Revista Digital de Investigación en Docencia Universitaria, 15(2)
e-ISSN: 2223-2516

Psychometric analysis of the Utrecht Work Engagement Scale in the UWES-17S and UWES-9S versions in chilean university students

Felipe Guerra Díaz*[1]; Ricardo Jorquera Gutiérrez[2]

[1]https://orcid.org/0000-0003-0636-2566, Universidad de Atacama, Copiapó, Chile, [2]https://orcid.org/0000-0002-7059-8488, Universidad de Atacama, Copiapó, Chile

How to cite this article: Guerra, F., & Jorquera, R. (2021). Psychometric analysis of the Utrecht Work Engagement Scale in the UWES-17S and UWES-9S versions in chilean university students. *Revista Digital de Investigación en Docencia Universitaria, 15(2)*, e1542. https://doi.org/10.19083/ridu.2021.1542

Received: 06/10/2021. **Revised:** 25/10/2021. **Accepted:** 25/11/2021. **Published:** 01/12/2021

Abstract

Introduction: The UWES is one of the most widely used instruments in the world to measure academic engagement. **Objective:** The objective of this study was to describe and compare the psychometric properties of the UWES 17S and the UWES 9S in Chilean university students. **Method:** 541 students from a Chilean university participated, who voluntarily entered the indicated instruments. 61.6% of them were in the first year and 38.4% were at higher levels. **Results:** When comparing seven structural models, the best fit indicators were found in the UWES 9S according to a three-factor model and a bifactor model (X2/df=2.316; CFI=.977; TLI=.952; RMSEA=.071). The UWES 9S showed McDonald's ω reliability indicators between .67 and .83 in its three factors, also demonstrating the invariance of its three-factor structure according to sex and at different levels of study. **Discussion:** It is concluded that the UWES 9S has adequate psychometric properties that would support its use to measure academic commitment in Chilean university students.

Análisis psicométrico de la Utrecht Work Engagement Scale en las versiones UWES-17S y UWES-9S en universitarios chilenos

Resumen

Introducción: El UWES es uno de los instrumentos más utilizados en el ámbito mundial para medir el compromiso académico. **Objetivo:** del presente estudio fue describir y comparar las propiedades psicométricas del UWES 17S y el UWES 9S en estudiantes universitarios chilenos. **Método:** participaron 541 estudiantes de una universidad chilena, quienes contestaron de forma voluntaria los instrumentos señalados. 61,6% de ellos cursaban primer año y un 38,4% niveles superiores. **Resultados:** al comparar siete modelos estructurales, los mejores indicadores de ajuste fueron encontrados en el UWES 9S de acuerdo con un modelo de tres factores y a un modelo bifactor (X^2/df=2.316; CFI=.977; TLI=.952; RMSEA=.071). El UWES 9S mostró indicadores de confiabilidad ω de McDonald entre .67 y .83 en sus tres factores, demostrándose también la invarianza de su estructura de tres factores según sexo y en distintos niveles de estudio. **Discusión:** se concluye que el UWES 9S presenta adecuadas

***Correspondence:**
Ricardo Jorquera Gutiérrez
ricardo.jorquera@uda.cl

propiedades psicométricas que avalarían su uso para medir el compromiso académico en estudiantes universitarios chilenos.

Palabras clave: uwes; engagement; compromiso académico; estudiantes universitarios; propiedades psicométricas.

Introduction

In the various institutions of higher education there is interest in determining the causes of difficulties in academic performance, the abandonment of studies, motivation through academic work as well as the development of student well-being. This is where academic *engagement* emerges as a possible answer to these concerns since it is recognized as a promoter of learning, performance, and student well-being (Medrano et al., 2015). It is possible to frame *engagement* as a construct of positive psychology since it is a characteristic of the subjects that goes beyond a negative, absent, or pathological consideration. In this regard, this school of thought focuses on understanding and promoting in societies, communities, and individuals the elements that allow them to improve their quality of life (Seligman & Csikzentmihalyi, 2000).

It is within this framework that *engagement* emerges as a proposal to save burnout, understood as a positive affective-cognitive state associated with the work/tasks, composed of three traits: Vigor, that is, performing a particular task with high levels of energy and mental endurance; high level of work involvement or Dedication, performing tasks with a sense of enthusiasm and high involvement; and Absorption, where there is a high level of concentration and happiness with the activity being performed (Schaufelli, 2017).

Since the 2000s, the view of *burnout and engagement* has expanded to other contexts, beyond the workplace. Where it is evidenced that students would experience positive and negative feelings that could favor their greater or lesser involvement with their various academic tasks, appearing the concepts of *burnout and academic engagement* (Parra & Pérez, 2010).

