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Psychometric Properties of Spanish Version Student Utrecht Work Engagement Scale (UWES–S–9) in High-school Students

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Abstract. The Utrecht Work Engagement Scale (UWES) is a self-report instrument widely used, both in the original and its abbreviated version of nine items, to assess the work -UWES, UWES–9– and academic engagement -UWES-S, UWES–S–9–. The present study examines factor structure of the UWES–S–9 using confirmatory factor analysis (CFA), its convergent validity and invariance across sex and age groups in a sample of 626 Spanish high school students. The results support an unidimensional conceptualization of engagement (S-Bχ^2/df = 5.29; CFI = .96; NNFI = .94; RMSEA = .083; IFI = .96; AIC = 82.21; BIC = 267.38), revealed an essentially invariant structure of the UWES–S–9 across the sex, ΔS-B$\chi^2_{(\Delta 6)}$ = 10.67; $p \leq .05$, and age, ΔS-B$\chi^2_{(\Delta 7)}$ = 9.67; $p \leq .05$, and confirmed the positive association between academic engagement and achievement (r = .30; $p \leq .001$), dispositional optimism (r = .21; $p \leq .001$), and subjective well-being (r = .16; $p \leq .001$), and the negative association with perceived stress (r =. –13; $p \leq .001$). In short, the Spanish version of UWES–S–9 is presented as a brief, reliable and valid tool to measure academic engagement in high school students (α = .91, AVE = .52, Ω = .911).

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Schaufeli, Salanova, González-Romá, and Bakker (2002) define engagement as a positive, fulfilling, and work-related state of mind that is characterized by *vigor*, *dedication* and *absorption* and developed the Utrecht Work Engagement Scale (UWES) to evaluate this construct. The instrument is composed of 17 items grouped into three subscales corresponding to engagement's components: high levels of energy, persistence and effort during the job (vigor, 6 items); involvement in one's job and a sense of enthusiasm, inspiration, pride and challenge (dedication, 5 items), and concentration and immersion levels experienced on one's work (absorption, 6 items). Subsequent psychometric analysis showed inconsistent two items which disappeared in a revised 15-item version (UWES–15) (Demerouti, Bakker, de Jonge, Janssen, & Schaufeli, 2001). Later, Schaufeli, Bakker, and Salanova (2006) constructed a nine-item short version (UWES–9), with only three items by dimension.

The UWES has been the most widely used instrument to assess engagement in work context. It has been analyzed in different samples and adapted to several languages; among other: Dutch (Schaufeli & Bakker, 2003), Spanish (Schaufeli & Bakker, 2003), Italian (Balducci, Fraccaroli, & Schaufeli, 2010), and Chinese (Fong & Ng, 2012).

Consistently with the theory of work engagement (Schaufeli & Salanova, 2007), previous research has focused on job and personal predictors, and outcomes of this construct (Bakker, Schaufeli, Leiter, & Taris, 2008). The available evidence regarding to personal resources shows, for example, those variables as resilience, self-efficacy, and optimism facilitate work engagement (e.g. Barkhuizen, Rothmann, & van de Vijver, 2013). Research also supports the link between work engagement and positive outcomes as job performance (e.g. Balducci et al., 2010) and negative outcomes such as poor mental health (e.g. Fong & Ng, 2012).

The results regarding the factor structure of the scale are, however, inconsistent. Several studies support the original three-factor structure in both the UWES–17 and UWES–9 (e.g. Hernández Vargas, Llorens Gumbau, Rodríguez Sánchez, & Dickinson-Bannack, 2016; Petrović, Vukelić, & Čizmić, 2017). Other authors find

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support for a two-factor structure, in which vigor and absorption are grouped into one factor (Christian & Slaughter, 2007). Some studies conclude that the UWES can be most accurately and parsimoniously represented as a unidimensional construct (e.g. Vallières, McAuliffe, Hyland, Galligan, & Ghee, 2017; Vazquez, Magnan, Pacico, Hutz, & Schaufeli, 2015). Finally, other authors (e.g. Lovakov, Agadullina, & Schaufeli, 2017; Rodríguez-Montalbán, Sánchez-Cardona, & Martínez-Lugo, 2014) support the good fit of both, one-factor and three-factor structures of the scale, defending that the overall score and subscale scores can be used according to the aim of the research. Concretely, Schaufeli et al. (2006) suggest the use of a single indicator of the UWES–9 in regression analysis to avoid the problem of multicollinearity caused by the high correlation between its subscales; and also using the value of these –vigor, dedication and absorption- as indicators of the latent factor of work engagement when testing structural equation models. However, to date, the fit of a hierarchical model with a second order level representing a combination of all elements and including three or alternatively two first-order factors has not yet been explored.

