. However, the short form (9 items) of UWES-SF in regards to perceived academic success, showed a low level significant relationship to the subscale of vigor and a medium level significant relationship with all the other total and subscales.

**Criterion related validity.** In order to conduct the criterion related validity study of both the long (17 items) and short (9 items) forms of the UWES-SF, the “Maslach Burnout Inventory-Student Form” whose Turkish adaptation, validity and reliability studies were conducted by Çapri et al. (2011) and the results are given in Table 3.

Table 3  
Correlations Between UWES-SF Points and MBI-SF Points

Scales		Exhaustion	Cynicism	Efficacy*
UWES-SF-Long Form (17 Items)	1. UWES-SF	-.37**	-.40**	-.60**
	2. Vigor	-.39**	-.38**	-.56**
	3. Dedication	-.32**	-.39**	-.56**
	4. Absorption	-.31**	-.35**	-.55**
UWES-SF-Short Form (9 Items)	1. UWES-SF	-.37**	-.39**	-.59**
	2. Vigor	-.38**	-.33**	-.48**
	3. Dedication	-.34**	-.39**	-.56**
	4. Absorption	-.27**	-.31**	-.52**

\*\* $p < .01$ .

\* Efficacy subscale is given points inversely.

When we look at Table 3, a low level significant relationship between the MBI-SF subscales and the UWES-SF short form (9 items) subscales; and a medium level significant relationship between all the other total and subscale points in the negative direction was observed. When the acquired correlation values are observed, it stands out that the highest correlation points between both the long form (17 items) and the short

form (9 items) were observed with efficacy subscale (between -.48 and -.60), followed by cynicism (between -.31 and -.40) and exhaustion (between -.27 and -.39) subscales.

**Reliability Studies Regarding the Scales**

**Internal consistency reliability coefficient.** Cronbach Alpha coefficient was used to determine internal consistency reliability coefficients of UWES-SF long form (17 items) and short form (9 items) and the results are presented in Table 2. When the results in Table 2 are checked, it is seen that every result acquired from the UWES-SF long (17 items) and short (9 items) forms are over .70, which was accepted as the criterion. While the internal consistency coefficients of the long form (17 items) for total and its' subscales, were observed to vary between .79 and .93, the internal consistency coefficients of the short form (9 items) for total and its' subscales were observed to have values between .72 and .88.

Findings related to the secondary objective of the research are included in this section.

**Regression Analysis Results Regarding the Prediction of the Mediating Role of Work Engagement Between Academic Procrastination and Academic Responsibility**

The relationship between the variables of this study in which the mediating role of work engagement between academic procrastination and academic responsibility was predicted, and the mean and standard deviation values of the variables are given in Table 4.

Table 4  
*The Correlation Coefficients between Variables and the Arithmetic Mean and Standard Deviation Values Regarding the Variables*

Variables	Mean	Sd	$\alpha$	1	2	3
1. Academic Responsibility	78.71	14.08	.94	1		
2. Work Engagement	42.78	14.30	.93	.57**	1	
3. Academic Procrastination	54.38	12.41	.82	-.47**	-.52**	1

\*\* $p < .01$  and \* $p < .05$ .

When Table 4 is examined, it can be seen that there is a significant positive relationship between academic responsibility and work engagement ( $r = .57, p < .01$ ) and there is a significant negative relationship between academic responsibility and academic procrastination ( $r = -.47, p < .01$ ). Along with this, it was determined that there is a significant negative relationship between work engagement and academic procrastination ( $r = -.52, p < .01$ ). The internal consistency coefficients of the variables are between .82 and .94. The regression analysis to predict the mediating role or work engagement between academic procrastination and academic responsibility in high school students, were carried out in three steps as [Baron and Kenny \(1986\)](#) suggested. The results of the analysis are shown in Table 5.