Engagement is seen as an indicator of student wellbeing as well as a predictor of lower levels of class absence, high and constant motivation, optimal academic performance, and a strong sense of self-efficacy (Caballero et al., 2014; Gómez et al., 2015; Sánchez et al., 2016; Tayama et al., 2018). In turn, people with higher levels of *engagement* would have a greater emotional and energetic connection, and would tend to evaluate themselves as fit to perform their tasks (Cachón et al., 2018). Likewise, students with high engagement would be captivated with their academic activities, allocating enough energy, time, commitment, and dedication to the tasks assigned (Bakker et al., 2015; Loscalzo & Giannini, 2018).

As for the measurement of *engagement*, it is essential to determine states of well-being with respect to students' academic activities and thus generate appropriate strategies for their development with reliable and validated instruments in the local context (Domínguez-Lara et al., 2021; Meng & Jin, 2017; Sánchez et al., 2016).

Schaufeli et al. (2002) created and adapted an *engagement* scale for students (UWES-S), which is known as the extended version of 17 items. Subsequently, they developed their short version, with nine items, UWES-9S (Schaufeli & Bakker 2003), concluding that the three-factor model with nine items fits adequately, presenting better indicators than the one-factor model and the 17-item version.

Among recent studies, the work of Domínguez-Lara et al. (2020), who evaluated the internal structure of the instrument (UWES-9S) in Peruvian psychology students between 17 and 41 years of age, is noteworthy. Through a confirmatory factor analysis and a bifactor analysis, they concluded that the model with the best fit was the unidimensional one, which also presented adequate levels of reliability. These results allowed them to understand *engagement* as a general factor, which explained more variance than the specific factors. In another study with Peruvian students, Domínguez-Lara et al. (2021) evaluated the factor structure of the UWES-17S and UWES-9S through a bifactor analysis, with weighted least squares means and variance adjusted (WLSMV)

method. Better levels of fit in the nine-item instrument, compared to the 17-item version of the same instrument, were observed. In terms of factorial invariance, equivalent fit values were obtained between women and men.

In relation to Chilean studies, Parra and Pérez (2010) applied the UWES-9S to 164 psychology students, then conducted an exploratory factor analysis using principal axis analysis and obtained as a result a two-factor model (willingness to study and satisfaction with studies), showing clear differences with the initial three-factor model established by the authors of the instrument.

Subsequently, Carmona-Halty et al. (2019) analyzed the psychometric properties of the abbreviated version in a sample of 1,502 Chilean university students aged 18-25. In their study they used a confirmatory factor analysis, through a maximum likelihood estimation method, and their results agreed with the original model of three related factors (Vigor, Dedication, and Absorption) by Schaufeli et al. (2002). In terms of invariance, the results showed that there were no differences in the factor structure of the instrument between men and women. With these results, they concluded that the UWES-9S is a valid and reliable instrument for the measurement of *engagement* in Chilean university students.

Given the adequate psychometric properties observed in the UWES in the university population, its current theoretical support, the frequent use by the scientific community (Domínguez-Lara et al., 2020), and the scarce evidence of its psychometric properties in Chile (Carmona-Halty et al., 2019; Parra & Pérez, 2010), they justify the deepening of its analysis and the comparison of its versions (UWES-17S and UWES-9S) in Chilean university students. Therefore, the aim of this study is to describe and compare the psychometric properties of the UWES-17S and the UWES-9S in a sample of Chilean university students. At the same time, it is intended to determine the invariance of the factorial structure of the UWES-9S according to gender and academic level. Finally, the academic *engagement* levels in the study sample, between males and females and between freshmen and upperclassmen, will be estimated and compared.

Method

Design

The research design is instrumental, as its objective is to evaluate the psychometric properties of a measurement instrument (Ato et al., 2013).

Participant

The sampling was non-probabilistic and intentional. The total sample consisted of 541 university students from five faculties of a public university in the north of Chile, who voluntarily agreed to answer the evaluation instrument. 67.1% (*n*=363) were female and 32.9% (*n*=178) were male. According to age, students between 17 and 45 years old answered, with an average age of 20.1 years (*SD*=3.48). According to level of studies, 61.6% (*n*=333) were freshmen and 38.4% (*n*=208) were upperclassmen.

In terms of the inclusion criteria, participants must be students enrolled in a course at the university where the study was conducted. The exclusion criteria included not being enrolled at the university where the study was conducted.

Instruments

The *Utrecht Work Engagement Scale* (UWES-S), in its 17-item (UWES-17S) and 9-item (UWES-9S) versions, was used in this research.