The original scale has been modified in order to adapt it to the academic environment, giving rise to the UWES-S (Schaufeli & Bakker, 2003). This instrument has been also adapted to various languages; among other: Spanish (Benevides-Pereira, Fraiz de Camargo, & Ponto-Martins, 2009), Brazilian (Vazquez et al., 2015), Korean (Römer, 2016), and Turkish (Çapri, Gündüz, & Akbay, 2017).

Although to a lesser extent, the convergent validity and factor structure of the UWES-S has also been studied, particularly with undergraduate students. The results have shown the positive association of UWES-S with other variables such as life satisfaction (Rastogi, Prakash), academic performance (Gómez et al., 2015), and responsibility (Çapri et al., 2017); and its negative relation with academic procrastination (Çapri et al., 2017), stress, depression, and anxiety (Rashid & Asghar, 2016, August). The studies that have addressed the factor structure of the UWES-S have also yield non-consistent results. Different studies point to the three-factor model fits better than a single-factor structure (Benevides-Pereira et al., 2009; Cadime, Lima, Marques-Pinto, & Ribeiro, 2016; Casuso-Holgado, Moreno-Morales, Labajos-Manzanares, & Montero-Bancalero, 2017; Meng & Jin, 2017) whereas other authors support alternative factor structures**;** Medrano, Moretti, and Ortiz (2015) and Portalanza Chavarria, Grueso Hinestroza, and Duque Oliva (2017) found that a two factors solution (vigor-absorption and dedication) emerged as the most appropriated model, and Römer (2016) indicated that the one factor model was better than the others.

Finally, the research about the invariance factorial of the UWES in academic contexts (UWES-S) is still limited. As far as we know, only one study has analyzed and supported the factorial invariance of the three-factor model of UWES–S–9 through samples of high school and university students (Cadime et al., 2016).

To sum up, the inconsistency of the obtained results regarding the factorial structure of the UWES is also replicated in its adaptation to the academic context and to demand, therefore, the necessity of new research to clarify the structural validity of this instrument.

This study aims (i) to explore the factor structure of the UWES-S–9 from a large sample of Spanish high school students through the application of confirmatory factor analysis (CFA) and testing three first-order structures -one-factor, two and three-factors- and two hierarchical models -with second-order level representing all items and first-order level with two and three factors respectively -; (ii) to inspect the internal consistency of the scale through Cronbach's alpha, omega coefficient and average variance extracted, (iii) to provide information on convergent validity of the instrument through the relationship between academic engagement and variables as much antecedents (optimism) as positive (subjective well-being and academic achievement) and negative (perceived stress) outcomes.

Finally, we also test the invariance of the UWES–S–9 across sex and age characteristics. The rationale lies both in the invariance implications for the discriminant validity of the construct –academic engagement-, and in its practical significance for the use of the instrument across different age and sex groups and for longitudinal tracking of individuals (Prince-Embury & Courville, 2008).

Method

Participants and Procedure

The sample comprised of 626 high school students (male = 317, female = 309), aged 13 to 18 (mean = 15.48, *SD* = 1.00). Of them, 322 adolescents were in the range of age between 13 and 15 years (early adolescence subgroup) and the 304 remaining between 16–18 years (late adolescence subgroup). Regarding the distribution by course, 41.5% of the students attended to 3rd, 32.6% to 4th of Secondary School and 25.9% to 1st of A-levels. The participants were from four urban lay secondary schools of Castellon and Valencia provinces.

Fifteen public and private secondary schools of the Valencian Community were selected randomly

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and contacted by e-mail to request their involvement in the study. Once the schools showed their interest, a personal interview was arranged to explain the study characteristics and to confirm their participation. The study was approved by the school board of each academic center that provided the informed consent. As inclusion criteria, the sample must meet the age (13 to 18 years) and the Spanish language knowledge. The questionnaires were administered to participants in paper-and-pencil format were completed anonymously, in presence of the researcher and tutor, during a group tutorial session of 45 minutes. The data were collected the third quarter of the academic year.

