

## RESEARCH ARTICLE

# Validation of the Teacher Engagement Scale: Elementary Students' Perception

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**Abstract:** While much research has focused on the negative aspects of teaching, such as stress and burnout, greater attention should be given to teachers' motivation and other positive factors. Special consideration is required for teachers' positive mental state; hence, studies on teachers' work engagement are necessary, not only through self-reports but also through students' perspectives. Elementary students, in particular, attribute an important role to their teachers, seeing them as models for group interactions. For these reasons, the aim of this study was to validate an adapted version of the Utrecht Work Engagement Scale to measure teacher engagement as perceived by their students. The sample comprised 521 students in grades 5 and 6 from urban public primary schools in Sonora, Mexico. Data were collected using an adaptation of the Utrecht Work Engagement Scale and the School Satisfaction subscale of the instrument developed by Liu et al. (2014). The validity evidence was assessed through a Confirmatory Factor Analysis (CFA) and a correlation matrix to examine convergent validity. The results supported a two-factor structure of teacher engagement, comprising vigour and dedication, and the scale demonstrated acceptable reliability.

**Keywords:** work engagement, Teacher Engagement Scale, school satisfaction, students' perceptions

## 1 Introduction

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2022), teachers play a key role in creating positive classroom environments. They play a crucial role in students' lives, often serving as the first point of contact for those who need assistance (Shuji, 2021). This influence is particularly strong in elementary school, where students tend to place greater importance on their teachers during classroom interactions (Ettekal et al., 2015), viewing them as role models and promoters of a favorable school environment (Cordero Aguirre, 2021). Hence, having validated instruments to assess teachers' work, particularly work engagement, is essential for broadening research on this variable and strengthening empirical evidence regarding its impact on students' outcomes.

### 1.1 Work engagement

A broad body of research has focused on the negative aspects of teachers, such as stress; however, research on teachers' motivation and positive aspects is also essential and serves as inspiration for further studies (Klassen et al., 2012). The present study focuses on work engagement, which is defined as a positive mental state (Arraigada, 2015; Schaufeli et al., 2002; Seppälä et al., 2008) that motivates individuals to contribute to their professional tasks (Arraigada, 2015; Kahn, 1990), including emotional involvement and expression (Kahn, 1990; Schaufeli et al., 2002).

Work engagement comprises three dimensions (López Cánovas & Chiclana, 2018; Schaufeli & Bakker, 2003): (1) vigour, referring to the energy and resilience individuals display while performing their work; (2) dedication, characterized by enthusiasm, inspiration, and a sense of significance in work-related activities; and (3) absorption, defined as being fully concentrated and deeply immersed in work tasks.

As a construct applied across diverse professions, engagement is particularly important in educational settings, where it can influence students' behaviors (Cardwell, 2011) and improve

teacher-student relationships (Al-Ruqaishi, 2017). Moreover, evidence indicates that students' positive perceptions of their teachers' engagement can enhance their academic performance and promote academic excellence (Estrada & Mamani, 2020).

## 1.2 Evaluation of engagement

Most research on engagement has used the Utrecht Work Engagement Scale (UWES) developed by Schaufeli and Bakker (2003), one of the most widely validated instruments in the field (López Cánovas & Chiclana, 2018). This three-dimensional scale includes items assessing vigour, dedication, and absorption, and has demonstrated reliability in Latin American samples. For instance, Vázquez et al. (2015) validated the UWES-17 and UWES-9 among Brazilian workers, and Juyumaya (2019) reported similar findings among Chilean workers. Their results showed that the instruments demonstrated construct and content validity. A single-factor model exhibited a better fit than the three-factor structure in both countries; however, the authors did not rule out the adequacy of the three-dimensional model. The UWES-9 has also been validated with Mexican workers, yielding favorable fit indices for the three-factor solution (CFI = 0.98, GFI = 0.97, RMSEA = 0.05) and adequate internal consistency ( $\alpha = 0.69\text{--}0.85$ ). Additionally, the engagement dimensions were negatively correlated with burnout, its theoretical opposite (Villa et al., 2019). Specifically in teachers, the UWES-17 has been shown to be reliable. According to Tomás et al. (2018), in Dominican teachers, the scale has demonstrated good fit indices for both the unidimensional and three-dimensional models, though the three-dimensional model showed slightly better values.