Utrecht Work Engagement Scale (UWES-17S)

The 17-item version was designed and validated by Shaufeli et al. (2002), who confirmed a three factor structure: Vigor, Dedication, and Absorption. The measurements for its Chilean validation were carried out by Cruzat (2020), who found an adequate reliability, with Cronbach's alpha indicators above .88, and a three-factor structure, similar to the one proposed by the original authors.

Utrecht Work Engagement Scale (UWES-9S)

The UWES-9S Academic *Engagement* Scale (Shaufeli & Bakker, 2003) was initially validated in a Chilean university population by Parra and Pérez (2010), in which 164 first- and second-year

psychology students participated (women 67.7%; men 29.9%; *M*=19.67 years; *SD*=1.78). Recently, Carmona Halty et al. (2019) confirmed in Chilean university students its three-factor structure, like the original, and adequate reliability values: Vigor (3 items, α=0.808), Absorption (3 items, α=0.729), and Dedication to studies (3 items, α=0.819). The instrument has a response system through a Likert scale of seven points ranging from 0 = never to 6 = every day.

Procedimientos

The data were collected in two stages. Firstly, freshmen were contacted at the beginning of a workshop class on the insertion of students into university life at a public university in northern Chile, and they were asked to collaborate anonymously and voluntarily in order to participate in the study. All of the participants were explained the research rationale, and all of them answered an informed consent form that had the objective to specify their willingness to participate, the confidential use of data, the absence of incentives to participate, and who to contact for questions about the research. In a second stage, upperclassmen of the same university were contacted by e-mail. Through a Google form they were sent the informed consent and the study instruments where the students could answer them.

Data Analysis

The descriptive statistics of the items were verified, specifically means, standard deviations, skewness, and kurtosis. Confirmation of the structure of the instrument was verified by means of confirmatory factor analysis (CFA). In this case, goodness-of-fit estimation of seven models was performed using the robust maximum likelihood (MLR) method, which is advisable to use when multivariate normality is not possible (Jaccard, 2018). The indices considered in the CFA were x^2, x^2/gl, the robust Tucker-Lewis Index (TLI), the robust Comparative Goodness of Fit Index (CFI), and the Goodness of Fit Index (GFI). An x^2/gl value of less than 3 and values above .90 on CFI, TLI, and GFI are estimated as good indicators of fit (Hu & Bentler, 1999). In addition, the root mean squared residual of approximation (RMSEA) was analyzed, where values below .08 are considered acceptable, and the standardized root mean squared error (SRMR) where values close to 0 should be obtained. In addition to this, the factorial invariance of the instrument was verified in the sample of women and men, and between the samples of freshmen and upperclassmen. A Robust Maximum Likelihood (MLR) method and the same fit indicators used in the CFA were used to describe and compare sequentially the configural, metric, and scalar invariance of the instrument, based on the observation that the variations in the CFI values between each procedure were less than .010 and that the variations in the RM-SEA were less than .015 (Byrne, 2008; Cheung & Rensvold, 2002). After this procedure, the means of the scores of men and women, and between freshmen and upperclassmen, in the different dimensions of the instrument were compared using Student's t-statistic for independent samples, which was accompanied by the estimation of the effect size through Cohen's D- statistic.

The descriptive analyses and the Student's *t-tests* were performed using SPSS 22 software. Confirmatory factor analyses were performed with R software version 4.0.2 (R Core Team, 2020) running on the RStudio terminal version 1.4.1106, and the Lavaan package (Rosseel, 2012) was used. For the estimation of reliability and its confidence intervals, the McDonald's Omega statistic (ω) was used with the JASP 0.14 software (JASP Team, 2020).

Results

The estimations made in this section were carried out with the sample of freshmen (n=333), to whom the complete 17-item instrument was applied. First, a descriptive analysis of the items was carried out, where the highest means were found in the items "I am proud of the major I am studying" (*M*=6.43; *SD*=.934), "I think my career is meaningful" (*M*=6.37; *SD*=.996) and "I am enthusiastic about my career"

(*M*=6.25; *SD*=1.079); all of them belonging to the Dedication factor. On the other hand, the lowest mean is observed in the item "It is difficult for me to *disconnect* from my studies" (*M*=3.70; *SD*=1.368) corresponding to the Absorption factor. With respect to the values of skewness and kurtosis, the majority of the items of the instrument showed absolute values of less than 1, with the exception of items 2, 5, 7, and 10.

