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Humble Leadership: Psychometric Validation of a Scale Adapted to the Peruvian Organizational Context

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Abstract

Humble leadership has been recognized as a relevant style for organizational performance and well-being; however, empirical evidence on its psychometric properties comes primarily from English-speaking contexts, and validated instruments for Spanish-speaking populations, particularly in Peru, remain limited. This study aimed to psychometrically validate the Spanish-language version of the Expressed Humility Scale in a Peruvian organizational sample. We used an instrumental, non-experimental, cross-sectional design with a sample of 411 employees. We conducted exploratory and confirmatory factor analyses and assessed reliability, convergent validity, and validity based on relationships with other variables. The results revealed a unifactorial structure with nine items, factor loadings between 0.72 and 0.90, excellent fit after specifying theoretically justified error covariances (CFI = 0.990; RMSEA = 0.058), high reliability ($\alpha = 0.955$; CR = 0.954), and adequate convergent validity (AVE = 0.701). Furthermore, we found a positive and significant correlation with work engagement ($r = 0.53$, $p < 0.001$), supporting its criterion validity. These findings provide a valid and reliable instrument for assessing humble leadership in the Latin American organizational context, thus helping to close a relevant methodological gap in leadership research in the region.

Keywords: humble leadership; psychometric validation; confirmatory factor analysis; reliability; construct validity; work engagement



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1. Introduction

Contemporary organizations operate in environments characterized by digital transformation, uncertainty, globalization, and accelerated change, demanding more adaptive and ethical leadership styles that adopt a humanized, people-oriented approach (Liden et al., 2025). In this sense, leadership remains a key determinant of organizational performance, innovation, and adaptability, which is why recent research has broadened its focus to encompass digital, relational, ethical, and diversity dimensions (Ribeiro et al., 2025).

Recent literature shows a shift from traditional leadership approaches toward models that prioritize ethics (Agustin-Silvestre et al., 2024), authenticity, servant leadership (Zhou et al., 2022), interpersonal relationships, and employee well-being as sources of

sustainable competitive advantage. Contemporary research agrees that leaders must develop the capacity to manage complexity, foster inclusive organizational cultures, respond to digital transformation (Pham et al., 2023), and strengthen organizational resilience in highly dynamic environments. In contemporary organizations, leadership is a key factor in guiding employee behavior, promoting an ethical organizational culture, and responding effectively to increasingly complex and dynamic environments (Mitchell et al., 2023). Recent research recognizes that organizational leadership has acquired a strategic role in addressing uncertainty, strengthening ethical governance, and fostering sustainable organizational performance (Hassan et al., 2023).

Conceptually, humble leadership manifests itself through observable behaviors such as recognizing one's own limitations (Owens et al., 2013; Wu et al., 2025), valuing the strengths and contributions of colleagues, and openness to learning (Yang & Xu, 2022)—dimensions that distinguish this construct from other positive leadership approaches. Meta-analytic evidence also shows relevant associations between humble leadership and psychological entitlement and organizational citizenship behaviors (H. Chen et al., 2024), resilience (Zhu et al., 2019), organizational agility (Hossny et al., 2026), psychological empowerment, self-efficacy, psychological safety, trust, and innovation, thereby improving individual and collective performance (Arslan et al., 2026); and the leader-member exchange (LMX) (G. Wang et al., 2024). Consequently, psychometric validation of the Expressed Humility Scale will expand evidence on the nomological framework of humble leadership in organizational and cultural contexts that remain insufficiently represented.

Given this reality, it is necessary to determine whether the Spanish-language version of the Expressed Humility Scale possesses adequate psychometric properties, factor structure, reliability, and convergent, discriminant, and criterion validity for use in a Peruvian organizational sample. Methodologically, an instrument with evidence of validity and reliability will support more rigorous measurement of humble leadership in Peruvian contexts. This need is particularly relevant because recent reviews and meta-analyses have identified substantial heterogeneity in the conceptualization and operationalization of leader humility, including its treatment as a mutable behavioral state or as a relatively stable leader trait, and have called for clearer construct definition and greater precision in its measurement (Chandler et al., 2023; Kelemen et al., 2023; Silard et al., 2025). Therefore, examining its psychometric properties in the Peruvian context will provide a psychometrically sound, replicable, and potentially usable tool for future organizational research.

From a business perspective, its relevance lies in providing a valid measure of humble leadership that gives human talent management areas a tool to diagnose leadership behaviors related to openness to learning, recognition of employee contributions, and the leader's ability to acknowledge their limitations. Among employees in the baking industry, this information could support organizational diagnostic processes, supervisor selection and development, management training, and evaluation of leadership practices, contributing to evidence-based people management.

The Spanish-language version of the Expressed Humility Scale has social and contextual relevance because it will allow the incorporation of evidence from Peruvian workers and the Latin American context into a body of literature developed across multiple cultural settings such as China (Duan et al., 2024; Y. Wang et al., 2018), Australia (Nguyen et al., 2020), Germany (Liborius & Kiewitz, 2022), and Jordan, whose generalizability across countries should not be assumed automatically.

Meta-analytic evidence indicates that contextual variables, including country and certain components of national culture, can modify some associations between humble leadership and its outcomes. Consequently, having psychometric evidence generated in Peru will help examine the construct's cultural relevance in a Latin American work envi-

ronment and provide a basis for future comparisons across sectors, regions, and countries. Therefore, this study pursues the following objectives: (1) To psychometrically validate the Spanish-language version of the Expressed Humility Scale (Owens et al., 2013) in a Peruvian organizational sample. (2) To examine the factor structure of the Expressed Humility Scale using exploratory and confirmatory factor analysis. (3) To evaluate the reliability (internal consistency) and convergent validity of the instrument. (4) To determine the validity based on the relationship with other variables (criterion/nomological validity) by associating the scale with Work Engagement, a construct theoretically linked to humble leadership in previous literature (Owens et al., 2013).

2. Theoretical Framework

2.1. The Construct of Humble Leadership

Humility has intellectual roots in organizational sciences, which have approached it through philosophy, religion, and morality (Chandler et al., 2023). Although historically associated with modesty, humility's contemporary conceptualization recognizes strengths and weaknesses and supports an accurate self-image (Kelemen et al., 2023). The systematic integration of this construct into organizational behavior has gradually shifted the focus from a primarily intrapersonal quality to an interpersonal expression observable to those who interact with the leader (Owens et al., 2013). This transition has helped clarify humility as a personality trait expressed through a leader's observable behavior in interactions with team members (Chandler et al., 2023). In this sense, humble leadership is characterized by accurate self-perception, recognition of others' strengths, and appreciation of their contributions (Luo et al., 2022). Likewise, humble leaders actively recognize and value their team members' performance, fostering positive work-oriented behaviors (Ding et al., 2020). At a collective level, this leadership style also promotes team innovation by strengthening group reflexivity (Lei et al., 2022).

2.2. Evaluation of Psychometric Studies Based on the Humble Leadership Scale by Owens et al. (2013)

This study focused specifically on the 9-item Expressed/Humble Leadership scale developed by (Owens et al., 2013). Table 1 reveals that there are relatively few instrumental studies dedicated exclusively to adapting and/or validating the scale; most evidence post-dating 2013 comes from substantive studies that carried out translation or back-translation and re-examined reliability, factor structure, or convergent/discriminant validity in new cultural contexts, such as Asia, Oceania, and Europe. The review of the scientific literature itself regards the Owens et al. (2013) scale as one of the most well-established measures of humility; see, in particular:

Table 1. Prior psychometric evidence regarding the Humble Leadership Scale by Owens et al. (2013).

