

# Development and psychometric validation of the work attitudinal and values ethics scale (WAVE)

Víctor Mercader

*Faculty of Business and Administration, CETYS, Tijuana, Mexico*

Mario Alberto Salazar-Altamirano and

Orlando Josué Martínez-Arvizu

*Faculty of Commerce and Administration, Autonomous University of Tamaulipas, Tampico, Mexico, and*

Rafael Ravina-Ripoll

*Department of Business Organisation, Universidad de Cadiz, Cadiz, Spain*

---

Received 10 June 2025  
Revised 15 July 2025  
Accepted 29 August 2025

## Abstract

**Purpose** – This study aims to design and validate the Ethical and Attitudinal Values at Work Scale (WAVE), providing a psychometrically sound tool for assessing ethical principles and attitudinal dispositions in workplace contexts from a virtue ethics perspective.

**Design/methodology/approach** – A cross-sectional quantitative study was conducted with 367 employees from various economic sectors in Mexico, selected through non-probabilistic convenience sampling. The scale development followed a multistage process including theoretical item construction, exploratory and confirmatory factor analyses and evaluation of reliability and construct validity through Cronbach's alpha, McDonald's omega, Average Variance Extracted (AVE) and Composite Reliability.

**Findings** – The final instrument comprises 14 items distributed across four dimensions: ethics and integrity, professional competence and discipline, growth and resilience attitudes and empathy and interpersonal relationships. The WAVE demonstrated excellent internal consistency ( $\alpha = 0.925$ ;  $\omega = 0.930$ ) and structural validity (Comparative Fit Index = 0.963; Tucker–Lewis Index = 0.952; root mean square error of approximation = 0.0632). Discriminant validity was confirmed by the vAVE exceeding inter-factor correlations, and item-level correlations further supported the internal coherence of the scale.

**Originality/value** – Unlike traditional organisational ethics scales focused on compliance or leadership, the WAVE incorporates attitudinal dimensions such as empathy and resilience, aligning with contemporary views of ethical character. It centres the employee as an active ethical subject and enables comprehensive assessment beyond normative standards. Moreover, the WAVE offers a valuable instrument for talent management, ethical training and organisational diagnostics, promoting more ethical and human-centred work cultures.

**Keywords** Resilience, Scale development, Psychometrics, Organisational culture, Human relations, Ethical behaviour, Professional ethics, Attitudes at work, Workplace values

**Paper type** Research paper

---

© Víctor Mercader, Mario Alberto Salazar-Altamirano, Orlando Josué Martínez-Arvizu and Rafael Ravina-Ripoll. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licenses/by/4.0/>



## 1. Introduction

Human talent faces increasingly demanding work environments, characterised by the need to act with integrity, collaborate effectively and adapt to constant change (Hessari *et al.*, 2024). In this regard, ethical values and positive attitudes in the workplace have been recognised as strategic competencies that directly impact organisational effectiveness while also strengthening personal well-being and long-term job stability (Mercader *et al.*, 2025; Lu *et al.*, 2022). Within this ecosystemic scenario, work ethics encompass internal convictions that guide decision-making in complex contexts (Grabowski *et al.*, 2021). Attitudes, for their part, reflect the worker's willingness to contribute to the environment with responsibility and commitment (Mercader *et al.*, 2021).

In line with these claims, it has been empirically demonstrated that strong ethical values in workers foster organisational trust, reduce counterproductive behaviours and strengthen internal culture (Ellithey *et al.*, 2024; Ismail *et al.*, 2022). At the same time, work attitudes such as proactivity, resilience and willingness to learn are associated with higher productivity, lower turnover and a better organisational climate (Cai *et al.*, 2022; Yang and Lee, 2023). Despite this relevance, Pokoj斯基 *et al.* (2022) stated that there is a lack of comprehensive instruments that allow both aspects to be assessed in an integrated manner in diverse workplace contexts.

On the other hand, it is important to acknowledge academic efforts to develop measurement instruments to assess workplace values (Mercader *et al.*, 2021). Among them are the Work-Related Values Scale (EVRT), developed by Moreno and Marcaccio (2017), and the Organisational Ethical Culture Scale, validated by Toro-Arias *et al.* (2021). The EVRT addresses dimensions such as comfort, personal fulfilment, or status but focuses mainly on individual work motivations, overlooking deep ethical values and attitudes observable in everyday behaviour. Meanwhile, the Organisational Ethical Culture Scale focuses on the perception of institutionally promoted values, such as justice or transparency, without considering the worker's active internalisation of these values or their daily attitudinal expressions. Moreover, both scales present limitations regarding intercultural validation, which restricts their applicability in contemporary Latin American work contexts (Clayton *et al.*, 2021).