The presence of random incomplete data was examined. Data were imputed following the procedure of "Mean substitution" whenever the percentage of lost data was less than 20%, otherwise the response protocol was removed (Hair, Anderson, Tatham, & Black, 1999).

Instruments

Brief Student Utrecht Work Engagement Scale –UWES–S–9– (Spanish and original version in Benevides-Pereira et al., 2009) was used to evaluate *academic engagement* (e.g. When I'm doing my work as a student, I feel bursting with energy). It is a 9-items self-report instrument based on a 7-point Likert scale ranging from 0 (*never*) to 6 (*always*). It consists of three dimensions: vigor, dedication and absorption.

Subjective Happiness Scale -SHS- (Spanish version of Extremera, Fernández- Berrocal, González-Herrero, & Cabello, 2009) was developed to measure the subjective well-being. The SHS consists of 4 items (e.g. Compared with most of my peers, I consider myself: Less happy/happier) rated on a 7-point Likert scale (1–7) (α= .76 in this study). The Spanish version of the instrument has shown good psychometric properties (e.g. Extremera et al., 2009).

Perceived Stress Scale -PSS- (Spanish version of Remor & Carrobles, 2001). The PSS is a self-report instrument consisting of 14 items. Respondents are instructed to indicate on a 5-point Likert scale from 0 (*never*) to 4 (*very often*) the level of experienced stress during the last month (e.g. In the last month, how often have you been upset because of something that happened unexpected) (α = .79). The questionnaire in its Spanish version has shown adequate psychometric properties (e.g. Remor & Carrobles, 2001).

Revised Life Orientation Test -LOT-R- (Spanish version Otero, Luengo, Romero, Gómez, & Castro, 1998) was developed to measure the dispositional optimism. The self-report questionnaire consists of 10 items (four of them are fillers) on a five-point Likert scale that ranges from 1 (*totally disagree*) to 5 (*totally agree*). The respondents indicate the extent to which they agree with each item (e.g. In uncertain times, I usually expect the best) (α= .63). The Spanish of the LOT-R has shown adequate psychometric properties (e.g. Otero et al., 1998).

Academic achievement. The average marks obtained in the first two evaluations was used to assess the academic achievement. The high correlation obtained between the two means (r = .96) confirms the use of this measurement as a reliable indicator of criterion.

Statistical analyses

CFAs were conducted using maximum likelihood estimator (MLE) with EQS 6.1 (Bentler, 2006). Thus, one-factor (1F), two-factors (2F), and three-factors (3F) first-order structures, hierarchical models with second-order level representing all items and first-order three-factors (3F > 1F) and first-order two factors (2F > 1F). Robust statistics (Bentler, 2006) were used to evaluate the goodness of fit of the models to the data (acceptable criteria level in parenthesis; Hair et al., 1999; Van de Schoot, Lugtig, & Hox, 2012): Root Mean Square Error of Approximation (RMSEA), < .08; 90% confidence interval (CI), Non-Normed Fit Index (NNFI) (> .90), Bollen Incremental Fit Index (IFI) (> .90), and Comparative Fit Index (CFI) (> .90). The Satorra–Bentler chi-square (S-Bχ^2) and this index divided by df (S-Bχ^2/df) –to correct the influence of the number of subjects- were also calculated. Morevover, the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) were employed. Those indexes adjust χ^2 for the number of estimated parameters and can be used to compare competing models that do not need to be nested. In the event of an unsatisfactory fit with the confirmed models, the significance of the different saturations, the existence of covariances between errors, and unexpected saturations according to the models submitted to a confirmatory analysis (cross-loadings) are examined until reaching fit values greater than .95 (Hu & Bentler, 1999).

Secondly, we estimated the invariance of the UWES–S–9 on sex and age. The evidence of multigroup invariance laid on a set of goodness-of-fit indices, including both overall (CFI, RMSEA, and SRMR) and incremental goodness-of-fit indices (ΔCFI and $\Delta\chi^2$). This analysis is the greatest substantive interest because allows to explore the discriminant validity of the UWES–S–9 across sex and age.

Lastly, reliability and validity of UWES–S–9 was measure using Cronbach's alpha, Omega coefficients and Average Variance Extracted, its convergent

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validity was examined through Pearson´s correlation coefficients between academic engagement and subjective well-being, perceived stress, dispositional optimism, and academic achievement.