Although the three-dimensional model remains the most widely adopted framework, some researchers have opted for a unidimensional perspective. Authors like Thomas (2007) measure workers' engagement as a unidimensional variable, resulting in a nine-item scale. In contrast, some studies conducted in educational and labor contexts have adopted a broader conceptualization of the construct. Such is the case for the Motivation and Engagement Scale (MES), which comprises eleven specific areas of engagement: self-efficacy, appraisal, mastery orientation, planning, task management, persistence, anxiety, failure avoidance, uncertain control, self-limitation, and disengagement (Liem & Martin, 2012).

While engagement has traditionally been regarded as a key construct for the labor context, research on this phenomenon has increasingly extended to other fields, such as education, and now has its own measures. A widely used scale is the Engaged Teachers Scale (ETS), which consists of 16 items that assess four specific domains of teacher engagement: emotional, cognitive, social with students, and social with colleagues. This scale demonstrated validity across populations, as shown in a study by Yerdelen et al. (2018), who found that the instrument was applicable to Turkish teachers. Their Confirmatory Factor Analysis (CFA) confirmed the fit of the four-dimensional model, and Cronbach's alpha coefficients ranged from 0.81 to 0.87. Convergent validity was also favorable. In Latin America, the ETS has also demonstrated consistency, maintaining the four proposed dimensions in Brazilian samples using a CFA (Silva Júnior et al., 2020) and in Argentinian samples using an Exploratory Factor Analysis (EFA) (Menghi, 2021).

Regarding the student population, measures such as the Occupational Engagement Scale for Students (Escala de Compromiso Ocupacional para Estudiantes [OES-S]) are used. This scale considers engagement as the basis for rational and intuitive decisions (Cox, 2008). Even though the measures presented have all demonstrated strong psychometric properties, these scales are typically used to assess personal engagement rather than others' perceptions of engagement. Teachers' work engagement and students' perceptions of teachers' work engagement are two related but distinct constructs; teachers' work engagement refers to an internal psychological state, while students give an outsider's perspective. This distinction is important because self-reported levels of personal constructs may not always align with how others perceive them. Although teachers may experience a certain degree of engagement, the extent to which they express this in the classroom is not necessarily equivalent (Keller et al., 2018). Students do not necessarily report the real degree of the variable but rather an interpretation of their teachers' behaviors. Therefore, reliable measures are needed not only to assess specific attributes but also to understand how others perceive and interpret them.

## 1.3 Assessing teaching constructs through the lens of students' perceptions

Evidence suggests that it is possible to assess teachers' attributes by examining students' perceptions. This was addressed by Tabera Galván et al. (2015), who conducted a qualitative

analysis to explore students' perceptions of their teachers' attitudes and how these attitudes affected the teaching climate. The authors collected information that enabled them to relate the variables from students' perspectives. Some studies have also used a mixed-methods approach to evaluate students' perceptions of their teachers' positive and negative emotions (Jiang et al., 2016). This highlights that students not only value their teachers' performance but also offer insights into less frequently observed attributes.

While qualitative and mixed studies have provided evidence of students' ability to recognize teachers' attributes, quantitative research has sought to connect this perspective to both teacher and student outcomes. Some studies have specifically examined the relationship between teachers' qualities and performance through students' perceptions. For instance, Reyes Manrique (2016) developed and administered two scales to evaluate students' perceptions of their teachers' traits. Results showed that a good social and affective relationship with their teacher could improve their teacher's performance, and vice versa. This is supported by other studies, such as Bibi et al. (2023), in which students who perceived their teacher as effective, involved, and solidary tended to be more engaged and to display better performance.