Multivariate normality was assessed by means of a Mardia analysis for multivariate skewness and kurtosis. In the case of the UWES-S (17 items), a skewness coefficient of 69.574 (χ^2=3861.364, gl=969, p<.001) and a kurtosis coefficient of 397.758 (z=26.837; p<.001) were found. The UWES-9S showed a skewness coefficient of 16.648 (χ^2=923.992, gl=165, p<.001) and a kurtosis coefficient of 125.147 (z=16.955; p<.001). This information demonstrates the absence of a multivariate normal distribution of the data in both versions of the instrument. For this reason, it was decided to carry out the confirmatory factor analyses using a procedure based on the robust maximum likelihood (MLR) method, which is adequate when the assumptions of multivariate normality are not present.

Seven models were verified. On the one hand, the fit indicators of the 17-question version of the instrument were tested, based on a one-factor, three-factor, and a bifactor model considering a three-factor model and a general factor. On the other hand, the short version of the instrument was tested based on a one-factor, two-factor, three-factor, and a bifactor model, based on a three-factor model plus a general factor.

Table 1
Item Descriptive Statistics

Ítems	M	DE	g1	g2
1. My tasks as a student make me feel energized.	4.48	1.158	-.106	.469
2. I think my career is meaningful.	6.37	.996	-2.080	6.528
3. Time "flies by" when I do my homework as a student.	4.64	1.345	.126	-.506
4. I feel strong when I study or go to class.	4.95	1.242	.183	-.567
5. I am excited about my career.	6.25	1.079	-1.523	2.687
6. When I am studying I forget everything that is going on around me.	4.23	1.316	-.068	-.384
7. My studies and career inspire me to do new things.	5.92	1.135	-1.039	1.302
8. When I get up in the morning, I feel like going to class or studying.	4.79	1.256	-.178	-.150
9. I am happy when I am doing tasks related to my studies.	5.19	1.199	-.179	-.307
10. I am proud of the major I am studying.	6.43	.934	-1.951	5.758
11. I am immersed in my studies.	5.29	1.236	-.382	-.285
12. I can continue to study for long periods of time.	4.16	1.274	.238	-.184
13. My career is challenging.	5.41	1.159	-.346	.199
14. I "get carried away" when doing my homework as a student.	4.48	1.199	-.212	.233
15. I am very persistent in completing my tasks as a student.	5.28	1.309	-.522	.326
16. I find it difficult to "disconnect" from my studies.	3.70	1.368	.528	.204
17. Even when things are not going well, I continue to study.	4.53	1.387	-.032	.009

Note. M= Mean, SD= Standard deviation, g1= Skewness, g2= Kurtosis.

Table 2
Goodness-of-Fit Indicators of Models UWES-S 17 and UWES-S 9

	$\chi^2_{(Robust)}$	gl	χ^2/gl	$CFI_{(Robust)}$	$TLI_{(Robust)}$	RMSEA [IC 90%]	SRMR	GFI
One-Factor UWES-17S	522.993	119	4.395	.776	.744	.110 [.100-.120]	.081	.784
Three-Factor UWES-17S	353.339	116	3.046	.872	.850	.084 [.074-.094]	.065	.865
Bifactor UWES-17S	355.196	118	3.011	.872	.852	.083 [.074-.093]	.070	.864
One-Factor UWES-9S	150.086	27	5.559	.886	.849	.125 [.106-.145]	.062	.884
Two-Factor UWES-9S	89.992	26	3.461	.943	.921	.090 [.070-.111]	.056	.939
Three-Factor UWES-9S	60.327	24	2.514	.968	.952	.070 [.048-.093]	.041	.959
Bifactor UWES-9S	39.376	17	2.316	.977	.952	.071 [.042-.100]	.034	.967

Table 2 shows the goodness-of-fit indicators of the models tested. The results are not favorable for the 17 question instrument, in its unidimensional (CFI=.776; TLI=.744; RMSEA=.110), tridimensional (CFI=.872; TLI=.850; RMSEA=.084), and bifactor (CFI=.872; TLI=.852; RMSEA=.083) versions. Best indicators are observed in the short version of the instrument, according to a two-factor model (CFI=.943; TLI=.921; RMSEA=.090), but especially with a three factor structure (CFI=.968; TLI=.952; RMSEA=.070) and bifactor (CFI=.977; TLI=.952; RMSEA=.071).

Table 3 shows the factor loadings of the long version of the instrument according to its three- factor structure. At the same time, the covariances between the factors, the average extracted variance, and their reliability are shown. A high relationship between the factors is observed, with covariances between .677 and .951. The above becomes more important when low values of the mean extracted variance are observed in the factors Vigor (AVE=.399) and Absorption (AVE=.285), which shows a problem of the instrument in its discriminant validity, especially in these two factors. On the other hand, the three factors show adequate reliability values: Vigor (McDonald's ω=.791); Dedication (McDonald's ω=.829); and Absorption (McDonald's ω=.709). The above is confirmed by an acceptable composite reliability in all three dimensions of the instrument.