Results

Factor structure

Table 1 reports the results of the CFA of the first-order models (Model 1F, Model 2F, and Model 3F, Model 2FC, and Model 3FC) and the two hierarchical models (Model 3F > 1F, and Model 2F > 1F). The Model 1F, with the simplest factor structure, was calculated first. Then, the models of two and three factors and their variations were analyzed, selecting the best of them all.

As can be seen in the Table 1, Model 2F and Model 3F showed a poor fit and were recalculated inclosing the covariance between the factors (Model 2FC and 3FC model). We also calculated the second order factor versions of the Model 2FC and 3FC (Models 2F > 1F and Models 3F > 1F). Next, following the principle of parsimony, it was analyzed whether introducing a second order factor improves the fit of the 2FC and 3FC Models.

Chi-squared comparisons indicated that Model 2FC fitted worse ($p < .05$) than Model 3FC ($\Delta\chi^2 = 9.13$, $\Delta df = 2$), Model 2F > 1F ($\Delta\chi^2 = 9.17$, $\Delta df = 2$) and Model 3F >1F ($\Delta\chi^2 = 9.17$, $\Delta df = 2$). Because the similar chi-square values between Model 3FC, Model 2F > 1F and Model 3F > 1F, we evaluated the values of the rest of fit indexes. Model 3FC and Model 3F > 1F showed similar and better fit indexes than Model 2F > 1F, inclosing a CFI value of .939, while the CFI value of Model 2F > 1F was .936 (ΔCFI = .003).

Since the Model 3FC showed a slightly better fit (see S-Bχ^2, AIC, and BIC) than Model 3F >1F, and had the advantage of not postulating a second order factor, we selected Model 3FC to compare with Model 1F. In the comparison between Model 3FC and Model 1F, the former showed a better fit than the Model 1F both for his χ^2 value ($\Delta\chi^2 = -38.23$, $\Delta df = 3$) and for its CFI value (ΔCFI = .013).

However, a detailed exploration of the Model 3FC revealed that the correlation between Factor 1 (vigor) and Factor 2 (dedication) was 0.90, between Factor 1 and Factor 3 (absorption) was 0.95, and between Factor 2 and Factor 3 was 0.91 (in all cases $p \leq .01$). These high correlations seem to indicate that three factors are, in fact, the same factor (Kline, 2005) so this model was discarded and Model 1F was selected.

Although selection of Model 1F was not based on fit indexes values, a definitive model also requires adequate saturations among items or factors and adequate covariations between items or factors. Model 1 met all those requirements.

Therefore, it was decided to improve the Model 1F until at least one of the fit indices will exceed .95 (Hu & Bentler, 1999), thus avoiding a final overparameterized model. The correlation between unique variance of items 7 and 8 ($r = .21$, $p \leq .01$) and between items 1 and 2 ($r = .33$, $p \leq .01$) was added, improving the adjustment significantly (Model $1F_{Improved}$). Finally, the AIC and BIC comparison between the models showed that the modified model (Model $1F_{Improved}$) could be considered the best fitting model.

Configurational and metric invariance

There are different criteria about the multigroup invariance analysis (Vandenberg & Lance, 2000), so, in the present study, we have focused on the configurational and metric invariance. Configurational and metric invariance are the types of invariance most frequently calculated and the two basic steps of an invariance test (Vandenberg & Lance, 2000). If it is achieved, it can be followed with the rest of the invariances (Vandenberg & Lance, 2000).

The Model 1F was first calculated for both groups in order to test the configurational invariance model. The results showed a good multi-sample fit, indicating

Table 1. *Models Fit Indices*

Model	S-Bχ^2	*df*	S-Bχ^2/*df*	CFI [b]	NNFI [b]	RMSEA 90% CI	IFI [b]	AIC [b]	BIC [b]
1F	226.72	27	8.39	.93	.90	.109 [.096, .122]	.93	172.72	361.88
2F	680.60	27	25.21	.76	.67	.197 [.184, .210]	.76	626.60	796.45
3F	1,201.07	27	44.48	.56	.43	.264 [.251, .277]	.56	1147.07	1316.92.78
2FC[a]	197.62	26	7.57	.94	.91	.103 [.090, .116]	.94	145.62	332.78
3FC[a]	188.49	24	7.85	.94	.91	.105 [.091, .119]	.94	140.49	323.65
2F > 1F	188.53	24	7.86	.94	.91	.105 [.091, .119]	.94	140.53	332.78
3F > 1F	188.53	24	7.85	.94	.91	.105 [.091, .119]	.94	140.49	323.69
$1F_{Improved}$	132.22	25	5.29	.96	.94	.083 [.069, .097]	.96	82.21	267.38

[a] Include the covariance between the factors

[b] Robust version.