Teachers' traits have also been evaluated indirectly through students' perception of other variables, as demonstrated by Havik and Westergård (2019), who analyzed classroom interactions and student engagement through an online survey applied to elementary students. Using structural equation modeling, the authors found that students' perceptions of teachers' emotional support may help predict students' engagement. Hence, students are not only sensitive to teachers' displays but are affected by them in a variety of ways. Characteristics such as enthusiasm can affect students' motivation to learn; students who perceived their teachers as enthusiastic tended to be more motivated (Márinças et al., 2025). This provides evidence of the importance of considering students' perspectives; if students' perceptions differ from teachers' self-perceptions, the engagement-related educational outcomes may also differ from those expected.

Beyond relying solely on students' perceptions, another approach to evaluating the effect of teacher engagement on students was to compare data from both teachers and students for a more reliable outcome. For instance, Bilal et al. (2021) obtained engagement data directly from teachers and complemented it with data from students, including teachers' attributes such as sensitivity and school satisfaction, suggesting that these perspectives are complementary rather than interchangeable, as they capture different aspects of the educational process. Other authors have evaluated the counterpart to work engagement, burnout, among elementary teachers, especially from students' perspectives.

Findings reveal that students can perceive their teachers' socio-emotional state; when teachers reported high levels of burnout, students reported lower perceptions of teachers' socio-emotional skills (Oberle et al., 2020). Therefore, the literature suggests that students can detect teachers' manifestations of variables that lead to valuable information. Though this does not imply that students can access teachers' internal experience, they can report on the observable conduct of their educator.

## 1.4 The present study

Zumbo et al. (2014) emphasize the importance of assessing a scale's relevance when validating an instrument. In the present study, we find that previous research has measured teacher engagement; however, no self-report of students' perceptions was found. Hence, the authors recognize the necessity for a self-report scale that captures students' perceptions of teacher engagement, thereby contributing to scientific knowledge about teacher engagement—a vital factor in students' perceptions of school and achievement (Cardwell, 2011; Estrada & Mamani, 2020). Furthermore, no prior research has focused explicitly on the perception of teacher engagement among elementary students. This is important because teachers' engagement has a crucial role in enhancing the overall experience for elementary students (Martins et al., 2021).

The present study proposes validating a scale to measure elementary students' perceptions of their teachers' engagement. We employ various approaches to validate the scale, following the recommendations of the American Educational Research Association (2014). To analyze construct validity, a Confirmatory Factor Analysis (CFA) was conducted. Additionally, convergent validity was assessed using a correlation matrix with school satisfaction, given that teacher engagement strengthens connections with students and enhances their performance, thereby promoting overall school satisfaction (Bilal et al., 2021). According to multiple scholars including Tessier et al. (2022) and Zahoór (2018), boosting teachers' work engagement can improve students' school satisfaction by cultivating more positive perceptions of teachers.

## 1.5 Linking teacher work engagement and school satisfaction: Evidence for convergent validation

Teachers' engagement has been found to correlate with job performance (Siddique et al., 2022) and students' well-being (Bósquez Albán & Álvarez Félix, 2023). According to authors such as Bilal et al. (2021), teachers with high levels of engagement can enhance classroom interactions and be better prepared to meet students' needs, thereby improving students' school satisfaction. Surdez Pérez et al. (2018) agree with this, having found that the relationships and treatment that teachers provide to their students may affect students' satisfaction or dissatisfaction.

In line with this, Tessier et al. (2022) found that intervention plans based on improving different aspects of teachers' labor—such as motivation, work engagement, and job satisfaction—can help increase students' school satisfaction. Teachers who participated in this intervention showed greater work engagement, improved motivational styles, and higher job satisfaction, thereby improving students' perceptions of their teachers and reports of their satisfaction. Zahoor (2018) also agrees that teachers' work engagement can work as a bridge between teachers' traits (proactive personality, job crafting, and work engagement) and students' outcomes. According to his study, teachers with high work engagement tend to concentrate better and be more resilient in their classes, providing a better experience for the students. Work engagement proved to be an adequate mediating variable between teachers' traits and school satisfaction, proving once more its importance in this phenomenon.