In this same vein, throughout the organisational literature, ethical values have commonly been approached through the figure of the ethical leader if their behaviour models norms and attitudes within the group (Rai, 2025; Zheng *et al.*, 2021). However, this view has overshadowed the need to understand how workers internalise and express ethical values in their daily practice (Lemoine *et al.*, 2023). This omission creates a significant gap in assessing the ethical factor from the operational base of organisations, thus limiting interventions that promote a transversal and participatory ethical culture (De Lurdes-Neves, 2025).

In response to these gaps, the present study proposes to psychometrically validate the Work Attitudinal and Values Ethics Scale (WAVE), a tool designed to assess in an integrated manner the ethical principles and attitudinal dispositions that workers manifest in their work environment. WAVE aims to evaluate the values individuals attribute to work and how these are translated into observable behaviours in the organisational context. Its application seeks to diagnose strengths and areas for improvement in individual ethical culture, providing relevant inputs for professional development processes, personnel selection and organisational transformation. This study aims to validate the psychometric properties of WAVE in a sample of workers from various sectors, analysing its internal consistency, factorial structure and item performance. In doing so, the aim is to offer a reliable and relevant tool that meets the need to assess a core construct in ethical people management.

To fulfil the stated objective, this article is structured as follows: first, the conceptual framework that underpins the scale's construction is presented; second, the methodological process followed for its psychometric validation is described in detail; third, the main statistical findings are presented and analysed; fourth, the results are discussed and finally, the general conclusions of the study are presented, along with its main practical, theoretical and social contributions, as well as possible future research lines.

## 2. Theoretical framework

To theoretically frame the present study, the conceptual foundations guiding the measurement of ethical and attitudinal values in the workplace are developed below. From a perspective centred on virtue ethics, the main dimensions of ethical behaviour are explored, as well as their operationalisation into empirically assessable indicators that support the construction of the proposed instrument.

### 2.1 Work ethics

Work ethics has emerged as a topic of increasing interest within organisational studies, reflecting a global concern for the moral behaviour of individuals in work contexts (Böhm *et al.*, 2022; Yazdanshenas and Mirzaei, 2022). According to Treviño *et al.* (1998), work ethics are the moral principles that guide workers' decisions, attitudes and behaviours in their professional environment. Tziner and Persoff (2024) contributed to the debate by arguing that the approach should encompass both the prevention of inappropriate behaviour and the promotion of practices based on integrity, justice, respect and responsibility. This approach has been particularly strengthened in response to corporate scandals and institutional crises, highlighting organisations' need for a solid ethical culture (Hald *et al.*, 2020).

Under these premises, organisational ethics is configured as a normative framework and a system of values that directly influences organisational climate and decision-making (Roszkowska and Melé, 2020). Moreover, it has been shown that organisations with a strong ethical culture tend to exhibit higher levels of employee commitment, well-being and productivity (Schwepker *et al.*, 2020). However, critical views warn of the superficial use of ethical codes or ethics as a tool of control, which can strip its real application of meaning and generate scepticism among employees (Sumlin *et al.*, 2021).

As mentioned in the introduction to this study, a key point in the current literature is the predominance of approaches centred on ethical leadership, where the leader is seen as an exemplary figure in transmitting values and correct behaviours (Zheng *et al.*, 2021). While this is relevant, it has left in the background the need to understand how workers, beyond their hierarchical role, internalise and express ethical values in their daily practice (Lemoine *et al.*, 2023). This omission has generated a significant gap in assessing the ethical component from the operational base of organisations, which limits interventions that promote a more participatory ethical culture (Lange *et al.*, 2023).

To conceptually ground this worker-centred approach, it is appropriate to turn to virtue ethics. From this perspective, ethics is conceived as a construction that emerges from internal character dispositions, progressively forged through practice and experience, beyond mere adherence to external rules (Nguyen and Crossan, 2021). According to this framework, organisations should foster environments where workers can cultivate virtues such as honesty, temperance, generosity or responsibility rather than focusing exclusively on rules or instrumental outcomes (Gustafson and Peterson, 2023).

In line with this perspective, it is necessary to identify those virtues that workers practice in their daily duties. From this approach, the present study adopts an ethical perspective centred on the individual, in which integrity, self-discipline, resilience and empathy are

conceived as concrete expressions of an ethical character in action, with direct implications for professional and organisational conduct. These dimensions allow for the translation of abstract principles into behavioural indicators that can be empirically assessed (Galván-Vela *et al.*, 2023). Thus, the analysis of these dimensions, their conceptual foundations and their relevance in the contemporary organisational environment is addressed.