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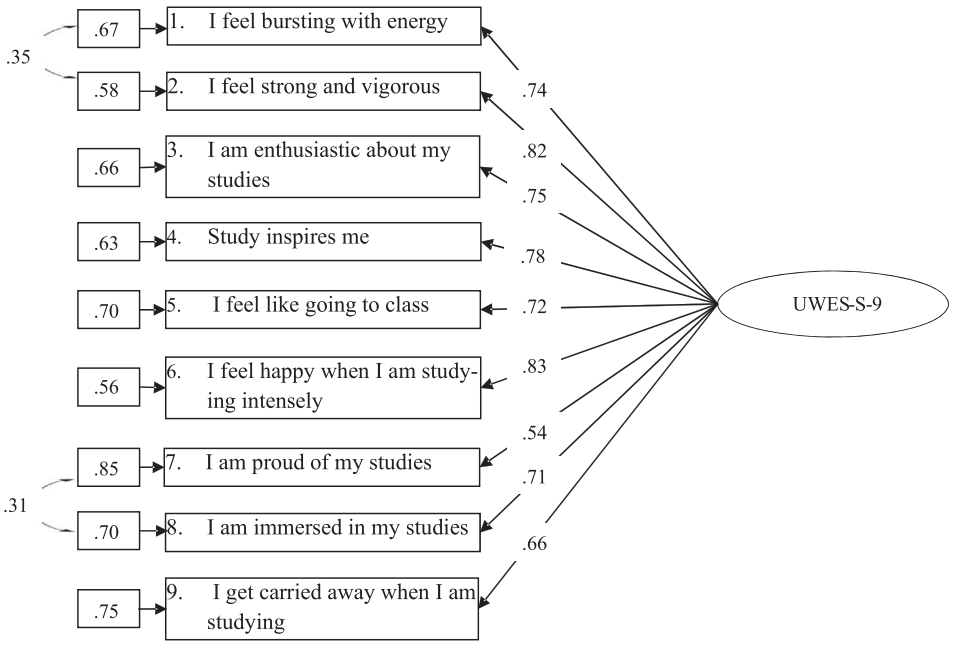

Figure 1. Structural Model of the UWES–S–9

a common factor structure across the two groups, S-Bχ^2_{50} = 158.13; RCFI = 0.96; RMSEA = 0.059 (.049, .069); IFI = 0.96; AIC = 58.13.

Next, constrains were imposed to factorial saturations (metric invariance), however, the modification indexes of the restricted model showed that constrains on the saturations of Items 1, 5 and 6 were significant, so the model was recalculated without these constrains. After eliminating these constrains, the restricted model was equivalent to configurational model, ΔS-B$\chi^2_{(\Delta 4)}$ = 9.72; $p \leq .05$. Therefore, saturation of Item 1 (males, 1.15, females, 0.96), Item 5 (males, 0.92, females, 0.95), and Item 6 (males, 1.29, females, 1.12) was different by sex. Males showed higher saturations than females on Item 1 and Item 6, while the result was reversed on the Item 5.

The same procedure was followed with the age groups. The Model 1F showed a good fit (S-Bχ^2_{50} = 160.45; RCFI = 0.96; RMSEA = 0.060 (.049, .070); IFI = 0.96; AIC = 60.45) indicating a configurational invariance model between age groups, ΔS-B$\chi^2_{(\Delta 7)}$ = 9.67; $p \leq .05$.

Next, restrictions of item saturations were applied. But the constrain of the saturations of Items 5 and 6 were significant and therefore we recalculated the complete model without these constrains. Once these restrictions were removed, the resulting was equivalent to the unrestricted model, ΔS-B$\chi^2_{(\Delta 6)}$ = 8.16; $p \leq .05$. Therefore, late and early adolescents differ in the factorial saturation of Item 5 (early, .72, late, .70) and Item 6 (early, .84, late, .79). That is, the early adolescent presented lower saturations than the mature ones in Item 5 and Item 6.