Author	Reliability	Factor Structure	Main Psychometric Properties Reported	Country	Sample
Y. Wang et al. (2018)	$\alpha = 0.88$	9 items treated as a single humble leadership factor within a 4-factor measurement model.	Translation-back-translation. CFA of the 4-construct model: $\chi^2 (389) = 554.35$, CFI = 0.95, TLI = 0.94, RMSEA = 0.04, SRMR = 0.05. Furthermore, rWG = 0.93, ICC(1) = 0.55, and ICC(2) = 0.80, supporting team-level aggregation.	China	328 employees + 106 leaders from 50 software companies.

Table 1. Cont.

Author	Reliability	Factor Structure	Main Psychometric Properties Reported	Country	Sample
Nguyen et al. (2020)	$\alpha = 0.96$	9 indicators within the measurement model; loadings of approximately 0.77 to 0.90.	AVE = 0.71; five-factor model CFA: CFI = 0.97, TLI = 0.96, RMSEA = 0.05, SRMR = 0.05. Evidence of convergent and discriminant validity; HTMT < 0.90.	Australia	252 professional employees, primarily in knowledge-intensive services, including health, education, scientific/technical services, and administrative support.
Liborius and Kiewitz (2022)	$\alpha = 0.94$	The study retained the 9 original items and the 3 sub-dimensions (3 items each); however, it did not independently test the original three-factor structure or a second-order hierarchical model.	English–German translation using a back-translation procedure. The three original humility subdimensions were retained and represented as parcels in the broader measurement model. A four-factor CFA conducted primarily to assess common method variance showed $\chi^2 (84) = 170.88$, CFI = 0.942, RMSEA = 0.073, and SRMR = 0.061. The study did not provide an independent CFA of the nine-item scale’s original three-factor structure.	Germany	Initial field study with 253 workers (N = 196 at T2) from public and private services, healthcare, sales, manufacturing, and finance.
Duan et al. (2024)	$\alpha = 0.885$	9 items, 3 dimensions	The authors conducted rigorous translation-back-translation and piloting with postgraduate students to verify semantic adequacy. The study adapts the leader–employee items to a supervisor–postgraduate student context. The accessible section does not report an independent CFA of the humility scale with specific indices.	China	431 students across three cycles, different disciplines, and academic categories.
Mrayyan and Algunmeeyn (2024)	$\alpha = 0.94$	It retains the 9-item scale for leader humility.	Evidence is primarily of internal consistency and applied/predictive validity. It does not constitute a formal cross-cultural psychometric adaptation using CFA.	Jordan	260 nursing students and healthcare workers from public or private universities and/or hospitals.

2.3. Differentiation of Humble Leadership from Related Constructs

Humble leadership shares certain conceptual attributes with other constructs (Chandler et al., 2023); however, its core concept centers on accurate self-assessment, recognition of others’ strengths and contributions, and the leader’s openness to feedback and learning (G. Wang et al., 2024). Thus, humble leadership fits within a nomological network without being reducible to any of the existing constructs (Chandler et al., 2023).

First, it is important to distinguish humble leadership from modesty, as the latter is primarily associated with a tendency to present one’s achievements discreetly and avoid excessive self-promotion (Chandler et al., 2023). Humility, by contrast, encompasses broader

interpersonal skills (Owens & Hekman, 2012), enabling a leader to accurately recognize their own abilities without losing humility (Nielsen et al., 2010).

Second, although narcissism is often presented as conceptually opposed to humility (Luo et al., 2022), they do not represent opposite poles of the same construct but rather distinct phenomena that can coexist in the same individual and drive different mechanisms in a leader's behavior (Cavazotte et al., 2023). Therefore, narcissism is understood as a self-perception of superiority over others and a strong need for self-affirmation (Luo et al., 2022). Humble leadership, by contrast, involves recognizing personal limitations (G. Wang et al., 2024).

On the other hand, a relevant distinction is observed in the Honesty–Humility dimension of the HEXACO model, since the term “humility” can be mistakenly considered equivalent (Chandler et al., 2023). This distinction matters because a recent meta-analytic synthesis warns against indiscriminately combining leader-expressed humility, dispositional humility, and honesty–humility, as this can obscure the conceptual particularities of each construct and compromise the validity of accumulated conclusions about humble leadership (Silard et al., 2025).

On the other hand, although humble leadership shares relational and moral features with other positive leadership approaches, it represents a conceptually distinct construct. Humble leadership is primarily manifested through observable interpersonal behaviors involving an accurate acknowledgment of one's limitations, explicit appreciation of followers' strengths and contributions, and openness to learning from others, making teachability and the recognition of others particularly distinctive components of the construct (Owens et al., 2013). In contrast, authentic leadership centers on leaders' congruence with their internal values and self-concept and is operationalized through self-awareness, relational transparency, an internalized moral perspective, and balanced processing of information (Walumbwa et al., 2008). Servant leadership, although similarly other-oriented, is distinguished by the leader's fundamental motivation to serve and prioritize followers' needs, development, empowerment, and broader welfare, extending this orientation beyond interpersonal humility itself (Eva et al., 2019). Ethical leadership, meanwhile, emphasizes normatively appropriate conduct and the leader's active role as a moral manager who communicates ethical standards, reinforces appropriate behavior, and incorporates ethics into decision-making (M. E. Brown et al., 2005). Thus, the distinctive theoretical core of humble leadership lies not simply in being moral, authentic, or follower-centered, but in behaviorally expressing personal fallibility, appreciation of others, and willingness to learn, which supports its treatment as an empirically distinguishable leadership construct and justifies the specific assessment of its measurement properties across cultural contexts.

3. Materials and Methods

3.1. Study Design

This study employs a non-experimental, instrumental design to develop and analyze the psychometric properties of a psychological measurement instrument (Ato et al., 2013). This design is appropriate when the central research objective is to examine an assessment instrument's validity and reliability by adapting, applying, and analyzing it in a specific sample (Montero & León, 2007). Furthermore, the study adopts a quantitative approach, a methodological scope focused on instrument validation, and a cross-sectional design, collecting data at a single point in time (Hernández-Sampieri & Mendoza Torres, 2018).

3.2. Sample, Procedure and Ethical Considerations of the Study

The sample consisted of 411 employees from a baking company in Lima, Peru. The study used non-probabilistic convenience sampling, and inclusion criteria required em-

employees to be aged 18 or older and have at least 12 months of seniority under the direct supervision of their manager or immediate supervisor. This ensured that participants had sufficient interaction experience to reliably evaluate their manager's behavior (Owens et al., 2013). Following Hair et al. (2020) recommendations for confirmatory factor analysis, the sample size ($N = 411$) was adequate, significantly exceeding the minimum recommended ratio of 10 cases per estimated parameter in structural equation modeling. Regarding age range, the predominant group was 26 to 35 years (39.2%), followed by 18 to 25 years (25.5%), 36 to 45 years (18.0%), and, to a lesser extent, 46 years or older (17.3%). Regarding gender, 65.2% of the participants were men and 34.8% were women (Table 2).

Table 2. Sociodemographic Characteristics of the Sample ($N = 411$).