### 2.2 Ethics and integrity

Ethics and integrity refer to the worker's commitment to moral principles such as honesty, justice, responsibility and coherence between speech and action (Hayati and Caniogo, 2025; Israel, 2015). This virtue, essential within work ethics, is manifested when individuals act according to their convictions, even in adverse contexts or without direct supervision (Zheng *et al.*, 2021). This relationship has demonstrated that personal integrity is directly associated with organisational trust, reducing counterproductive behaviours and strengthening the ethical climate in work teams (Colominas, 2021). Moreover, it has been recognised that ethical and integral behaviours by employees foster trust among colleagues, promote a coherent organisational environment and strengthen collective ethical commitment (Ng, 2022). It has been shown that individual integrity acts as a behavioural reference point that facilitates the cohesion of shared norms in work teams (Nieto-Rojas, 2021). From the virtue ethics perspective, this dimension represents the practical expression of moral character. It justifies its inclusion in the WAVE instrument as a relevant dimension for evaluating individual ethics in the workplace.

### 2.3 Professional competence and discipline

Professional competence and discipline constitute ethical behaviour at work, reflecting the worker's commitment to quality, responsibility and fulfilling their duties (Piccolo *et al.*, 2010). This dimension encompasses both technical proficiency and the ability to organise oneself, communicate effectively and maintain consistent work habits aimed at achievement (Saeed *et al.*, 2022). Recently, the relationship has been confirmed that perceived employee competence, when accompanied by personal discipline, is associated with greater trust from leaders and colleagues and a culture of ethical and sustained performance (Malik *et al.*, 2022). In turn, it has become evident that self-discipline is directly related to professional responsibility, adherence to protocols and the ability to make ethical decisions under pressure (Spohrer, 2021). Therefore, including this dimension in the WAVE allows for a comprehensive assessment of the ethical principles guiding the worker and their capacity to maintain consistent and reliable professional practice.

### 2.4 Growth attitudes and resilience

Growth attitudes and resilience represent fundamental dispositions for sustaining ethical behaviour in demanding work contexts, especially in adversity, change and constant pressure (Monteverde, 2013). This dimension refers to the worker's ability to self-motivate, learn continuously, persevere through obstacles and maintain a positive disposition towards their professional and personal development (Paul *et al.*, 2019; Park *et al.*, 2022). This relationship is grounded in the fact that resilience mediates emotional labour and job satisfaction, contributing to both individual well-being and organisational performance (Kim, 2023).

Likewise, it has been shown that these attitudes protect workers in critical environments, enabling them to uphold ethical commitment even under extreme conditions (Casalengueta *et al.*, 2021). In addition, workplace resilience has been identified as a predictive resource among workers in vulnerable conditions, where emotional adaptability helps reduce stress's negative impact and sustain constructive attitudes in the face of uncertainty (Ayieko *et al.*, 2024).

---

Therefore, including this dimension in the WAVE allows for capturing attitudinal elements that reflect the ethical character of the worker beyond regulatory compliance, focusing on their ability to remain in constant evolution with emotional and professional responsibility.

### 2.5 *Empathy and interpersonal relationships*

Empathy and interpersonal relationships represent theoretical benchmarks of organisational ethical behaviour, as they enable effective communication, teamwork and the creation of healthy work environments (Mercader *et al.*, 2021; Paredes-Saavedra *et al.*, 2024). These competencies are essential for resolving conflicts, fostering respect and facilitating mutual understanding between workers and leaders (Hussain *et al.*, 2024). It has been demonstrated that strengthening interpersonal skills such as empathy, effective communication, and cooperation significantly enhances organisational cohesion and productivity in vulnerable groups (Bravo-Blandín, 2021). Likewise, the development of interpersonal competencies has been observed to facilitate coexistence and teamwork, which is crucial for professional and ethical development (Parvin *et al.*, 2024). From a psychopathological perspective, it has been identified that deficits in empathy can lead to dysfunctional patterns of interaction, as seen in narcissistic personality disorder, where utilitarian interpersonal relationships and poor emotional regulation predominate (Sarti *et al.*, 2021). It reinforces the need to include evaluative tools such as the WAVE to assess prosocial attitudes and empathy as core components of ethical performance.

### 2.6 *Operationalisation of the construct and dimensions*

Based on the theoretical foundation developed in the previous sections, the WAVE was designed to empirically and systematically evaluate the behavioural expressions of ethical values in the workplace context. This instrument is inspired by virtue ethics as a philosophical framework, seeking to identify those internal dispositions that workers manifest in an observable manner through their professional performance. The dimensions are ethics and integrity, professional competence and discipline, growth attitudes and resilience, empathy and interpersonal relationships. These were subsequently operationalised through items that reflect habitual behaviours, attitudes and relational styles consistent with the previously described ethical principles.