Table 4 shows the factor loadings, covariance, mean extracted variance, and reliability of the short version of the instrument according to its three- factor structure. As with the 17-item version, a high relationship between the factors is observed, with covariances ranging from .701 to .940. In this case, in contrast to the 17-item version, a low value of the mean extracted variance is observed only in the absorption dimension (AVE=.390). Regarding reliability, the Vigor (McDonald's ω=.770) and Dedication (McDonald's ω=.832) factors show adequate values above .700; however, the Absorption

dimension (McDonald's ω=.666) shows a value slightly below this parameter. This is consistent with the composite reliability values.

Factorial Invariance of the UWES-9S According to Gender and Level of Studies

The factorial invariance of the UWES-9S was evaluated according to gender and student level. For this purpose, the study sample was extended to 541 students. To the sample of 333 freshmen who were beginning their university studies, a sample of 208 upperclassmen was incorporated. This was done with the purpose of recognizing the possible structural differences that the instrument could have in order to evaluate students who are just beginning their tertiary education process, compared to those who have more university experience.

Table 3

Standardized Factor Loadings. Reliability. Composite Reliability. Average Variance Extracted (AVE) and Covariance of the Factors. UWES-S 17

Items	Vigor	Dedication	Absorption	R^2
8	.732			.536
4	.724			.524
1	.669			.448
15	.633			.401
12	.538			.289
17	.444			.197
10		.840		.706
5		.816		.666
2		.751		.564
7		.740		.548
13		.393		.154
9			.771	.594
11			.634	.402
14			.477	.228
3			.463	.214
6			.377	.142
16			.358	.128
Reliability Measures				
ω	.791	.829	.709	
IC 90%	.757-.826	.800-.858	660-.757	
Composite Reliability	.795	.841	.689	
AVE	.399	.528	.285	
Covariances				
Vigor		.677	.951	
Dedication			.785	

Table 4

Standardized Factor Loadings. Reliability. Composite Reliability. Average Variance Extracted (AVE) and Covariance of the Factors. UWES-S 9

Item	Vigor	Dedication	Absorption	R^2
8	.796			.634
4	.690			.476
1	.683			.466
10		.819		.671
5		.815		.664
7		.756		.572
9			.793	.629
11			.599	.359
14			.427	.182
Reliability Measures				
ω	.770	.832	.666	
IC 90%	.727-.813	.801-.864	.605-.727	
Composite Reliability	.768	.839	.644	
AVE	.525	.636	.390	
Covariances				
Vigor		.701	.940	
Dedication			.859	

Regarding the verification of factorial invariance according to gender (see Table 5), first, the configural invariance of the UWES-9S was analyzed, showing acceptable values (CFI=.972; TLI=.958; RMSEA=.097). The results show that the three-factor model fits the data in both groups. Secondly, metric invariance was evaluated and favorable values were found (CFI=.972; TLI=.963; RMSEA=.090). When comparing the results of metric and configural invariance, no significant changes were observed (ΔCFI=.001 and ΔRMSEA=-.007). The findings suggest that factor loadings are invariant between the two groups. Thirdly, scalar invariance was evaluated. The results show adequate fit indices (CFI=.973; TLI=.967; RMSEA=.085). When comparing the results of the metric and scalar variance, no significant changes are evident either (ΔCFI=.000 and ΔRMSEA=-.005), which allows us to accept the hypothesis that the intercepts are invariant in the groups of men and women. Accordingly, the results validate the factorial invariance according to gender of the UWES-9S in Chilean university students.

As can be seen in Table 6, the factorial variance of the instrument was verified considering the sample of students who were beginning their first year of university with respect to a sample of upperclassmen. The analysis of the configural invariance of the UWES 9S showed acceptable values (CFI=.959; TLI=.939; RM- SEA=.090). The results support that the three-factor model fits the data in both groups. The metric invariance was then evaluated and adequate values were found (CFI=.955; TLI=.940; RMSEA=.089).