Variable	Category	Frequency	Percentage
Age range	18–25	105	25.5
	26–35	161	39.2
	36–45	74	18.0
	46–plus	71	17.3
Sex	Men	268	65.2
	Women	143	34.8

Data collection took place during the first half of 2023 using a self-administered questionnaire via Google Forms. Participants were informed about the study's objectives and provided their informed consent before completing the instrument. Participation was voluntary, anonymous, and without financial incentives. Data were collected and processed to ensure confidentiality, in accordance with the ethical principles governing research involving human subjects.

The study followed the ethical principles established in the Declaration of Helsinki for research involving human subjects, prioritizing participants' well-being (World Medical Association, 2013) and respecting participants' autonomy, confidentiality, and well-being. The Ethics Committee of the Postgraduate Unit of the Peruvian Union University reviewed and approved the research protocol and authorized it under code 2023-CE-EPG-00019 on 13 March 2023.

3.3. Measurement Instruments and Cultural Adaptation Process

We assessed humble leadership using the Expressed Humility Scale, originally developed by Owens et al. (2013). The scale comprises nine items structured around three theoretical first-order dimensions, later shown to converge onto a general second-order factor (Owens et al., 2013): (1) willingness to view oneself accurately (items 1–3), (2) appreciation of others' strengths (items 4–6), and (3) teachability (items 7–9). The original authors retained this three-dimensional structure after an iterative item-reduction process, and confirmatory factor analysis in the original validation study showed that a three-factor second-order model outperformed a strictly one-factor model. Observers (subordinates) rate items regarding their direct leader's behavior on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). The original validation reported an internal consistency of $\alpha = 0.94$ (Owens et al., 2013).

To provide evidence of external validity through relationships with other variables, we used the ultra-short, three-item version of the Utrecht Work Engagement Scale (UWES-3) (Schaufeli et al., 2019), rated on a five-point Likert-type scale. The three items correspond respectively to the vigor, dedication, and absorption dimensions of the original instrument (see Appendix A, Table A1). The UWES has previously been examined in Peruvian samples: (Flores et al., 2015) validated the UWES-15 and UWES-9 among Lima schoolteachers, and

(Merino-Soto et al., 2022) provided psychometric evidence for the abbreviated UWES-3 version, the same version used in the present study, in a sample of 200 workers from Metropolitan Lima, reporting high reliability ($\rho = 0.94$) and validity evidence based on its relationships with other variables. However, as these authors note, Peruvian psychometric evidence for the UWES remains scarce and should be considered preliminary. The present study did not conduct an independent psychometric validation of the UWES-3; rather, this prior Peruvian evidence informed its selection as the external criterion measure for assessing the Expressed Humility Scale.

The adaptation of the Expressed Humility Scale into Spanish followed the cross-cultural translation and adaptation procedure proposed by (Beaton et al., 2000), widely used in adapting psychological measurement instruments to new cultural and linguistic contexts. This procedure comprised the following stages: (a) direct translation of the original instrument (English-Spanish) by an independent bilingual translator; (b) synthesis of the translation into a consensus version; (c) back-translation into the original language by an independent translator unfamiliar with the original version of the scale; (d) review by a committee of experts in organizational psychology to assess the semantic, idiomatic, experiential, and conceptual equivalence of the items; and (e) application of a pilot test to verify the comprehension and clarity of the items in the target population. This procedure is consistent with the international guidelines for (Beaton et al., 2000; International Test Commission, 2017) and with the content validity standards described for Educational and Psychological Testing (AERA et al., 2014).

During the expert panel review stage (step “d” of the procedure by Beaton et al., 2000), the committee of organizational psychology experts determined that certain items required semantic adjustments beyond direct translation to enhance conceptual clarity and comprehension within the Peruvian organizational context. Specifically, the panel modified items 4, 8, and 9 based on consensus on how Peruvian employees most naturally understand and describe these behaviors when describing their supervisors. The panel adopted this decision and recorded it as the final, consensus-based version of the instrument.

3.4. Data Analysis

Data processing and analysis were performed in two sequential phases. First, an exploratory factor analysis (EFA) was conducted in IBM SPSS Statistics version 25 (IBM Corp., Armonk, NY, USA) using the maximum likelihood extraction method to examine the scale’s underlying internal structure. Prior to this, sampling adequacy was assessed using the Kaiser-Meyer-Olkin (KMO) test (Kaiser, 1974) and the sphericity test (Bartlett, 1950), and Univariate descriptive statistics (mean, standard deviation, skewness, and kurtosis) were examined following the normality criteria recommended by (Kline, 2023).

Secondly, a confirmatory factor analysis (CFA) was performed using AMOS version 24 (IBM Corp., Armonk, NY, USA), following the two-step approach recommended by (Kline, 2023), to confirm the factor structure obtained in the exploratory factor analysis (EFA) and to evaluate the fit of the measurement model. Model fit was assessed using the CMIN/DF, CFI, RMSEA, and PClose indices, considering the conventional thresholds proposed by (Hu & Bentler, 1999). Reliability was estimated using Cronbach’s alpha and composite reliability (CR), and convergent validity was estimated using the mean variance extracted (AVE), following the criteria of (Fornell & Larcker, 1981) and the updated recommendations of Cheung et al. (2024). Finally, validity evidence based on the relationship with other variables was obtained (AERA et al., 2014) by estimating the correlation between the Expressed Humility (EH) factor and the Work Engagement measure, complemented by the discriminant validity criteria of (Fornell & Larcker, 1981) and the heterotrait-to-monotrait ratio (HTMT) (Henseler et al., 2015).

4. Results

4.1. Descriptive Statistics of the Items

Before the exploratory factor analysis, we examined descriptive statistics for the nine items comprising the Expressed Humility Scale (Table 3) to assess data distribution and verify compliance with the univariate normality assumption required by the maximum likelihood estimation method used in subsequent factor analyses (Tabachnick & Fidell, 2019). Item means ranged from 3.79 (EH2) to 4.06 (EH9) on a 5-point Likert scale, suggesting a moderately high perception of humble leadership in the evaluated sample, while standard deviations (range = 0.98 to 1.05) showed adequate dispersion of responses, with no indication of severe range restriction. Regarding univariate normality, all items showed negative skewness (range: −0.991 to −1.260), a pattern consistent with evaluators' tendency to rate their leaders favorably, a pattern commonly observed in organizational perception scales with third-party reports (Owens et al., 2013). Kurtosis values, by contrast, were all positive and of moderate magnitude (range 0.563 to 1.317), indicating slightly leptokurtic distributions relative to a normal distribution. Following the criterion of (Kline, 2023), who suggests that absolute skewness values below 3 and kurtosis values below 10 are acceptable for assuming univariate normality in the context of structural equation models, all items fell well within acceptable ranges. This conclusion holds even when comparing the results with the more conservative criterion proposed by Curran et al. (1996), who consider a skewness greater than 2 and a kurtosis greater than 7 problematic, thresholds that no item came close to exceeding, thus reinforcing the robustness of the univariate normality assumptions in this dataset (George & Mallery, 2010). Overall, these results supported proceeding with exploratory and confirmatory factor analysis using maximum likelihood estimation, without resorting to robust estimation methods for multivariate normality violations.

Table 3. Descriptive Statistics of the Expressed Humility Scale Items (N = 411).