Each dimension was translated into concrete indicators, constructed in the format of evaluative statements that capture the presence of individual attitudes and the perception of ethical coherence in everyday practice. This methodology enables a transition from the conceptual to the empirical level, ensuring the instrument's content validity. Table 1 describes the theoretical and operational structure of the measured construct, including the definitions, evaluated dimensions and associated indicators.

Based on the operationalisation described in Table 1, the WAVE items were developed. Each item was written based on the previously defined behavioural indicators, aiming to clearly and concretely capture the observable manifestations of the proposed ethical dimensions. The adopted format allows for self-assessment and application in various organisational contexts, facilitating subsequent psychometric analysis. Table 2 presents the preliminary version of the instrument, with items organised by theoretical dimension.

## 3. Method

The following section details the methodology used for the psychometric validation of the WAVE scale. This section includes the study design, the characteristics of the participant sample, the application procedure, the instruments used and the statistical strategies implemented to evaluate the structural validity and reliability of the instrument. Each of

**Table 1.** Operationalisation of the construct and dimensions

Dimension	Conceptual definition	Operational definition	Behavioural indicators	References
Ethics and integrity	Commitment of the worker to moral principles such as honesty, justice and coherence	Observable behaviours reflecting consistent adherence to ethical principles in various work situations	Honesty in communication; fairness in treatment; coherence between words and actions	Nieto-Rojas (2021); Zheng <i>et al.</i> (2021)
Professional competence and discipline	The worker's ability to perform duties with quality, responsibility, consistency and self-discipline	Concrete actions demonstrating technical competence, compliance, responsibility and effective communication	Fulfilling commitments; effective time use; clear and objective communication	Spohrer (2021); Malik <i>et al.</i> (2022)
Growth attitudes and resilience	The worker's disposition to face adversity, self-motivation, learn and develop positively	Behaviours expressing adaptability, perseverance, enthusiasm, learning and positive emotional regulation	Resilience in the face of frustration; personal motivation; pursuit of continuous learning	Kim (2023); Casalengua <i>et al.</i> (2021); Ayieko <i>et al.</i> (2024)
Empathy and interpersonal relationships	The worker's ability to understand, communicate and relate to others with a prosocial attitude	Empathetic expressions, cooperation, understanding and respect in everyday work relationships	Active listening; willingness to forgive; understanding others; collaborative attitude	Bravo-Blandín (2021); Cid <i>et al.</i> (2023); Sarti <i>et al.</i> (2021)

**Source(s):** Own elaboration based on cited authors

**Table 2.** Items of the WAVE instrument

Dimension	Code	Item
Ethics and integrity	ETI1	I practise responsibility in my life and work as a way of life
	ETI2	There is no hypocrisy or lies in the way I communicate and act
	ETI3	I am fair, honest and equitable with everyone regardless of my own interests
	ETI4	I respect and admire the integrity of others and acknowledge it, even if it sometimes does not benefit me
Professional competence and discipline	ETI5	I believe that the trust others have in me is based on my example and integrity
	ETI6	I have vision and I am objective in what I set out to do
	ETI7	I communicate effectively and harmoniously with everyone around me, regardless of their position
	ETI8	I keep my promises and complete what is necessary with self-discipline in terms of time and quality
Growth attitudes and resilience	ETI9	I normally motivate my colleagues, friends and family and I can self-motivate
	ETI10	I try to learn more every day and apply the knowledge acquired
	ETI11	I can overcome negative events and find solutions
	ETI12	I feel enthusiastic about what I get involved in and do and I feel good about it
	ETI13	I have novel ideas and plans and accept risks as part of my growth and satisfaction, even if they are difficult for many others
	ETI14	When I set myself a goal, I have the perseverance and resilience necessary to achieve it
	ETI15	I can smile at life and even laugh at myself in complicated situations
	ETI16	I believe I appreciate and am thankful for what is happening in my life and work, and I learn to improve constantly
Empathy and interpersonal relationships	ETI17	Patience, tolerance and humility are values I manage to display clearly in my life
	ETI18	I can forgive others without resentment, even if they have harmed me at some point
	ETI19	I try to understand others regardless of their level and I can put myself in their shoes
	ETI20	I believe I am capable of loving others as fellow human beings, neither better nor worse than myself, each on their own journey of growth

**Source(s):** Own elaboration

these elements was carefully selected based on recognised theoretical and methodological frameworks in psychometric and organisational research.

### 3.1 Design

The present study adopted a quantitative, non-experimental and cross-sectional design aimed at the development and psychometric validation of an instrument intended to assess ethical and attitudinal values in the workplace context (Tshilongamulenzhe, 2015). It falls within the instrumental approach, which is appropriate when the goal is to construct or refine measurement tools based on theoretical constructs, assessing their metric properties through specific statistical techniques (Verenzuela-Barroeta *et al.*, 2024).