## 2 Methods

### 2.1 Participants

A sample of 521 students from urban public primary schools in southern Sonora was selected using non-probability convenience sampling, a frequently used method in social and developmental sciences (Jager et al., 2017). The sample was drawn from eight public primary schools and included students from 22 classrooms. Consistent with the structure of primary education in Mexico, each classroom was assigned a single homeroom teacher who was responsible for most academic instruction. Among these students, 255 were in the 5th grade (49%), and 266 were in the 6th grade (51%). Regarding gender identity, 49% identified as male (255 students) and 51% as female (266 students).

### 2.2 Instruments

#### 2.2.1 Teacher engagement

An adaptation of the Spanish version of the Utrecht Work Engagement Scale proposed by Valdez Bonilla and Ron Murguía (2011) was developed, including the two dimensions perceived by students: vigour and dedication. The third dimension was excluded because absorption is an inherently personal experience (Schaufeli & Bakker, 2003) that cannot be reliably assessed through students' self-reported perceptions. 1) vigour, which includes 6 items with questions related to the energy they perceive from their teachers (e.g., My teacher is full of energy when we are in class) and 2) dedication with 5 items to evaluate the perception of the devotion of their teachers towards their job (e.g., I think my teacher really likes what he does) It has a Likert-type response scale where 0 = Never and 4 = Always.

#### 2.2.2 School satisfaction

The School Satisfaction subscale of the School Subjective Well-being Scale for Primary Students (Liu et al., 2014) was used, composed of four dimensions: school management (4 items, e.g., The school rules and regulations are appropriate), teacher-student relationship (4 items, e.g., My teachers help me if I have a problem), achievement (4 items, e.g., I do well at school), and relationship with peers (3 items, e.g., My colleagues worry about me). It uses a five-point Likert-type response format, with 0 = Totally disagree and 4 = Totally agree.

### 2.3 Procedure and ethics

The university's Ethics Committee approved the project (document 262). Participating institutions were contacted via an invitation letter to manage access to the field of study. After obtaining permission, parents were given a letter of informed consent outlining the study's objectives and confidentiality measures. Students with signed consent were invited to participate

voluntarily, without academic repercussions. The instruments were applied in person in sessions of one hour per group.

## 2.4 Data Analysis

Data analysis was carried out using SPSS 27 and AMOS. Missing data were handled via the multiple imputation method in SPSS. The mean and standard deviation of the variables were calculated, and the correlation indices were estimated using Spearman's correlation coefficient.

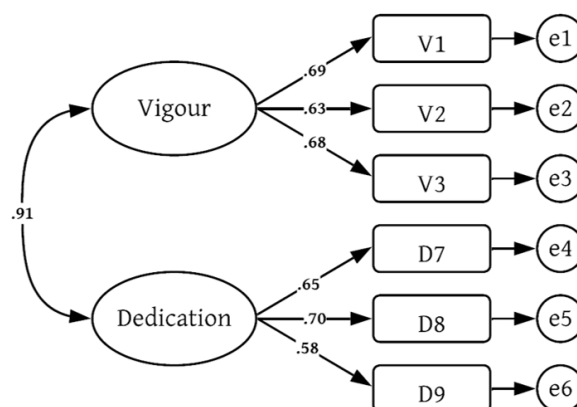
Descriptive statistics were obtained, and the distribution of the items was evaluated using the asymmetry and kurtosis indices. Confirmatory Factor Analysis (CFA) was estimated using the Maximum Likelihood (ML) method. Although the items were measured on a five-point Likert scale, ML estimation was considered appropriate given the large sample size ( $N = 521$ ) and the common practice of treating variables with five or more response categories as approximately continuous in structural equation modeling. Under these conditions, ML has been shown to produce consistent, unbiased, and efficient parameter estimates (Kyriazos & Poga-Kyriazou, 2023). Reliability was estimated using McDonald's Omega coefficient  $\omega \geq 0.65$  (Kalkbrenner, 2021).