	Average	Deviation	Asymmetry	Kurtosis
EH1	3.8224	0.98530	−1.037	1.042
EH2	3.7859	0.99897	−0.991	0.749
EH3	3.9124	1.02986	−1.116	0.999
EH4	3.8978	1.04963	−1.003	0.563
EH5	3.9635	1.03412	−1.070	0.780
EH6	3.9513	0.98405	−1.152	1.236
EH7	4.0073	0.98894	−1.155	1.248
EH8	3.9562	1.04206	−1.186	1.178
EH9	4.0633	1.01255	−1.260	1.317

4.2. Exploratory Factor Analysis (EFA)

The KMO index was 0.958, significantly exceeding the recommended minimum threshold of 0.60 (Kaiser, 1974), indicating “outstanding” sample adequacy for factor analysis according to the author's classification. The test of sphericity, Bartlett (1950), was significant ($\chi^2 = 3442.460$, $df = 36$, $p < 0.000$), confirming that the correlation matrix differs significantly from the identity matrix and that the data are factorable (Tabachnick & Fidell, 2019).

Exploratory factor analysis of the nine items of the Expressed Humility Scale, using maximum-likelihood extraction, yielded a one-factor solution. A single factor with an eigenvalue greater than 1 (eigenvalue = 6.650) was extracted, following the criterion of (Kaiser, 1960), which explained 70.64% of the total variance after extraction, a percentage that far exceeds the minimum criterion of 50–60% recommended for the social sciences (Costello & Osborne, 2005). The second component had a considerably lower eigenvalue (0.513), reinforcing the relevance of retaining a single dimension. This result is consistent

with the second-order theoretical structure proposed by (Owens et al., 2013), in which the three subdimensions of the construct (disposition to see oneself accurately, appreciation of the strengths of others, and teachability) empirically converge on a general factor of humble leadership.

The scree plot (Figure 1) showed a clear inflection point between the first and second factors, a pattern consistent with the factor retention criterion originally proposed by Cattell (1966) and widely validated in the contemporary exploratory factor analysis literature (Goretzko et al., 2021). The first factor had an eigenvalue of 6.650, significantly exceeding the 1.0 threshold proposed by Kaiser (1960), a criterion that remains widely used and validated in contemporary psychometric literature (Braeken & van Assen, 2017). Meanwhile, the second factor (eigenvalue = 0.513) and subsequent factors plateaued below 1, suggesting they represent measurement error variance rather than substantive factor structure (Costello & Osborne, 2005). The convergence between both criteria, the scree plot and Kaiser's rule, provides robust evidence for retaining a one-factor solution, consistent with the second-order theoretical structure proposed by Owens et al. (2013), in which the three subdimensions of the construct converge on a general factor of humble leadership.

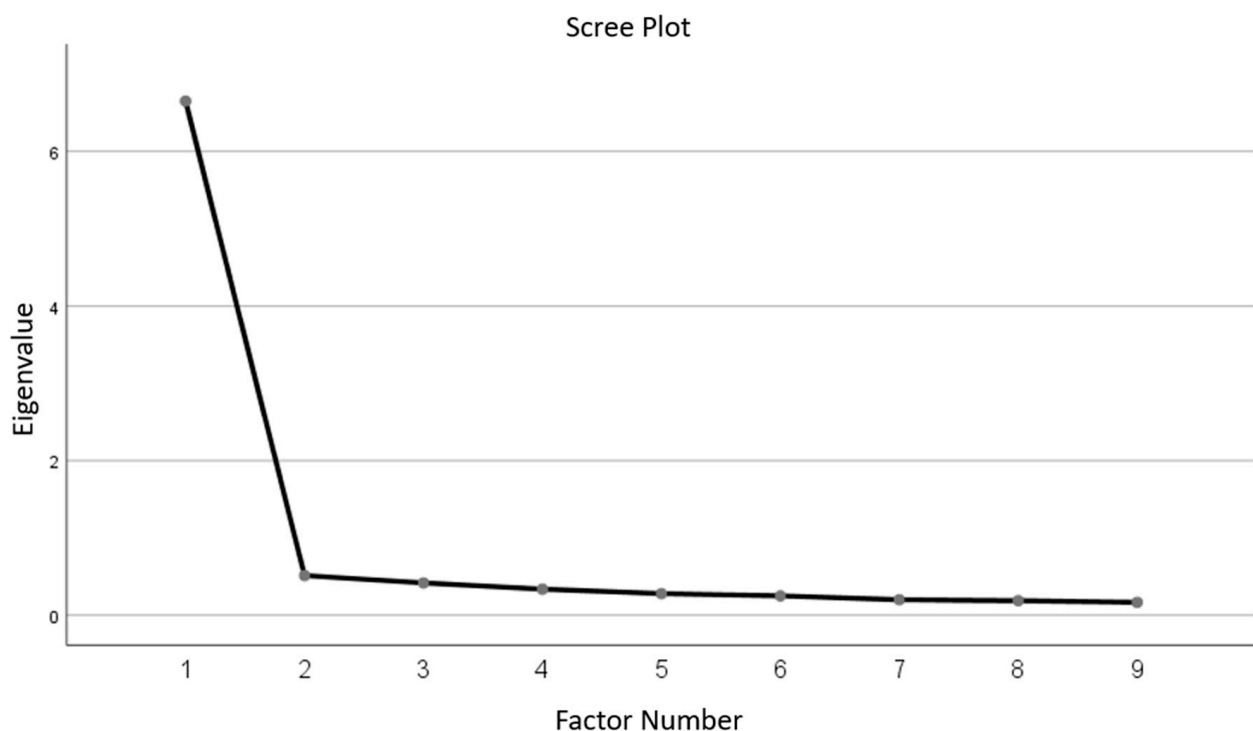


Figure 1. Scree Plot of the Extracted Factors. Note. The graph shows the eigenvalues of the nine items of the Expressed Humility Scale. The inflection points between the first and second factors supports retaining a one-factor solution (Goretzko et al., 2021).

Table 4 presents the factor loadings of the nine items from the single extracted factor. Since the analysis retained only one factor, rotation was not necessary; therefore, the unrotated factor matrix is reported (Field, 2018). All items showed high and unambiguous factor loadings, ranging from 0.737 (EH1) to 0.897 (EH9), well above the minimum criterion of 0.40 recommended for item retention in exploratory factor analysis (Costello & Osborne, 2005), confirming that the nine items are consistent and robust indicators of the Expressed Humility construct.

Table 4. Factorial Matrix of the Expressed Humility Scale.

Item	Factor 1 (EH)
EH9	0.897
EH6	0.895
EH8	0.893
EH7	0.884
EH3	0.835
EH5	0.831
EH4	0.801
EH2	0.774
EH1	0.737

Note. Extraction method: maximum likelihood. No factor rotation was applied since only one factor was extracted.

4.3. Confirmatory Factor Analysis (CFA)

4.3.1. Specification and Comparison of Alternative Models

To improve the measurement model specification, we compared two nested models, following the procedure recommended by Kline (2023) for evaluating and refining structural equation models. Model 1 corresponded to the initial one-factor specification of the Expressed Humility Scale, without covariances among measurement errors, while Model 2 incorporated the covariances among the error terms of items EH1, EH2, and EH3, identified from the modification indices and theoretically supported by belonging to the same conceptual subdimension of the original construct (Owens et al., 2013).