When comparing the results of the metric and configural invariance, no significant changes were observed (ΔCFI=-.004 and ΔRMSEA=-.001). The

Table 5
Gender Invariance

	χ2	GL	RMSEA	TLI	CFI	AIC	ΔCFI	ΔRMSEA
Configural	170.840	48	.097	.958	.972	15090.61		
Metric	173.570	54	.090	.963	.972	15081.34	.001	-.007
Scalar	178.527	60	.085	.967	.973	15074.30	.000	-.005

Table 6
Invariance According to Level

	χ2	DF	RMSEA	TLI	CFI	AIC	ΔCFI	ΔRMSEA
Configural	152.576	48	.090	.939	.959	14438.09		
Metric	169.923	54	.089	.940	.955	14443.44	-.004	-.001
Scalar	187.240	60	.089	.941	.950	14448.75	-.004	-.001

findings suggest that the factorial loadings are invariant between the two groups. Subsequently, scalar invariance was assessed. The results show adequate fit indices (CFI=.950; TLI=.941; RMSEA=.089). When comparing the results of the metric and scalar invariance, no significant changes were observed either (ΔCFI=-.004 and ΔRMSEA=-.001), which allows us to accept the hypothesis that the intercepts are invariant in the groups of men and women. Therefore, the results support the factual invariance of the UWES 9S according to level of studies in the sample of university students evaluated.

Comparison of Academic *Engagement* According to Student's Gender and Level of Studies

Table 7 shows the descriptive statistics of the scores of each of the dimensions of the UWES 9S, compared by gender and level that the students are studying (freshmen and upperclassmen). In this respect, no statistically significant differences are observed between men and women in any of the *engagement* dimensions. However, when comparing the dimensions according to level of studies, differences were found in all of them: Vigor (t=19.239. p<.01), Dedication (t=18.160. p<.01), and Absorption (t=13.860. p<.01). In all these cases, the means of freshmen were higher than that of upperclassmen.

Discussion

The purpose of this paper was to compare the psychometric properties of the UWES-17S and the UWES-9S (Schaufeli et al., 2002; Schaufeli & Bakker, 2003) as well as to determine factorial invariance by gender and academic level in a sample of Chilean university students. The results show adequate levels of reliability for the dimensions of the 17 item version as well as the nine-item version, where all the factors of the instrument showed consistent McDonald's Omega values; all of them being above 0.67. In the case of the 17-item version, this is consistent with what was found in Chile by Cruzat

Table 7
Descriptive and Student's t-test of Dimensions of Academic Engagement According to Gender and Level of Studies

		n	*M*	*DE*	*t*	*gl*	*p*	*d*
Vigor	Female	363	11.570	4.811	.080	539	.937	.007
	Male	178	11.534	5.410				
Dedication	Female	363	16.160	4.656	.465	539	.642	.043
	Male	178	15.955	5.118				
Absorption	Female	363	13.174	4.281	1.125	539	.261	.103
	Male	178	12.719	4.681				
Vigor	Freshmen	333	14.219	3.024	19.239	319.135	.000	1.777
	Upperclassmen	208	7.298	4.605				
Dedication	Freshmen	333	18.598	2.730	18.160	295.122	.000	1.694
	Upperclassmen	208	12.082	4.704				
Absorption	Freshmen	333	14.964	2.784	13.860	296.230	.000	1.293
	Upperclassmen	208	9.918	4.767				

(2020). Likewise, for the nine-item version, it is similar to the results of Carmona-Halty et al. (2019).

In relation to the factorial structure of the instrument, the fit of seven models was verified. This analysis calls into question the adequacy of the factor structure of the 17-item questionnaire. In particular, good fit results are not observed in its unidimensional, three-dimensional form, nor by using a bifactor model. Likewise, problems of discriminant validity are observed in two of its three factors (Vigor and Absorption). In this respect, the high covariance among the factors could presuppose a different arrangement of the items of this particular version of the instrument, which remains a challenge for future studies.

In contrast to the aforementioned, the brief nine-item version presents better evidence of fit. On the one hand, there are acceptable values for its two-factor configuration, which had been proposed and tested in Chile by Parra and Pérez (2010). On the other hand, its three-factor structure presents better levels of goodness-of-fit, coinciding with that proposed by Schaufeli and Bakker (2003); and, in the Chilean case, by Carmona-Halty et al. (2019). In spite of the above, high covariances between the three dimensions of the instrument and problems in the average variance extracted from the Absorption factor were identified, therefore a bifactor analysis was performed, which showed a better fit than the three-factor model, coinciding with what was found in a sample of Peruvian students by Domínguez-Lara et al. (2020).

Another result of the research also confirmed the factorial invariance of the UWES-9S according to gender and the academic level of the students, demonstrating that its three-factor dimensional structure is invariant in these groups. These results are similar to those found by Domínguez-Lara et al. (2021), who demonstrated the factorial invariance of a bifactor model of this instrument according to gender.