Table 5  
*Regression Analysis Results Regarding the Prediction of the Mediating Role of Work Engagement Between Academic Procrastination and Academic Responsibility*

Steps of Variable Mediator Test		$\beta$	<i>Sh</i>	$\beta$	<i>t</i>	<i>p</i>
Step 1						
Academic Responsibility (P)	Academic Procrastination (C)	-.42	.03	-.47	-13.02	.00**
R= .47, R <sup>2</sup> = .22, F= 169.52						
Step 2						
Academic Responsibility (P)	Integration with work (C)	.57	.04	.56	16.31	.00**
R= .56, R <sup>2</sup> = .31, F= 266.03						
Step 3						
Academic Responsibility (P)	Academic Procrastination (C)	-.23	.04	-.26	-6.48	.06
Integration with work (M)	Academic Procrastination (C)	-.32	.07	-.37	-9.13	.00**
R= .56, R <sup>2</sup> = .32, F= 138.12						

\*\**p* < .01 and \**p* < .05. (P) = Predictor, (M) = Mediator (C) = Criteria, Defendant Variable.

In the first step of Table 5, academic responsibility is decreasing academic procrastination ( $B = -.42, \beta = -.47, p < .001$ ) and explains 22% of the variance. In the second step, academic responsibility is increasing work engagement ( $B = .57, \beta = .56, p < .001$ ) and explains 31% of the variance. In the third step, work engagement which was determined as the mediating variable, is shown to decrease academic procrastination behavior ( $B = -.32, \beta = -.37, p < .001$ ). Work engagement and academic responsibility together explain 32% of the variance, and this variance can be interpreted as the major effect value (Cohen, 1988). It is also in the results that, when academic responsibility is taken with the mediating variable work engagement, it does not significantly predict academic procrastination ( $B = -.23, \beta = -.26, p > .05$ ). The decrease or disappearance of the significance of the predicting variable, which previously existed between the predictor and the predicted variables, when analyzed together with the mediating variable is the final criterion that the variable has a mediating effect. Therefore, it can be said that in this study the mediating effect of work engagement between academic responsibility and academic procrastination is complete.

On the other hand when Table 5 is examined, while academic responsibility is increasing work engagement levels; the increase in work engagement levels is decreasing academic procrastination behavior ( $B = .57*-.32 = -.18, Sobel z = -4.35, p = .00$ ). This effect can also be interpreted in the following way; for every 1 point increase in academic responsibility, work engagement points increase for .57 and -.32 of this increase affects academic procrastination behavior. It can be said that the indirect effect of academic responsibility on academic procrastination is  $(.57*-.32) -.18$ .

## Discussion

In the direction of the primary objective of this study, which was to conduct the adaptation, validity and reliability studies of UWES-SF's long (17 items) and short (9 items) forms and 3 factor analyses on the high school students of our country; the findings regarding the adaptation, validity and reliability studies showed that both of the forms had sufficient levels of valid and reliable qualities and that both single factor and three factor structures were confirmed. It can be said that the acquired results are consistent with some local (Çapri et al., 2013; Kutsal, 2009) and international (Schaufeli & Bakker, 2004; Schaufeli, Martinez et al., 2002; Schaufeli, Salanova et al., 2002) research findings in the literature.

Similarly, it attracts attention that the internal consistency coefficients for all forms of UWES-SF were above .70, which was accepted as the criterion; and high levels of correlation seen between hidden and observed variables are parallel with similar studies in literature (Kutsal, 2009; Schaufeli & Bakker, 2004; Schaufeli, Martinez et al., 2002; Schaufeli, Salanova et al., 2002).