The instrumental design has been widely used in recent research to ensure the content validity, factorial structure and reliability of scales applied in social, educational and organisational contexts (Ramírez-Rodríguez *et al.*, 2022). Likewise, it has proven effective in creating culturally relevant instruments, which is crucial in studies where ethical behaviour is influenced by contextual and relational factors (Carranza-Esteban *et al.*, 2022). In this case, the design made it possible to conceptually structure the WAVE, operationalise its dimensions, construct its items and finally apply exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) procedures to a single sample, collected at a single point in time, to assess the internal consistency and structural validity of the instrument.

### 3.2 Participants

The sample consisted of 367 employees from diverse sectors within the Mexican economic landscape. Specifically, participants were drawn from the industrial (52.33%), service (23.02%), trade (12.05%), education (10.68%) and primary sectors (1.92%), as shown in Table 3. This selection was intentional, aiming to reflect the heterogeneity of the Mexican labour market and ensure the scale's applicability across different organisational contexts. The predominance of the industrial sector aligns with Mexico's economic structure, where manufacturing and production-related industries play a central role, making it a key setting for understanding workplace ethics and values.

Regarding organisational roles, the sample included workers across different levels of responsibility: 42.23% were operational-level employees, 39.51% held middle-management or supervisory positions and 18.26% were in top-level or executive roles. This distribution ensured representation of ethical and attitudinal expressions from both frontline and decision-making perspectives. The inclusion of multiple hierarchical levels was grounded in the theoretical premise of the WAVE scale, which conceptualises ethical behaviour as emerging not solely from leadership, but from individual character dispositions observable across all levels of organisational functioning.

A non-probabilistic convenience sampling method was used, which, while limiting generalisability, enabled practical access to a diverse and relevant working population (Pobee, 2021) and aligned with methodological standards that recommend sectoral and occupational variety for exploratory structural validation (MacCallum *et al.*, 1999). Participants were recruited through professional networks, HR departments and direct invitations within private companies, educational institutions and service organisations that agreed to collaborate in the research. Inclusion criteria required participants to be currently employed and over 18 years of age.

**Table 3.** Sociodemographic characteristics

Variable	Options	Frequency	%
Gender	Female	181	49.30
	Male	186	50.70
Education level	Bachelor's degree	277	77.16
	Master's degree	76	21.17
	Doctorate	6	1.67
Sector	Primary	7	1.92
	Industrial	191	52.33
	Trade	44	12.05
	Services	84	23.02
	Education	39	10.68
Company size	1–10 employees	48	13.11
	11–50 employees	33	9.02
	51–250 employees	59	16.12
	251–500 employees	55	15.03
	More than 500 employees	171	46.72
Organisation type	Public	55	14.99
	Private	284	77.38
	Other	28	7.63
Variable	Range	Mean	SD
Age	20–64 years	36.5	9.05
Experience	0–40 years	11.4	8.38

**Source(s):** Own elaboration

The sample size 367 was determined based on recommendations for factorial analysis, which suggest a minimum of 5–10 participants per item for robust estimation (Hair *et al.*, 2019a, 2019b). Given that the preliminary instrument included 20 items, a minimum of 200 participants was required, with larger samples enhancing the reliability of factor extraction. The selected sample size exceeds this threshold and aligns with best practices for both exploratory and confirmatory factor analysis, as noted by MacCallum *et al.* (1999).

The gender distribution was relatively balanced, with 49.30% women and 50.70% men. Most participants held a bachelor's degree (77.16%) and worked primarily in private organisations (77.38%). The average age was 36.5 years (SD=9.05), and the mean work experience was 11.4 years (SD=8.38). Table 3 provides a detailed breakdown of the sociodemographic and work-related characteristics of the sample.

Regarding ethical considerations, all participants received clear and sufficient information about the study and signed an informed consent form, following the principles of autonomy, voluntariness and confidentiality established in research ethics involving human participants (Crane *et al.*, 2013). The study also complied with the General Data Protection Regulation, applying appropriate safeguards for the responsible handling of sensitive data (Corti and Bishop, 2019). This research was reviewed and approved by the Research Ethics Committee of CETYS Universidad.

### 3.3 Instruments

The instrument used was the WAVE, developed from a theoretical model grounded in virtue ethics and contemporary contributions from the literature on organisational ethics, as previously detailed. This scale was designed using a rigorous methodology for psychometric development and validation, aiming to assess ethical attitudes and dispositions in workers from a comprehensive perspective. The construction of the items was based on a deductive-conceptual approach, where each item was derived from the dimensions of the construct identified in theoretical and empirical studies on ethical behaviour in the workplace. This process is consistent with current guidelines in psychometric instrument development, which emphasise conceptual clarity, faithful construct representation and contextual adaptation of content (Miranda *et al.*, 2021).