Taken together, the results support the configurational invariance but only partial metric invariance. Moreover, considering that the scale is composed of nine items, a considerable number of them does not meet the metric invariance. According to Vandenberg and Lance (2000), it does not seem appropriate to continue with the invariance tests, since it has already been shown that there are differences between the groups considered. So, there are differences on the latent variable are caused, at least, by a difference in the loadings factor (Van de Schoot et al., 2012).

Reliability and convergent validity

As the Table 2 shows, the Cronbach´s alpha for the UWES–S–9 was satisfactory (α = .91). Likewise, the value of Average Variance Extracted –AVE–and the Omega coefficient -Ω- for the UWES–S–9 were satisfactory (AVE = .52, Ω = .911).

The correlations of academic engagement (AE) with perceived stress (PS), subjective well-being (SW), dispositional optimism (DO), and academic achievement (AA) both for the total sample and for subgroups by sex and age are shown in Table 2. Academic engagement is positive and moderate correlated with academic success (r = .27 to .33; $p \leq .001$) in all groups. The relationship with the rest of criteria variables showed variations based on sex and age. Academic engagement correlated positive and weakly with dispositional optimism and displayed differences based on sex: The greatest correlation was found in the subgroup of females (r =.29; $p \leq .001$), and the minor in the

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male subgroup (r = .16; $p \leq .01$). The association with both subjective well-being and perceived stress was weak and modulated by sex and age. In both cases, the largest association was found in the youngest subgroup (r_{SW} = .21 and r_{PS} = –.20, $p \leq .001$), while it was not significant in the late adolescence subgroup (r_{SW} = .09 and r_{PS} = –.05, $p \geq .05$). The difference between subgroups defined by sex was less; still, the correlation was higher in the female subgroup (r_{SW} = .18 and r_{PS} = –.19, $p \leq .001$) than in the male subgroup (r_{SW} = .15 and r_{PS} = –.13, $p \leq .05$).

Discussion

A primary aim of the present investigation was to analyze the factor structure of the UWES–S–9 in a large sample of Spanish high school students (N = 626). There is considerable debate in the literature as to whether the UWES and, consequently, engagement should be considered a multidimensional or one-dimensional construct. The models tested in this study included the original three-factor model (vigor, dedication and absorption) proposed by Schaufeli and Bakker (2003) and two additional models derived from the empirical research: (i) Two-factor model (vigor + absorption, and dedication) and (ii) one-factor model. In addition, we also explore two hierarchical models with a second order level representing a combination of all elements and including, respectively, three and two first order factors. The results of the CFA indicated that the three-dimensional and two-dimensional models showed a similar adjustment, not improved by the corresponding hierarchical models, and slightly superior to that obtained by the one-dimensional model. However, the high correlations between the three factors of UWES–S–9 -vigor, dedication, and absorption- ($r \geq .90$, in all cases) evidenced their poor discriminant validity. These results, consistent with a meta-analysis (Christian & Slaughter, 2007) and other more recent studies (Fong & Ng, 2012; Vallières, McAuliffe, Hyland, Galligan, & Ghee, 2017) undermined the viability of this scoring scheme and pointed to unidimensional conceptualization of engagement. In fact, our modified one-factor model obtained satisfactory fit indexes. Consequently, our results are not consistent with a multidimensional structure proposed by some authors (Cadime et al., 2016; Casuso-Holgado et al., 2017; Meng & Jin, 2017), but rather support unidimensional conceptualization of engagement found in other studies (e.g. Römer, 2016).

Moreover, this study also examined the internal consistency and factor invariance of the UWES–S–9. Align with the previous studies in educational setting (Casuso-Holgado et al., 2017; Römer, 2016) the indexes of Cronbach's alpha, Omega, and Average Variance Extracted confirmed the satisfactory internal consistency and validity of the scale. Likewise, our results (since there were only minimal differences) supported the invariance of unidimensional-factor model of the UWES–S–9 across sex and age. Specifically, configurational invariance was demonstrated but it is not possible to establish the metric invariance and, consequently, the multigroup absolute invariance.

The convergent validity of UWES–S–9 in terms of its association with measures of academic achievement, dispositional optimism, subjective well-being and perceived stress was also addressed in our study. Align with previous findings (e.g. Gómez et al., 2015), our data informed that academic engagement is positively and moderately related with academic achievement. It is reasonable to think that greater effort, energy, and involvement carried out in the academic tasks will lead to higher achievement. In fact, Schaufeli, Martínez, Marqués Pinto, Salanova, and Bakker (2002) suggested that seems plausible that vigorous and dedicated students who are energetic and immersed in their studies are successful in their academic achievement.