In addition to this, in the context of the criterion related validity study of the scale, negative directional statistically significant relationships were found between the MBI-SF subscales, adapted by Çapri et al. (2013) and the UWES-SF subscales, the values for the long form are between -.31 and -.60; and for the short form between -.27 and -.59. These acquired results can be seen as similar to the results of the study where a significant relationship between UWES-SF and MBI-SF was found in the context of criterion related validity studies (Çapri, et al., 2013; Kutsal, 2009; Schaufeli & Bakker, 2004; Schaufeli, Martinez et al., 2002; Schaufeli, Salanova et al., 2002) and can be said to support the theoretical explanation that work engagement is the positive opposite of burnout. On the other hand, while the vigor and dedication subscales were expressed as the main dimensions of work engagement; exhaustion and cynicism were expressed as the main factors of burnout (Maslach, Schaufeli, & Leiter, 2001; Schaufeli & Bakker, 2004), the efficacy subscale was said to reflect a more personal quality rather than burnout (Cordes & Dougherty, 1993, as cited in Schaufeli & Salanova, 2007), and the absorption subscale was said to be a result of these main factors (Langelaan et al., 2006). The fact that the highest correlation values with the UWES-SF forms were found between the efficacy subscale, and that a higher level of correlation than expected was observed between the main dimensions of both burnout and work engagement suggest that there is a need for new and more in depth studies regarding this variable.

Also in some studies where second stage factor model was used (Salanova et al., 2000; Schaufeli & Bakker, 2004; Schaufeli et al., 2008; Schaufeli, Salanova et al., 2002) it was reported that the efficacy subscale combined with the 3 subscales of

work engagement to form one factor, and the exhaustion and cynicism subscales combine to form the other factor, bringing about a two factor structure. In this situation, researchers who are planning new studies in this field need to consider the limits of the efficacy subscale in this regard and should test it by using research models that will shed light on its' role in work engagement and exhaustion structures.

On the other hand, based on theoretical explanations, the results collected from sex, age and perceived academic success variables to provide evidence for the validity of every form of UWES-SF, show similarities with the results in relevant literature. Even though the points that male students got from every UWES-SF form were slightly higher than the points of female students, there were no significant difference between the sexes and this was found to be consistent with the results of [Schaufeli and Bakker \(2004\)](#). Similarly, as a result of not reaching significant correlation with the age variable and every UWES-SF form; this differs from the research results where it is reported that there is a slight positive correlation between age and work engagement, and work engagement increases with age ([Schaufeli & Bakker, 2004](#); [Schaufeli, Salanova et al., 2002](#)). On the other hand, the medium level positive correlation values between almost every UWES-SF total and subscale points (with the single exception of low level between the short form's vigor subscale) and perceived academic success, is similar to the results of the research conducted by [Schaufeli, Salanova et al. \(2002\)](#) in 3 different country samples and reported a low correlation regarding academic success. However, it attracts attention that the effects of socio-demographic variables like sex, age and academic success on work engagement have not been adequately research in national or international literature. It would be beneficial if future research in this field includes qualitative and quantitative methods that could point out the effects of these socio-demographic variables along with in-depth studies using experimental and structural models.

The confirmatory results achieved by the single factor and 3 factor analysis of both the long (17 items) and short (9 items) forms, high correlation values between observed and hidden variables, high inter item and total item correlation coefficients with internal consistency results and significant correlation results with similar scales show that Turkish forms of the UWES-SF can be used in a valid and reliable way on the high school students within the country. For future research, using the UWES-SF on students who are attending different kinds of high schools than the ones worked on in this study, would be beneficial to the psychometric characteristics of the scale forms. Also, using different forms of the UWES-SF can be helpful to identify the levels of work engagement needed to support students in various levels of education deal with the stress and exhaustion brought about by the education system and exams in our country. In addition to this, it is considered that UWES-SF's different forms can be used to assist professionals in support professions, like psychological counsellors,

psychologists and psychiatrists, in identifying students with poor work engagement and developing experimental patterns to improve it.

In accordance with the study's secondary objective, the mediating role of work engagement between academic procrastination and academic responsibility in high school students were examined. Based on the correlation results of the study, a positive relationship between academic responsibility and work engagement; and a negative relationship between academic procrastination and academic responsibility was found. Similarly, a negative directional relationship was determined between work engagement and academic procrastination. As a result of the regression analysis conducted within the frame of the study, it was seen that work engagement is an agent variable between academic procrastination and academic responsibility.