The scale was administered using a 7-point Likert-type format, with response options ranging from 1 (“totally disagree”) to 7 (“totally agree”) as follows: 1 = disagree, 2 = Disagree, 3 = Slightly disagree, 4 = Neutral, 5 = Slightly agree, 6 = Agree and 7 = agree. This format allowed for capturing subtle gradations in participants' ethical perceptions, following Dawes' (2008) recommendations. Subsequently, the scale underwent a psychometric validation process that included EFA and CFA, techniques widely recognised for identifying underlying structures and verifying the fit of the proposed model (Moreira *et al.*, 2023), the results of which are described in the following sections.

### 3.4 Procedure

Data was collected over five months, between January and May 2025. A mixed-mode application strategy was implemented, using the digital version of the questionnaire, administered via the Google Forms platform and its printed paper format. This methodological decision responded to the need to facilitate access to the instrument for workers located in different organisational settings and with varying levels of access to digital technologies. The use of Google Forms has been supported as an efficient, secure and widely adopted tool in social and organisational research, given its ease of use, speed of data collection and reduction of human errors in data entry (Mondal *et al.*, 2019).

The form included a general description of the study's objectives and the ethical guidelines governing participation by established principles for research involving human subjects. It emphasised the voluntary nature of participation, data confidentiality, response anonymity, absence of physical or psychological risks and participants' right to withdraw from the study at any time. This information was presented before starting the questionnaire, and only those who gave explicit consent could proceed with the survey. The mixed-mode application allowed for broad coverage and a more diverse representation of the Mexican labour environment, enhancing the study's validity.

To reduce the risk of non-response bias, the survey was designed to make all items mandatory in digital and paper formats. Participants could not submit the form without completing the entire questionnaire, ensuring full data for all cases. Furthermore, participation was voluntary, and all respondents gave informed consent, which enhances engagement and response quality (Hair *et al.*, 2019a, 2019b). No cases of partial or abandoned responses were recorded.

### 3.5 Data analysis

The statistical analysis of the data was conducted using Jamovi software version 2.6.26, a platform based on R that integrates specialised modules for psychometric analysis and has been validated as an effective tool in structural validation studies of instruments (Karch, 2023). The analysis began with an EFA to identify the underlying structure of the instrument. The Maximum Likelihood (ML) extraction method was applied, a technique widely recommended for its robustness in the analysis of latent variables, especially when data are approximately normally distributed (Hair *et al.*, 2019a, 2019b). To optimise the factorial interpretation, Varimax rotation was used, an orthogonal rotation that maximises variance explained by each factor and facilitates the grouping of conceptually similar items (Tabachnick and Fidell, 2013).

The suitability of the data matrix for factorial analysis was verified through the Kaiser–Meyer–Olkin (KMO) index, with values above 0.80 considered meritorious, and Bartlett's test of sphericity, which showed statistical significance ( $p < 0.001$ ), confirming that the correlations between the items were sufficiently high to justify the application of the EFA (Kaiser, 1974; Bartlett, 1954).

Subsequently, a CFA was carried out to verify the adequacy of the theoretical model with the derived empirical structure. The ML method was used for parameter estimation, and the model fit quality was assessed through several indicators: relative chi-square ( $\chi^2/df$ ), Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), root mean square error of approximation (RMSEA) and standardised root mean square residual (SRMR). According to classical evaluation criteria, CFI and TLI  $\geq 0.90$  values and RMSEA and SRMR  $\leq 0.08$  were considered acceptable (Hu and Bentler, 1999; Brown, 2015).

The internal consistency of each dimension was estimated using Cronbach's alpha coefficient, setting a minimum acceptable value of 0.70. This measure remains one of psychometrics' most used reliability indices to assess item homogeneity within the same construct (Nunnally and Bernstein, 1994). In addition, the analysis was complemented by the evaluation of factor loadings and communalities to ensure each factor's theoretical and empirical coherence.

Although no formal piloting phase was conducted, all items were subject to theoretical review during development. Furthermore, the relatively large and diverse sample ( $n = 367$ ) provided sufficient statistical power to empirically detect item inconsistencies and validate the structure of the instrument through exploratory and confirmatory factor analyses (EFA

---

and CFA) (Hair *et al.*, 2019a, 2019b). These procedures allowed the refinement and retention of only the best-performing items, fulfilling the core aims of a piloting process.

#### 4. Results

The following results derive directly from the methodological procedures described in the previous section, including item construction, sampling and statistical analysis strategies used for instrument validation. To ensure a clear and coherent interpretation of the findings, this section presents in an organised manner the main results derived from the psychometric validation process of the WAVE. It begins with a descriptive analysis of the items, followed by evaluations of sampling adequacy, EFA, CFA, estimation of model reliability and validity and finally, the consolidation of the validated instrument.