As shown in Table 5, Model 1 demonstrated an acceptable fit for the CMIN/DF index (3.914) and an excellent fit for the CFI (0.977), according to the conventional thresholds proposed by (Hu & Bentler, 1999). However, the RMSEA (0.084) fell into the “poor” category, and the PClose (0.000) indicated an unacceptable level of close fit, indicating a suboptimal specification of the initial model. After incorporating the theoretically justified error covariances, Model 2 showed a substantial and consistent improvement in all indices: CMIN/DF decreased from 3.914 to 2.372, CFI increased from 0.977 to 0.990, RMSEA was drastically reduced from 0.084 to 0.058, and PClose improved from 0.000 to 0.233, reaching the “excellent” category in all evaluated indicators.

Table 5. Comparison of Fit Indices Across Four Alternative Measurement Models.

Measure	Threshold	Model 1 (1-Factor)	Model 2 (1-Factor, Correlated Errors)	Model 3 (3 Correlated Factors)	Model 4 (Second-Order)
CMIN	–	105.682	56.934	44.045	44.045
DF	–	27	24	24	24
CMIN/DF	1–3	3.914 (Acceptable)	2.372 (Excellent)	1.835 (Excellent)	1.835 (Excellent)
CFI	>0.95	0.977 (Excellent)	0.990 (Excellent)	0.994 (Excellent)	0.994 (Excellent)
RMSEA	<0.06	0.084 (Poor)	0.058 (Excellent)	0.045 (Excellent)	0.045 (Excellent)
PClose	>0.05	0.000 (Unacceptable)	0.233 (Excellent)	0.623 (Excellent)	0.623 (Excellent)

Note. Model 3 and Model 4 yield identical fit statistics because, with exactly three first-order factors, a second-order factor is fully saturated (zero additional degrees of freedom are imposed relative to the freely correlated three-factor model) (T. Brown, 2015).

The formal comparison between the two models using the chi-square difference test ($\Delta\chi^2$) was statistically significant: $\Delta\chi^2(3) = 48.75$, $p < 0.001$ ($\chi^2_1 = 105.682$, $df = 27$; $\chi^2_2 = 56.934$, $df = 24$), indicating that Model 2 represents a statistically significant improvement over Model 1 (Bentler & Bonett, 1980; Byrne, 2016). This test, widely used to compare nested models in structural equation modeling, confirms that including error covariances not only improved the descriptive fit indices but also represented a statistically robust improvement not attributable to chance (MacCallum et al., 1992).

It should be noted that, although the incorporation of error covariances based exclusively on modification indices has been criticized in the literature for its potential capitalization on chance (MacCallum et al., 1992), in the present case, this decision is further supported by a solid theoretical foundation: the shared conceptual belonging of the three items to the same subdimension of the original construct, which considerably reduces the risk of overfitting and reinforces the substantive validity of Model 2 as the final model (Cole et al., 2007; Hermida, 2015).

This theoretical justification is further corroborated by the three-factor model reported below (Section 4.3.1, Model 3), in which items EH1, EH2, and EH3 loaded together onto a single first-order factor (Accurate Self-View) without requiring any correlated errors. This convergent evidence, obtained from an entirely different model specification, reinforces the conclusion that the shared variance among these three items reflects a substantive latent dimension rather than idiosyncratic measurement error, mitigating concerns about capitalizing on chance when retaining this specification (MacCallum et al., 1992).

To directly address whether the originally proposed three-dimensional structure of the Expressed Humility Scale (Owens et al., 2013) provides a superior representation of the data relative to the unidimensional solution, two additional models were specified and estimated: Model 3, comprising three freely correlated first-order factors (Accurate Self-View: EH1–EH3; Appreciation of Others' Strengths: EH4–EH6; Teachability: EH7–EH9), and Model 4, a second-order model in which these same three first-order factors load onto a single higher-order Expressed Humility factor.

As shown in Table 5, both multidimensional specifications (Models 3 and 4) achieved excellent fit across all indices (CFI = 0.994; RMSEA = 0.045; PClose = 0.623), outperforming the unidimensional models. Notably, Models 3 and 4 produced numerically identical fit statistics (CMIN = 44.045, $df = 24$). This equivalence is an expected mathematical consequence of specifying a second-order factor with exactly three first-order indicators: under this condition, the second-order structure imposes no additional constraints relative to the freely correlated three-factor model, making both specifications statistically indistinguishable in overall fit (T. Brown, 2015; Kline, 2023).

Although Model 3 showed superior absolute fit relative to the unifactorial specifications, examination of the inter-factor correlations (Table 6) revealed exceptionally high values: 0.91 between Accurate Self-View and Appreciation of Others' Strengths, 0.93 between Accurate Self-View and Teachability, and 0.97 between Appreciation of Others' Strengths and Teachability. These correlations substantially exceed the conventional threshold of 0.85 commonly used to indicate a lack of empirical distinctiveness between latent factors (Henseler et al., 2015; Kline, 2023). Model 4 further corroborated this interpretation, with standardized second-order loadings similarly near unity (Accurate Self-View = 0.93; Appreciation of Others' Strengths = 0.98; Teachability = 0.99), indicating that the general Expressed Humility factor accounted for nearly all reliable variance in each first-order dimension.

Taken together, these results indicate that, although a formally specified three-factor or second-order structure achieves marginally superior fit relative to a strict unidimensional model, the three theoretical subdimensions of the Expressed Humility Scale are not empirically distinguishable from one another in the present sample: their near-perfect intercorre-

lations and second-order loadings demonstrate that they collapse, in practice, into a single general dimension. This pattern provides direct empirical justification, rather than a theoretical assumption, for treating the scale as unidimensional for scoring and interpretation, while also confirming that this one-dimensionality is fully consistent with, and explained by, the second-order theoretical structure originally proposed (Owens et al., 2013).

Table 6. Inter-Factor Correlations (Model 3) and Second-Order Standardized Loadings (Model 4).

	Inter-Factor Correlation (Model 3)	Second-Order Loading on EH (Model 4)
Accurate Self-View (ASV)	—	0.93
Appreciation of Others' Strengths (AOS)	ASV ↔ AOS = 0.91	0.98
Teachability (TCH)	ASV ↔ TCH = 0.93; AOS ↔ TCH = 0.97	0.99

4.3.2. Final Measurement Model: Reliability and Convergent Validity

Following the recommended two-step approach for structural equation modeling (Kline, 2023), the measurement model was evaluated first before examining structural relationships with other variables. Table 7 presents the standardized factor loadings, reliability coefficients, and convergent validity indicators for the Expressed Humility (EH) latent factor.

Table 7. Validation of the Measurement Model: Standardized Factor Loadings, Reliability and Convergent Validity.

Outcome	Std Beta	α	CR	AVE
EH1	0.722 ***			
EH2	0.757 ***			
EH3	0.821 ***			
EH4	0.800 ***			
EH5	0.834 ***	0.955	0.954	0.701
EH6	0.897 ***			
EH7	0.885 ***			
EH8	0.898 ***			
EH9	0.900 ***			

Note. EH = Expressed Humility Scale; Std Beta = standardized factor loading; α = Cronbach's alpha; CR = composite reliability; AVE = average variance extracted. *** $p < 0.001$.

All standardized factor loadings were statistically significant ($p < 0.001$) and exceeded the minimum criterion of 0.50 recommended by (Hair et al., 2020) ranging from 0.722 (EH1) to 0.900 (EH9). Furthermore, all loadings exceeded the optimal threshold of 0.70, demonstrating that the nine items are robust and reliable indicators of the latent construct of Expressed Humility (Hair et al., 2020).