Even though a study showing a positive relationship between academic responsibility and engagement was not encountered, it can be stated that this was an expected result. Structural similarities can be observed between academic responsibility, which is seen as the internal motivation one has to complete academic tasks on time (Akbay et al., 2013) and engagement, which is defined as the pleasure taken while completing responsibilities at school, mental and physical participation and volunteering. Due to the description of the variables, the increase in engagement when responsibility increases can be seen as normal.

Similarly, even though a study showing the negative relationship between academic procrastination and engagement was not encountered, starting from the theoretical knowledge that engagement is the polar opposite of burnout, Balkis (2013) has emphasized a positive directional relationship between the tendency for academic procrastination and burnout. Therefore, since an increase in an individual's tendency for academic procrastination leads to an increase in their level of exhaustion, it can be derived that there might be a negative relationship between academic procrastination and work engagement.

In addition to this, the negative relationship finding between academic responsibility and procrastination supports many studies (Çelikkaleli & Akbay, 2013; DiazMorales et al., 2008; Johnson & Bloom, 1995; Lee et al., 2006; Watson, 2001). It is a confirmed result that students with high responsibility, tend to not procrastinate on their work and complete their tasks on time. In a similar fashion, the negative relationship between engagement and academic procrastination is an expected result. In other words; the negative directional relationship between students who postpone their academic duties until they feel high levels of anxiety and then try to finish them at the last minute (Ellis & Knaus, 1977; Senecal, Koestner, & Vallerand, 1995), and students who focus on their studies with a high mental attention and energy and get so absorbed in their studies that they lose track of time (Salmela-Aro & Upadyaya, 2012; Schaufeli, Martinez et al., 2002) is a thought to be normal.

The concepts of academic responsibility, engagement and academic procrastination can be seen as the product of works to improve students' adaptation, efficiency and success. Many research findings on academic success and academic responsibility, procrastination and engagement (Gonida, Voulala, & Kiosseoglou, 2009; Wang & Eccles, 2013; Wonglorsaichon et al., 2014) have shown this.

When the field literature was investigated, studies on the relationship between work engagement and academic responsibility and academic procrastination were not encountered. Without a doubt, it can be said the fact that studies on students' work engagement is only recently being conducted is contributing to this. In this regard, this study is supporting the literature by providing new findings in understanding students' academic process.

Even though there are not any studies on the relationship between engagement, responsibility and procrastination, many studies can be found on the predictive effect of work engagement on students' academic success. For example, there are studies that show the results of engagement and its predictive effect in students' academic achievements, positive sense of self and well-being (Li & Lerner, 2011; Pietarinen, Soini, & Pyhältö, 2014; Salmela-Aro & Upadyaya, 2012; Şirin & Rogers-Şirin, 2005; Taominen-Saoni & Salmela-Aro, 2013). Based on these findings, the conviction that an individual's readiness level is very important in the increase of work engagement, and that an individual who is engaged with their work will be academically more efficient and successful, can be reached.

As it is expressed above, since the mediating model put forward by this study is a new situation, this study is contributing to the field. Even though there are many studies where the negative relationship between responsibility and procrastination, but the topic of factors that contributes or will contribute to this is also important. The finding of the mediating role of work engagement between academic procrastination and academic responsibility will shed light to future research. In other words, it can be said that the students' whose academic responsibility increase, will also show an increase in work engagement and a decrease in academic procrastination behavior. Starting from this point, it is thought that by school based personal and group psychological counselling, the academic responsibility and therefore work engagement of students can be increased, and academic procrastination behavior can be decreased.

Based on these results, experimental studies where the academic responsibility of the students are increased in the framework of school psychological counselling may be appropriate. When the work engagement, academic procrastination and academic responsibility relationship is considered, similar experimental patterns may also be appropriate for developing engagement structures. In order to understand students' academic behaviors, procrastination, responsibility and engagement variables were

examined and a model was put forward. Without a doubt, there are other variables related to academic activities. It could be beneficial for the field, if research after this include, along with the variables from this study, burnout in students, academic success and teacher-family support.

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