Finally, no significant differences were observed between men and women in their

engagement levels; however, statistically significant contrasts were observed between students who were just starting their professional careers (freshmen) and those who had more academic experience (upperclassmen). This draws attention to *engagement* as a variable that could be closely related to student achievement and university life. In this regard, *engagement* emerges as a variable to be considered to measure the well-being of university students, and it can act as a facilitator in the academic development of students. When this is present in medium and high levels, students better grasp the tasks they have to perform (Hoppe et al., 2018), dedicate more hours to study, learn better, and can obtain the desired academic performance (Reschly & Christenson, 2012; Stefansson et al., 2016; Loscalzo & Giannini, 2019); on the other hand, they have higher levels of self-efficacy and procrastinate less when undertaking their daily tasks (Çapri et al., 2017; Closson & Boutilier, 2017).

Considering the foregoing, it is essential that both academics and directives of the different educational institutions know these variables in their university educational communities, to determine what is happening and thus make the necessary interventions to facilitate the development of students (Domínguez-Lara et al.,20; Loscalzo & Giannini, 2019).

Among the limitations found, we can mention the sociodemographic characteristics and size of the sample since it is based on a single university, which means that these results are not generalized to other areas of the country; thus, in future research it would be useful to increase the sample and integrate students from different universities, both state and private and from other regions, in order to compare how the instrument works in different populations of university students.

This research allowed to make progress with new antecedents regarding the UWES-S and in the study of *engagement* in Chile. The challenge is to develop new studies that contribute to the knowledge of academic *engagement* in interaction with performance variables and with other psychological and social processes, in order to have a better understanding of this construct in the university environment.

References

Ato. M., López. J., & Benavente. A. (2013). Un sistema de clasificación de los diseños de investigación en psicología. *Anales de Psicología*. 29(3). 1038-1059. https://doi.org/10.6018/analesps.29.3.178511

Bakker. A. B., Vergel. A. I. S., & Kuntze. J. (2015). Student engagement and performance: A weekly diary study on the role of openness. *Motivation and Emotion. 39*(1). 49-62. https://doi.org/10.1007/s11031-014-9422-5

Byrne. B. M. (2008). Testing for multigroup equivalence of a measuring instrument: A walk through the process. *Psicothema. 20*(4). 872-882. http://www.psicothema.com/english/psicothema.asp?id=3569

Caballero-Domínguez. C. C., González-Gutiérrez. O., & Palacio-Sañudo. J. E. (2015). Relación del burnout y el engagement con depresión. ansiedad y rendimiento académico en estudiantes universitarios. *Revista Salud Uninorte. 31*(1). 59-69. http://www.scielo.org.co/scielo.php?script=sci_arttextypid=S0120-55522015000100008

Cachón-Zagalaz. J.. Lara-Sánchez. A., Zagalaz-Sánchez. M. L., López-Manrique. I., & Mesa. C. (2018). Propiedades psicométricas de la Utrecht Work Engagement Scale en estudiantes de educación. *Suma Psicológica. 25*(2). 113-121. https://doi.org/10.14349/sumapsi.2018.v25.n2.3

Çapri. B.. Gündüz. B., & Akbay. S. E. (2017). 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. *Educational Sciences: Theory y Practice. 17*(2). 411-435. https://doi.org/10.12738/estp.2017.2.0518

Carmona-Halty. M. A., Schaufeli. W. B., & Salanova. M. (2019). The Utrecht Work Engagement Scale for Students (UWES-9S): Factorial Validity. Reliability. and Measurement Invariance in a Chilean Sample of Undergraduate University Students. *Frontiers in Psychology. 10*. 1017. https://doi.org/10.3389/fpsyg.2019.01017

Cheung. G. W., & Rensvold. R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal. 9*(2). 233-255. https://doi.org/10.1207/S15328007SEM0902_5

Closson. L. M., & Boutilier. R. R. (2017). Perfectionism. academic engagement. and procrastination among under-graduates: The moderating role of honors

student status. *Learning and Individual Differences. 57*. 157-162. https://doi.org/10.1016/j.lindif.2017.04.010

Cruzat. V. (2020). *Validación de la Escala de Engagement Académico de Utrecht en estudiantes de una Universidad Chilena*. [Tesis de Magister en Psicología Social. Universidad de Talca]. http://dspace.utalca.cl/handle/1950/12330

Dominguez-Lara. S., Fernández-Arata. M., & Seperak-Viera. R. (2021). Análisis psicométrico de una medida ultra-breve para el engagement académico: UWES-3S. *Revista Argentina de Ciencias del Comportamiento. 13*(1). 25-37. https://doi.org/10.32348/1852.4206.v13.n1.27780

Dominguez-Lara. S., Sánchez-Villena. A. R., & Fernández-Arata. M. (2020). Psychometric properties of the UWES-9S in Peruvian college students. *Acta Colombiana de Psicología. 23*(2). 7-23. http://www.doi.org/10.14718/ACP.2020.23.2.2