Regarding reliability, the Expressed Humility (EH) factor showed excellent indices, with a Cronbach's alpha of 0.955 and a composite reliability (CR) of 0.954. Both coefficients comfortably exceeded the minimum threshold of 0.70 established by Taber (2018) for applied research and even the stricter 0.80–0.90 criterion recommended for scales used in individual decisions, confirming the instrument's high internal consistency.

Regarding convergent validity, the mean variance extracted (AVE) was 0.701, exceeding the minimum criterion of 0.50 originally proposed (Fornell & Larcker, 1981) and reaffirmed in recent methodological reviews on best practices for reporting in structural equation

models (Cheung et al., 2024). Under this criterion, an AVE greater than 0.50 indicates that the latent construct explains, on average, more than half of the variance in its observed indicators, providing strong evidence that the items converge adequately on the theoretical construct they intend to measure (Cheung et al., 2024). Taken together, high factor loadings, high reliability, and an AVE above the critical threshold provide consistent and robust evidence of the convergent validity of the Expressed Humility Scale measurement model.

Figure 2 presents the path diagram of the final measurement model estimated by confirmatory factor analysis (CFA), following the standard notation proposed by (Byrne, 2016), in which the circle represents the latent variable (EH = Expressed Humility Scale), the rectangles represent the observed variables or items (EH1–EH9), and the small circles labeled as “e” represent the measurement error terms associated with each item.

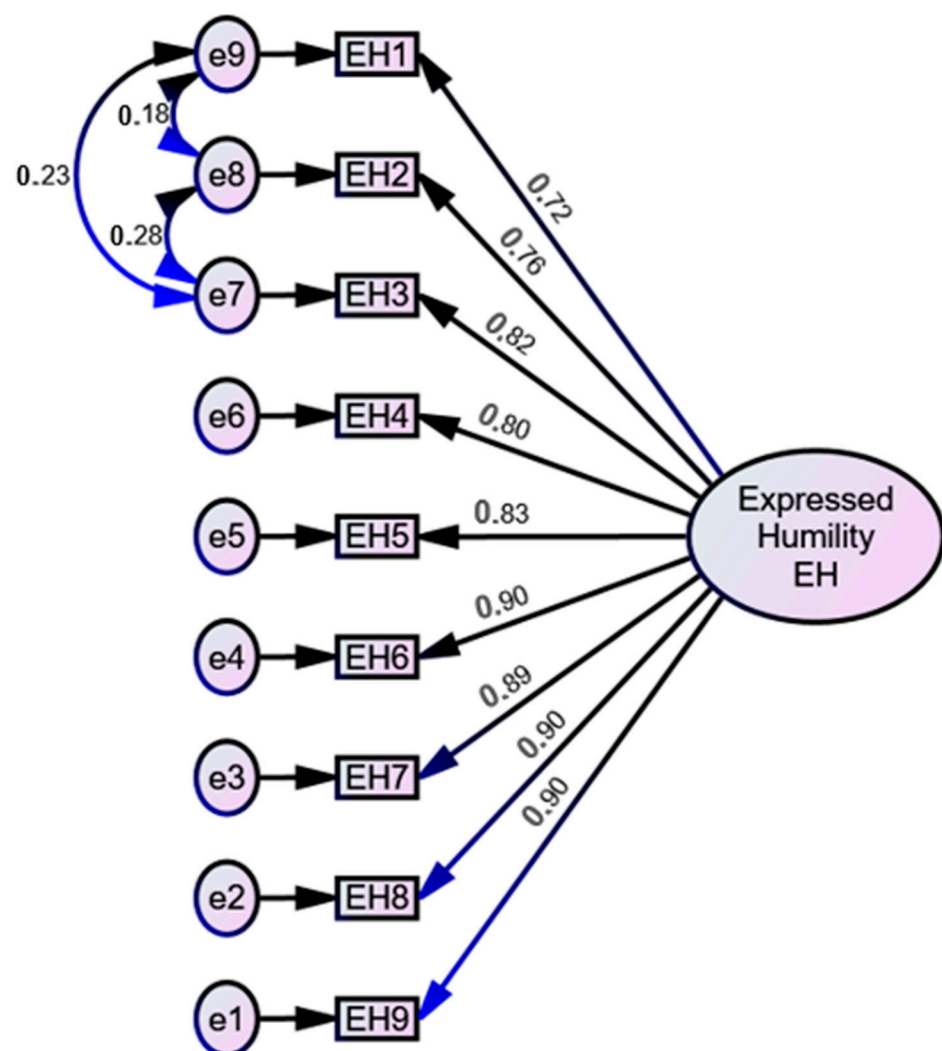


Figure 2. Final Measurement Model: Expressed Humility (EH). Note. EH = Expressed Humility Scale; e1–e9 = measurement error terms. Values above the arrows represent standardized factor loadings ($p < 0.001$ in all cases). Covariances between e7, e8, and e9 (EH3, EH2, and EH1, respectively) were specified based on modification indices and the construct’s underlying theoretical structure (Owens et al., 2013).

As shown in the diagram, all nine items loaded significantly on the latent factor, with standardized coefficients ranging from 0.72 (EH1) to 0.90 (EH6, EH8, and EH9). Following the criterion of (Hair et al., 2020), all loadings far exceeded the minimum acceptable

threshold of 0.50, and the total was above 0.70, considered optimal for the substantive interpretation of the construct.

It is important to note that the model incorporates the covariance between the error terms of items EH1, EH2, and EH3 (e_9 - e_8 - e_7 ; values of 0.18, 0.23, and 0.28), a decision based both on the modification indices suggested by the analysis program and on the original theoretical structure of the construct, given that these three items conceptually correspond to the subdimension of “disposition to see oneself accurately” proposed by (Owens et al., 2013). Specifying error covariances between conceptually related indicators, when there is a sound theoretical justification, is a recognized practice in the structural equation modeling literature to improve model fit without compromising its substantive validity (Cole et al., 2007; Hermida, 2015).

Taken together, the high factor loadings and the excellent fit achieved after the theoretically justified specification of error covariances provide strong evidence that the one-factor model adequately represents the internal structure of the Expressed Humility Scale in the evaluated sample.

4.3.3. Measurement Invariance Across Sex

To evaluate whether the Expressed Humility Scale measures the construct equivalently across demographic groups, multi-group confirmatory factor analysis was conducted to test measurement invariance across sex (men, $n = 268$; women, $n = 143$), following the sequential procedure recommended by (Cheung & Rensvold, 2002): configural, metric, scalar, structural, and residual invariance. As shown in Table 8, constraining factor loadings (metric invariance), item intercepts (scalar invariance), and error variances (residual invariance) to be equal across groups did not result in significant decrements in model fit relative to each preceding, less restricted model (all $\Delta\chi^2 p > 0.09$; all $\Delta CFI \leq 0.002$). Although the chi-square difference test indicated a statistically significant decrement when constraining the factor variance to be equal across groups (structural covariances, $\Delta\chi^2 (1) = 14.544$, $p < 0.001$), the corresponding ΔCFI (0.004) remained well within the recommended 0.01 threshold, a discrepancy consistent with the well-documented oversensitivity of chi-square-based tests to large sample sizes (F. Chen, 2007; Cheung & Rensvold, 2002). Taken together, both the sequential chi-square tests and the more robust ΔCFI criterion provide convergent evidence that the Expressed Humility Scale exhibits full measurement invariance across sex, supporting the appropriateness of comparing both individual item responses and latent factor scores between men and women in future applications of the instrument.