Measurement invariance across gender was examined using multigroup confirmatory factor analysis. First, configural invariance was tested by specifying the same two-factor structure for men and women. Next, metric invariance was evaluated by constraining factor loadings to be equal across groups. Finally, scalar invariance was assessed by additionally constraining item intercepts. Additionally, a correlation matrix between teacher engagement and school satisfaction was obtained as a convergent validation.

## 3 Results

The initial Confirmatory Factor Analysis (CFA) showed inadequate model fit. Examination of standardized factor loadings indicated that two items loaded below the recommended threshold of 0.50 (Razali, 2023): item 5 (0.16) and 4 (0.37). In addition, modification indices revealed substantial correlated residuals involving items 6, 10, and 11 (MI values ranging from 12.94 to 29.71), suggesting redundancy among these items. Item removal was conducted sequentially, considering both statistical criteria and conceptual overlap among the items.

The results of the CFA are exhibited in Figure 1. All the goodness of fit indices indicated that the data support the two-factor model of teacher engagement through vigour and dedication ( $\chi^2 = 24.31$ ,  $df = 8$ ,  $p = 0.002$ ;  $SMRM = 0.03$ ;  $CFI = 0.98$ ;  $TLI = 0.96$ ;  $RMSEA = 0.06$ , 90% IC [0.04, 0.09]). The final model includes 6 items with factorial loadings ranging from 0.58 to 0.70 ( $p < 0.001$ ). The Average Variance Extracted (AVE) values were 0.55 for vigour and 0.53 for dedication.



**Figure 1** Confirmatory factor analysis of the engagement scale

After the scale was validated, reliability was assessed using McDonald's Omega; the global scale showed an acceptable value of 0.81, and the analyses of Vigour ( $\omega = 0.71$ ) and dedication ( $\omega = 0.68$ ) also indicated reliable data for this scale.

Measurement invariance was evaluated using changes in the Comparative Fit Index ( $\Delta CFI$ ) and the Root Mean Square Error of Approximation ( $\Delta RMSEA$ ), with values of  $\Delta CFI \leq 0.01$  and  $\Delta RMSEA \leq 0.015$  indicating invariance across groups (Sass & Schmitt, 2013). All three

models exhibited adequate fit indices (Table 1), and the variation in CFI and RMSEA indicated invariance across female and male participants. Therefore, the results support configural, metric, and scalar invariance of the scale across gender, indicating that the instrument operates equivalently for both genders.

**Table 1** Summary of fit statistics for testing measurement invariance by gender

Model	$\chi^2$	df	CFI	RMSEA	$\Delta$ CFI	$\Delta$ RMSEA
Configural	43.58	16	0.97	0.08	-	-
Metric	47.87	20	0.97	0.07	0.00	-0.01
Scalar	60.81	24	0.96	0.08	-0.01	0.01

The association between teacher engagement and school satisfaction is shown in Table 2; these two variables exhibit a positive, statistically significant, and moderate correlation (0.30,  $p < 0.01$ ), indicating their closeness and, hence, the convergent validity of the teacher engagement scale.

**Table 2** Correlation matrix between teacher engagement and school satisfaction

	M	DE	1	2
1. Teacher engagement	3.25	0.67	-	-
2. School satisfaction	3.08	0.59	0.30**	-

Note: \*\*  $p < 0.01$

## 4 Discussion

The present study sought to validate an adapted version of the Utrecht Work Engagement Scale to assess teacher engagement from students' perspectives. To date, no research has adapted this instrument to measure engagement based on one person's perception of another—specifically, students' perceptions of their teachers' engagement. To achieve the study objective, we examined two complementary sources of validity evidence: (1) a confirmatory factor analysis to examine construct validity and (2) a correlation matrix to assess convergent validity, using school satisfaction as a theoretically related variable, following previous research (Bibi et al., 2023; Tessier et al., 2022; Zahoor, 2018).