Gómez. P., Pérez. C., Parra. P., Ortiz. L., Matus. O., McColl. P., Torres. G., & Meyer. A. (2015). Relación entre el bienestar y el rendimiento académico en alumnos de primer año de medicina. *Revista M*édica de Chile. *143*(7). 930-937. http://dx.doi.org/10.4067/S0034-98872015000700015

Hoppe. J. D., Prokop. P., & Rau. R. (2018). Empower. not impose! -Preventing academic procrastination. *Journal of Prevention y Intervention in the Community. 46*(2). 184–198. https://doi.org/10.1080/10852352.2016.1198172

Hu. L., & Bentler. P. (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

Jaccard. J. (2018). *Structural equation modeling made accessible: Estimation algorithms*. Applied Scientific Analysis.

JASP Team (2020). *JASP (Version 0.14)* [Computer software].

Loscalzo. Y., & Giannini. M. (2019). Study engagement in Italian university students: a confirmatory factor analysis of the Utrecht Work Engagement Scale-Student version. *Social Indicators Research. 142* (2). 845-854. https://doi.org/10.1007/s11205-018-1943-y

Medrano. L., Moretti. L., & Ortiz. A. (2015). Medición del Engagement Académico en Estudiantes Universitarios. *Revista Iberoamericana de Diagnóstico y Evaluación - e Avaliação Psicológica. 2*(40). 114-124. https://www.redalyc.org/pdf/4596/459645432012.pdf

Meng. L., & Jin. Y. (2017). A confirmatory factor analysis of the utrecht work engagement scale for students in a Chinese sample. *Nurse Education Today. 49*. 129-134. https://doi.org/10.1016/j.nedt.2016.11.017

Parra. P., & Pérez. C. (2010). Propiedades psicométricas de la escala de compromiso académico. UWES-S (versión abreviada). en estudiantes de psicología. *Revista de Educación en Ciencias de la Salud. 8*(1). 128-133. http://www2.udec.cl/ofem/recs/anteriores/vol722010/artinv7210c.pdf

R Core Team (2020). *R: A language and environment for statistical computing. R Foundation for Statistical Computing* [Computer software]. https://www.r-project.org/

Reschly. A. L., & Christenson. S. L. (2012). Jingle. jangle. and conceptual haziness: Evolution and future directions of the engagement construct. En S. L. Christenson. A. L. Reschly y C. Wylie. *Handbook of research on student engagement*. Springer US. https://doi.org/10.1007/978-1-4614-2018-7_1

Rosseel. Y. (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software. 48*(2). 1–36. https://doi.org/10.18637/jss.v048.i02

Sánchez. I., Rodríguez. R., Toro. J., & Moreno. I. (2016). Propiedades psicométricas de la Utrecht Work Engagement Scale-Student (UWES-S) en universitarios de Puerto Rico. *Revista Mexicana de Psicología. 33*(2). 121-134. https://psycnet.apa.org/record/2016-37425-004

Seligman. M., & Csikszentmihalyi. M. (2000). Positive psychology: An introduction. *American Psychologist. 55*(1). 5–14. https://doi.org/10.1037/0003-066X.55.1.5

Schaufeli. W. B., Martínez. 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., & Bakker. A. B. (2003). *UWES Utrecht Work Engagement Scale*. Utrecht University. https://www.wilmarschaufeli.nl/publications/Schaufeli/Test%20Manuals/Test_manual_UWES_Espanol.pdf

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

Schaufeli. W. B. (2017). General engagement: conceptualization and measurement with the utrecht general engagement scale (UGES). *Journal of Well-Being Assessment. 1.* 9–24. https://doi.org/10.1007/s41543-017-0001-x

Schaufeli. W. B., Bakker. A. B., & Salanova. M. (2006). The measurement of work engagement with a short questionnaire: a cross-national study. *Educational and Psychological Measurement. 66*(4). 701-716. https://doi.org/10.1177/0013164405282471

Stefansson. K. K., Gestsdottir. S., Geldhof. G. J., Skulason. S., & Lerner. R. M. (2016). A bifactor model of school engagement: Assessing general and specific aspects of behavioral. emotional and cognitive engagement among adolescents. *International Journal of Behavioral Development. 40*(5). 471-480. https://doi.org/10.1177/0165025415604056

Tayama. J., Schaufeli. W., Shimazu. A., Tanaka. M., & Takahama. A. (2019). Validation of a Japanese Version of the Work Engagement Scale for Students. *Japanese Psychological Research. 61*(4). 262-272. https://doi.org/10.1111/jpr.12229

RIDU / Revista Digital de Investigación en Docencia Universitaria / e-ISSN: 2223-2516