Table 8. Measurement Invariance Testing of the Expressed Humility Scale Across Sex.

Model	DF	CMIN	$\Delta\chi^2$	ΔDF	p	CFI	ΔCFI	Decision
Configural	108	—	—	—	—	0.987	—	Baseline
Metric (factor loadings)	116	—	9.044	8	0.339	0.986	0.001	Supported
Scalar (intercepts)	125	—	11.54	9	0.24	0.986	0.000	Supported
Structural covariances	126	—	14.544	1	0.000	0.982	0.004	Supported *
Measurement residuals	138	—	18.68	12	0.097	0.98	0.002	Supported

Note. DF = degrees of freedom; CMIN = minimum discrepancy (χ^2); $\Delta\chi^2$ = chi-square difference relative to the previous model; ΔDF = change in degrees of freedom; CFI = comparative fit index; ΔCFI = change in CFI. Invariance was supported when $\Delta CFI \leq 0.01$ (Cheung & Rensvold, 2002; F. Chen, 2007). * The $\Delta\chi^2$ test was statistically significant at this step ($p < 0.001$); however, invariance was retained because ΔCFI (0.004) met the established criterion, as the chi-square difference test is known to be sensitive to sample size.

4.4. Validity Based on the Relationship with Other Variables

In order to obtain additional evidence on the validity of the Expressed Humility Scale, its relationship with a variable theoretically linked to the construct was examined, following the validity approach based on the relationship with other variables described in the Standards for Educational and Psychological Testing (AERA et al., 2014). This type of evidence, based on the classic concept of a nomological network (Cronbach & Meehl, 1955), allows us to support the validity of an instrument by demonstrating that its scores are related in a theoretically coherent way to external constructs previously documented in the literature, without implying that these variables are part of the measurement model being validated.

For this purpose, Work Engagement (Schaufeli & Bakker, 2004) was used, a construct identified in previous studies as a motivational consequence of humble leadership in the organizational field (Owens et al., 2013). The Work Engagement measure, composed of three items, showed adequate internal consistency in the present sample ($\alpha = 0.872$; CR = 0.877).

Because we administered both the Expressed Humility Scale and the Work Engagement measure to the same respondents at a single point in time using self-report instruments, we formally examined common method bias using two complementary and increasingly stringent procedures, following current recommendations for assessing it in single-source designs (Podsakoff et al., 2003). First, we conducted Harman's single-factor test by entering all twelve items into an unrotated exploratory factor analysis with extraction forced to a single factor; the resulting solution explained 61.99% of the total variance, exceeding the conventional 50% threshold. However, this technique is widely recognized as insufficiently sensitive and prone to false positives, particularly when one measure is considerably more item-rich and inherently unidimensional than the other, as with the nine-item EH and three-item WE measure in the present study (Fuller et al., 2016). Accordingly, we also applied the more rigorous common latent factor (CLF) method (Podsakoff et al., 2003; Williams et al., 1989), introducing an unmeasured method factor with equal-constrained loadings across all twelve items to statistically partial out shared method variance. After this conservative adjustment, the standardized correlation between the Expressed Humility and Work Engagement factors decreased from 0.53 to 0.29, remaining positive, statistically significant, and directionally consistent with theoretical expectations (Owens et al., 2013). Taken together, these complementary analyses indicate that, while common method bias cannot be entirely ruled out given the single-source, cross-sectional design, the association between the two constructs persists even under this conservative correction, thereby providing reasonably robust support.

To estimate the association between the two constructs, we specified a confirmatory factor analysis model with two correlated factors (Expressed Humility and Work Engagement), consistent with the final measurement model described in Section 4.3.2. The standardized correlation between both latent factors was 0.53 ($p < 0.001$), of moderate-high magnitude, consistent with previous empirical evidence (Owens et al., 2013) and which supports the criterion validity of the Expressed Humility Scale by confirming that the scores of the instrument are associated in a theoretically expected way with a relevant organizational construct, even after accounting for common method bias, as reported above.

As further evidence that both constructs, although correlated, are not redundant with each other, two additional discriminant validity criteria were examined (Table 9): the classic criterion of (Fornell & Larcker, 1981) and the heterotrait–monotrait ratio (HTMT) (Henseler et al., 2015), both recommended in recent methodological reviews on good reporting practices in structural equation models (Cheung et al., 2024).

Table 9. Discriminant Validity between Expressed Humility and Work Engagement: Fornell-Larcker Criterion and Heterotrait–Monotrait Ratio (HTMT).

Construct	Fornell & Larcker Criteria		Heterotrait–Monotrait Ratio (HTMT)	
	EH	WE	EH	WE
EH	0.837		—	
WE	0.528 ***	0.841	0.548	—

The diagonal of the Fornell-Larcker criterion represents the square root of the AVE for each construct. HTMT = heterotrait–monotrait ratio (reference threshold < 0.85; (Henseler et al., 2015) *** $p < 0.001$).

According to the criterion (Fornell & Larcker, 1981), the square root of the AVE for each construct must be greater than the correlation that this construct maintains with the other constructs in the model. As shown in Table 9, the square root of the AVE for Expressed Humility (0.837) and Work Engagement (0.841) significantly exceeded the estimated correlation between the two factors ($r = 0.528$, $p < 0.001$), thus satisfactorily meeting this criterion. Additionally, the HTMT values for both constructs were 0.548, well below the reference threshold of 0.85 (Henseler et al., 2015). Convergence across both criteria confirms that Expressed Humility and Work Engagement, although significantly associated, are empirically distinct constructs, ruling out conceptual redundancy between the two measures.

Taken together, the magnitude and direction of the correlation between Expressed Humility (EH) and Work Engagement, along with the evidence that both constructs are empirically distinct, provide additional and robust support for the validity of the Expressed Humility Scale, complementing the evidence of content validity, internal structure, and reliability reported in the preceding sections.

5. Discussion

This study aimed to psychometrically validate the Spanish-language version of the Expressed Humility Scale (Owens et al., 2013) in a sample of employees from a Peruvian baking organization. The results provide robust evidence of internal structure validity, reliability, convergent validity, and validity based on its relationships with other variables, thereby expanding the psychometric evidence for the construct in a cultural and organizational context underrepresented in the literature (Chandler et al., 2023).

A key initial finding concerns the factor structure obtained. Unlike the original three-dimensional, second-order model proposed by Owens et al. (2013), the nine items in this sample empirically converged on a single general factor, so extracting the three subdimensions independently was unnecessary and not statistically relevant. This result does not contradict the original theoretical proposal but is consistent with it: the second-order structure implies that the three subdimensions share substantial common variance explained by a general factor of expressed humility, a pattern that, in moderately sized samples, often manifests as a robust one-factor solution. This interpretation was formally corroborated by comparing the unidimensional model against a three-correlated-factor model and a second-order model: although both multidimensional specifications achieved marginally superior fit, their near-unity inter-factor correlations (0.91–0.97) and second-order loadings (0.93–0.99) demonstrated that the three theoretical subdimensions are not empirically distinguishable, providing direct evidence, rather than a theoretical assumption, for the scale's unidimensional structure. This interpretation is consistent with recent reviews indicating that humble leadership tends to be operationalized consistently as a global latent variable in most applied studies (Kelemen et al., 2023); and with the warning (Silard et al., 2025) about the importance of maintaining conceptual and operational clarity when measuring

this construct, avoiding its unnecessary fragmentation when empirical evidence does not support it.