Table 2. *Reliability and Convergent Validity of UWES–S–9 (N=626)*

	Academic Engagement *M (SD)*	Academic Achievement (AA)	Subjective Well-being (SW)	Perceived Stress (PS)	Dispositional Optimism (DO)
Total sample (626)					
α = .91	23.90 (11.57)	.30***	.16***	–.13***	.21***
AVE = .52					
Ω = .911					
Females (309)	24.92 (11.10)	.29***	.18***	–.19***	.29***
Males (317)	22.90 (11.94)	.29***	.15**	–.13*	.16**
Early adolescence subgroup (322)	23.28 (11.56)	.27***	.21***	–.20***	.21***
Late adolescence subgroup (304)	24.55 (11.56)	.33***	.09	–.05	.21***

*** $p \leq .001$

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Align with results obtained in the work environment (Barkhuizen et al., 2013), our results also supported the existence of a weak/moderate and positive relation between dispositional optimism and academic engagement. The construct of dispositional optimism arose from a general self-regulatory framework (Carver & Scheier, 1998). According to this framework, an important determinant of whether people confronting difficulties in progressing toward their goals decide to engage or disengage is the perception of desired outcomes as attainable. Because of their positive outcome expectancies, it is more likely that optimists invest effort and persistence (Solberg Nes, 2016) and, in a particular, show more academic engagement.

Not only persistent goal pursuit can be associated with their attainment (as its association with academic achievement indicate), which is linked to well-being. Moreover, engagement is defined as a positive, fulfilling, and motivational state of mind related to students' tasks that is characterized by vigor, dedication, and absorption (Schaufeli et al., 2002). As shown by previous research with undergraduate students (Rastogi et al., 2017), our results indicated a positive, although weak, association between academic engagement and subjective well-being.

Our results also supported the negative but weak relation between academic engagement and perceived stress found in previous studies (Cadime et al., 2016; Fong & Ng, 2012). Higher perceived stress levels may predispose poor coping mechanisms in response to the stress and, thereby affect to the ability to manage difficulties, impacting negatively then on academic engagement.

To sum up and align with the previous literature, the results shown that the strongest association was between academic engagement and achievement, supposedly due to that both are circumscribe at the same context compared to the rest of the criterion variables. In addition, the relationship between the first two variables -EA and AA- was the only one not modulated by sex and age. The sex parameter played the same role in the link of engagement with dispositional optimism, subjective well-being and perceived stress. Specifically, this was slightly higher in the female subgroup than in the male subgroup.

In relation to the subgroup defined by age, the most relevant result was the lack of significate association between academic engagement and the outcome variables subjective well-being and perceived stress in the late adolescence group. The reason of this could be the greatest complexity that gradually characterizes to the problematic inherent adolescence (Özdemir, Utkualp, & Palloş, 2016). Consequently, the relative importance of academic engagement in the global level of subjective well-being and perceived stress manifested by the adolescent would be reduced.

Finally, it is necessary to point out the strengths and limitations of this study. It constitutes the first validation study of the Spanish version of the UWES–S–9 in high school students. More specifically, we examined its structure through CFA; the internal consistence of the scale with several indices and its configurational and metric factorial invariance across sex and age. We also explored its convergent validity by means constructs that can constitute determinants (dispositional optimism) or outcome variables (subjective well-being, perceived stress, and academic performance).

Educational institutions globally seek to foster academic engagement, due to its relationship with numerous other positive outcomes -like psychosocial development and other long term recompenses-, besides academic achievement (Rashid & Asghar, 2016; August). For this purpose, Spanish education professionals will have available a brief, reliable and valid tool to measure the academic engagement of students. Of this way, they could assess the involvement, participation and concentration shown by the students, and not only value the mark as proof of their academic achievement.

On the other hand, the limitations of our work include the used indicator for academic performance is temporarily limited to two partial assessments of the same course. In addition, the results obtained in the multigroup analysis to verify the invariance factorial across age should be interpreted carefully due to the limited age range. Finally, the cross-sectional design used did not allow statements on nature or type of relationships between variables. In order to solve the previously mentioned limitations, future research should explore the psychometric properties and invariance factorial of the UWES–S–9 in adolescents of different sexes with broader age ranges, as well as examine the possible mediating role of academic engagement in the relationship between antecedents and outcome variables.

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