##### 4.1 Descriptive analysis

Before proceeding with the factor analyses, a descriptive analysis was performed on the 20 items that comprise the WAVE to explore their distribution, central tendency and variability. In general, the items showed high means, ranging from 5.46 to 6.28 on a scale from 1 to 7, indicating a high perceived presence of ethical and attitudinal behaviours in the sample evaluated. The standard deviations remained within moderate ranges, suggesting acceptable dispersion.

Regarding distribution, the skewness and kurtosis coefficients revealed slightly right-skewed patterns, although not extreme. However, Shapiro-Wilk normality tests were significant ( $p < 0.001$ ) for all items. It indicates that the response distribution deviates from normality, a common occurrence in social and psychometric studies using Likert-type scales. Although ML estimation assumes normality, its use remains acceptable in contexts with moderate violations and large samples, as in the present study (Byrne, 2016; Hair *et al.*, 2019a, 2019b). Table 4 presents the complete descriptive statistics for each item of the scale.

##### 4.2 Sampling adequacy for factor analysis

Before exploring the latent structure of the instrument, data suitability for applying factor analysis was assessed. Two classical tests were used: Bartlett's test of sphericity and the KMO index, both widely recognised in the psychometric literature as essential procedures for evaluating data adequacy (Hair *et al.*, 2019a, 2019b; Tabachnick and Fidell, 2013).

Bartlett's test of sphericity was significant ( $\chi^2 = 1568$ ,  $df = 171$ ,  $p < 0.001$ ), indicating that the correlations among items were sufficiently significant to justify the use of factor analysis. In addition, the overall KMO index was 0.936, a value considered "excellent" according to classical criteria by Kaiser (1974). Furthermore, all individual Measures of Sampling Adequacy (MSA) per item exceeded the minimum recommended threshold of 0.80, as shown in Table 5, confirming that each variable has sufficient correlation with the rest to be included in the factor analysis.

These results allow us to conclude that the correlation matrix is suitable for conducting an EFA and that the data meet the necessary technical assumptions, ensuring an interpretable and statistically sound structure.

##### 4.3 Exploratory factor analysis

Based on the sampling adequacy criteria previously described, an EFA was carried out using the ML method with Varimax rotation, a technique widely supported in the psychometric literature for its effectiveness in identifying latent structures when independence between factors is assumed (Hair *et al.*, 2019a, 2019b).

**Table 4.** Descriptive statistics of WAVE scale items

Item	Mean	SD	Skewness	Kurtosis
ETI1	6.230	0.856	-0.997	0.722
ETI2	5.970	1.150	-1.500	3.010
ETI3	6.060	0.919	-1.040	1.700
ETI4	6.060	0.952	-0.901	0.205
ETI5	6.110	0.878	-1.040	0.960
ETI6	5.950	0.908	-0.638	-0.033
ETI7	5.870	0.966	-0.529	-0.246
ETI8	5.870	1.030	-0.974	1.040
ETI9	5.920	0.961	-0.594	-0.147
ETI10	6.280	0.847	-0.926	-0.046
ETI11	5.880	0.992	-0.785	0.378
ETI12	5.950	1.020	-1.010	1.060
ETI13	5.670	1.090	-0.624	0.017
ETI14	5.900	1.030	-0.966	0.903
ETI15	5.860	1.100	-0.917	0.542
ETI16	6.120	0.878	-1.110	2.320
ETI17	5.770	1.080	-0.692	0.084
ETI18	5.460	1.120	-0.720	0.428
ETI19	6.010	0.866	-0.743	0.074
ETI20	5.990	0.986	-0.766	-0.013

**Source(s):** Own elaboration

**Table 5.** Measures of sampling adequacy (KMO and Bartlett)

Measure	Value
Overall KMO	0.936
$\chi^2$ (Bartlett)	1568
df (Bartlett)	171
<i>p</i> (Bartlett)	< 0.001
MSA range per item	0.909–0.955

**Source(s):** Own elaboration

The initial analysis identified a four-factor solution consistent with the theoretical structure proposed in the instrument's design and later confirmed in the CFA. These factors explained 67.4% of the variance, representing a robust and adequate structure for attitudinal assessment instruments (Hair *et al.*, 2019a, 2019b). Items ETI1, ETI5, ETI9, ETI10, ETI13 and ETI19 were eliminated for presenting factor loadings below 0.40 or for showing ambiguous saturation in more than one factor, which compromised the discriminant validity of the instrument (Fabrigar and Wegener, 2011).