The CFA findings supported a two-factor model comprising vigour and dedication, with acceptable fit indices. In line with previous research (Castro Silva et al., 2023; Kulikowski, 2017). These results may be explained by the fact that vigour and dedication represent the most externally observable dimensions of work engagement, making them more readily identifiable and assessable across organizational and educational contexts. Both dimensions are reflected in observable behaviors, which may contribute to their consistent emergence in psychometric models of engagement.

In addition, teacher engagement showed a positive correlation with students' school satisfaction ( $r = 0.30$ ,  $p < 0.05$ ). These findings suggest that teachers' work-engagement dimensions can be assessed through students' perceptions. This is consistent with previous research showing that students can reliably recognize and report aspects of their teachers' professional behavior. Previous studies (Bilal et al., 2021; Oberle et al., 2020; Reyes Manrique, 2016) have demonstrated that students can accurately identify work-related characteristics in teachers.

According to Grijalva-Verdugo and Contreras Medel (2022), students perceive teacher engagement as one of the most important factors associated with educational quality. Moreover, students' perceptions of teachers' characteristics not only influence academic performance but are also associated with positive outcomes in students (Bibi et al., 2023), including school satisfaction (Jiang et al., 2022). This effect appears to be particularly evident in elementary school contexts, where students tend to attribute greater significance to their teachers (Ettetal et al., 2015). School interventions should include teachers' engagement, given evidence suggesting that an optimal perception of this outcome may positively impact students' well-being (Bósquez Albán & Álvarez Félix, 2023).

The present findings support the notion that teacher work engagement is a construct that students can recognize through their educator's observable behaviors. The scale proposed in the present study broadens the assessment of teacher engagement by incorporating an external source of information and may contribute to a more comprehensive understanding of this phenomenon.

## 4.1 Limitations

Despite the contributions outlined above, some limitations should be acknowledged. First, the findings rely on self-reported data, which may be influenced by social desirability and other personal biases; thus, future research should incorporate multiple informants (e.g., teachers or peers). Second, the sampling method was non-probabilistic, and the sample consisted of students from a northwestern state in Mexico, which restricts the generalizability of the results. Cultural and regional differences may shape students' perceptions, underscoring the need for more diverse samples and cross-cultural studies to evaluate the replicability of the measurement model. A third limitation of the study is the exclusion of the absorption dimension, as this construct reflects a deeply personal experience that is difficult to operationalize and assess through students' perceptions. Nonetheless, vigour and dedication are key components of engagement; therefore, the instrument provides an adequate representation of teacher engagement as perceived by students. Finally, students were nested within classrooms and schools, which may have introduced some degree of dependency among observations; although the analyses were conducted at the individual level, future studies could examine the factor structure using multilevel approaches to account for classroom- and school-level effects.

## 5 Conclusion

In general, these findings suggest that vigour and dedication are essential components of work engagement and reinforce the theoretical and psychometric relevance of these dimensions for their assessment. Teachers are a great influence on students, especially in elementary school, since children spend most of their time at school. With this in mind, it is important to investigate what teachers report about themselves and their classrooms, but it is also valuable to understand what students actually perceive from them. For future studies, it is recommended to examine teachers' variables, both self-reported and those reported by their students, to gain a more comprehensive understanding of the phenomenon.

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## Author Contributions

**Fernanda Ramírez Hernández:** Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Writing – original draft, Writing – review & editing;

**María Fernanda Durón Ramos:** Conceptualization, Formal analysis, Writing – original draft, Writing – review & editing;

**Fernanda Inéz García Vázquez:** Writing – review & editing.

## Declaration of interests

The authors declare no conflicts of interest.

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