Regarding reliability, the instrument showed excellent internal consistency ($\alpha = 0.955$; $CR = 0.954$), even higher than that reported in the original study ($\alpha = 0.94$; Owens et al., 2013), supporting the construct's psychometric stability following its linguistic and cultural adaptation. Similarly, the mean variance extracted ($AVE = 0.701$) confirmed adequate convergent validity, demonstrating that the items consistently represent the underlying theoretical construct. These results align with accumulated evidence from recent meta-analyses on humble leadership, which report high reliability coefficients for this scale across diverse cultural and occupational contexts (Chandler et al., 2023; Luo et al., 2022).

Regarding validity based on its relationship with other variables, we found a positive, significant, moderate-to-high-magnitude correlation between Expressed Humility (EH) and work engagement (WE) ($r = 0.53$, $p < 0.001$). This finding aligns with the motivational mechanism described by Owens et al. (2013), in which humble leaders foster learning climates and psychological safety that increase employee engagement. The direction and magnitude of this association are also consistent with previous evidence linking humble leadership to analogous motivational and relational mechanisms, such as organizational citizenship behavior (Ding et al., 2020), creativity through a growth mindset (Yang & Xu, 2022), and team innovation through group reflexivity (Lei et al., 2022). Taken together, this evidence reinforces humble leadership's position within a nomological network of positive organizational outcomes (Cronbach & Meehl, 1955; Wu et al., 2025).

We assessed discriminant validity using Fornell and Larcker (1981) criteria and the heterotrait–monotrait ratio (Henseler et al., 2015). This is particularly relevant given a methodological concern recently noted in the literature: potential conceptual confusion between humble leadership and related constructs, such as dispositional humility or the honesty–humility dimension of the HEXACO model (Silard et al., 2025). By demonstrating that Expressed Humility (EH) and Work Engagement (WE), despite being significantly correlated, are empirically distinguishable constructs, this study provides further evidence supporting the conceptual specificity of the instrument evaluated, in line with the theoretical distinctions discussed in Section 2.2 regarding modesty, narcissism, and the honesty–humility dimension (Cavazotte et al., 2023; Chandler et al., 2023). From a practical perspective, having a valid and reliable instrument in Spanish represents a valuable resource for human talent management, as it allows for the diagnosis of specific behaviors associated with humble leadership, such as recognizing contributions, openness to feedback, and willingness to acknowledge limitations, in the selection, evaluation, and development processes of supervisors. In the specific case of the evaluated organization, which operates in the baking sector, these findings could guide management training programs to strengthen leadership practices that foster employee engagement.

From a theoretical and cultural perspective, this study contributes to expanding the available evidence on humble leadership in a Latin American context, addressing the need, identified in recent meta-analytic reviews, to examine whether the observed associations between humble leadership and its outcomes remain stable across different countries and cultural components (Chandler et al., 2023). The availability of an instrument validated in the Peruvian context provides an empirical basis for future comparative research across countries and productive sectors.

However, these findings should be interpreted with caution given certain methodological limitations. First, the cross-sectional design prevents establishing causal relationships between Expressed Humility and Work Engagement; therefore, the observed correlation should be interpreted as evidence of association, not causation. Second, both constructs were assessed using reports from the same source (employees) at a single point in time. Al-

though Harman's single-factor test did not provide conclusive evidence of common method bias, it exceeded the conventional 50% threshold (61.99%), and the more rigorous common latent factor analysis indicated that the correlation between Expressed Humility and Work Engagement decreased substantially (from 0.53 to 0.29) once shared method variance was statistically controlled, suggesting that common method bias may have partly inflated the originally observed association (Fuller et al., 2016; Podsakoff et al., 2003; Williams et al., 1989). This underscores the need for future studies to use multi-source or multi-wave designs that incorporate, for example, leader self-assessments or objective performance indicators to obtain less biased estimates of this relationship. Third, the non-probability convenience sampling and the study's limitation to a single organization in Lima's baking sector restrict the external validity and generalizability of the results. These findings should not be interpreted as representative of all Peruvian workers, but rather as initial evidence that requires replication in multi-sectoral samples and from other regions of the country.

Consequently, future research should focus on: (a) replicating the obtained factor structure in samples from other economic sectors and geographic regions of Peru and other Latin American countries; (b) extending measurement invariance testing beyond sex—already confirmed in the present study (Section 4.3.3)—to other demographic, cultural, and geographic groups (e.g., age cohorts, economic sectors, or cross-national samples), in order to establish valid comparisons across a broader range of populations; (c) incorporating longitudinal and multi-source designs that allow for the examination of causal relationships and further reduce the risk of common method bias; and (d) exploring in greater depth, in larger samples, whether the three theoretical subdimensions of the construct can be empirically distinguished under alternative specifications of the measurement model.

6. Conclusions

This study provides robust psychometric evidence that the Spanish-language version of the Expressed Humility Scale is a valid and reliable instrument for assessing this construct in the Peruvian organizational context. The instrument's nine items converged into a unifactorial structure with high factor loadings, excellent fit after the theoretically justified specification of error covariances, outstanding internal consistency, and adequate convergent validity. Furthermore, the significant correlation with work Engagement, along with evidence of discriminant validity for this construct, supports the instrument's criterion validity and conceptual specificity within the nomological framework of humble leadership. These findings offer researchers and organizational management professionals a psychometrically sound tool for diagnosing and researching humble leadership in Spanish-speaking contexts, helping to close a gap in empirical evidence relevant to the Latin American region. Future studies should replicate these findings in multisectoral samples and extend measurement invariance testing, already confirmed across sex in the present study, to other population and cultural groups. Given the non-probabilistic sampling procedure and the study's restriction to a single organization in Lima's baking sector, these findings should be regarded as preliminary evidence rather than results generalizable to the broader population of Peruvian workers.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The original contributions presented in this study are included in this article. Further inquiries should be directed to the corresponding author.

Conflicts of Interest: The authors declare no conflicts of interest.

Appendix A

Table A1. Items of the Measurement Instruments.

Code	Construct Items
	Escala de Humildad Expresada (Expressed Humility Scale) (EH) Nuestro líder... (Our leader...)
EH1	Busca activamente retroalimentación, incluso si es crítica. (Actively seeks feedback, even if it is critical).
EH2	Admite cuando no sabe cómo hacer algo. (Admits when he or she doesn't know how to do something).
EH3	Reconoce cuando otros tienen más conocimientos y habilidades que él o ella. (Recognizes when others have more knowledge and skills than he or she).
EH4	Es empático y toma las preocupaciones de los demás como propias. (He is empathetic and takes other people's concerns as his own).
EH5	A menudo felicita a los demás por sus fortalezas. (He often congratulates others on their strengths).
EH6	Muestra aprecio por las contribuciones únicas de los demás. (Shows appreciation for others' unique contributions).
EH7	Muestra disposición a aprender de los demás. (Shows a willingness to learn from others).
EH8	Demuestra ser amable, cariñoso y abierto a los consejos de los demás. (Shows that he is kind, caring, and open to others' advice).
EH9	Demuestra que está abierto a escuchar las ideas y los problemas de los demás. (It shows that you are open to listening to other people's ideas and problems).
	Escala de Engagement Laboral (Work Engagement Scale) (UWES-3) (WE) Con mi trabajo... (With my work...)
WE1	Me siento lleno de energía. (I feel full of energy).
WE2	Estoy entusiasmado. (I am excited).
WE3	Estoy absorto. (I am engaged).

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