The emerging dimensions were Ethics and integrity (ETI2, ETI3, ETI4), Professional competence and discipline (ETI6, ETI7, ETI8), Growth attitudes and resilience (ETI11, ETI12, ETI14, ETI15, ETI16) and Empathy and interpersonal relationships (ETI17, ETI18, ETI20). In addition, the uniqueness of each item was calculated as a complementary measure to assess the extent to which the common factors explain the variance of each item. A uniqueness below 0.60 was considered adequate as an indicative criterion that the item is adequately explained by the factorial model (Fabrigar and Wegener, 2011). Table 6 shows the retained items, their factor loadings and the variance each dimension explains.

**Table 6.** Results of the exploratory factor analysis (EFA)

Dimension	Item	Factor loading	Uniqueness
Ethics and integrity	ETI2	0.638	0.592
	ETI3	0.755	0.43
	ETI4	0.656	0.569
Professional competence and discipline	ETI6	0.711	0.495
	ETI7	0.645	0.583
	ETI8	0.779	0.393
Growth attitudes and resilience	ETI11	0.672	0.548
	ETI12	0.795	0.368
	ETI14	0.852	0.274
	ETI15	0.703	0.505
	ETI16	0.726	0.473
Empathy and interpersonal relationships	ETI17	0.655	0.571
	ETI18	0.625	0.609
	ETI20	0.792	0.372

**Note(s):** A factor loading  $\geq 0.60$  and a uniqueness  $\leq 0.60$  were considered as retention criteria, which were met for most items, confirming their explanatory contribution to the model

**Source(s):** Own elaboration

In addition to the analysis of loadings and uniqueness, a scree plot was produced to support the decision on the optimal number of factors to retain, following the methodological recommendations of [Costello and Osborne \(2005\)](#). This plot visually represents the eigenvalues associated with each factor, ordered from highest to lowest. The presence of a clear inflexion point (“elbow”) in the curve made it possible to identify a four-factor solution as the most parsimonious, supporting both the theory and the empirical results of the EFA. [Figure 1](#) shows this sharp drop between the first and subsequent factors, visually confirming the proposed four-component structure.

#### 4.4 Convergent and discriminant validity

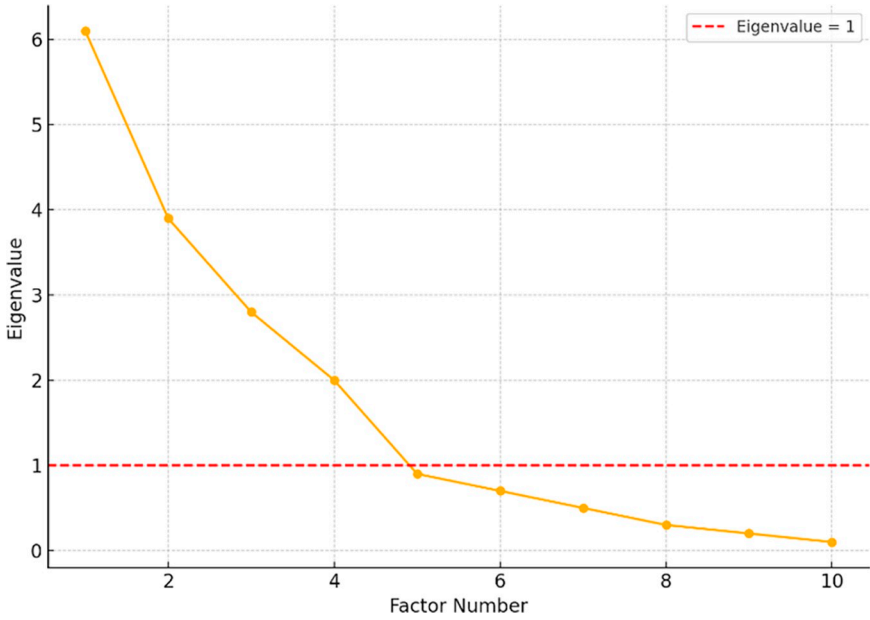
To assess the convergent and discriminant validity of the WAVE scale, Composite Reliability (CR), Average Variance Extracted (AVE) and the square root of AVE ( $\sqrt{\text{AVE}}$ ) were calculated for each latent factor, by established psychometric guidelines ([Hair et al., 2019a, 2019b](#)). [Table 7](#) shows that all constructs reached CR values close to or above the recommended minimum of 0.50. Moreover,  $\sqrt{\text{AVE}}$  values exceeded most inter-factor correlations, providing convergent and discriminant validity evidence.

These results support the internal consistency of the factors and the construct validity of the WAVE scale.

#### 4.5 Confirmatory factor analysis

A CFA was carried out based on the items retained in the EFA to verify the structural validity of the proposed model. This technique allows for an empirical evaluation of the degree of fit between the theoretical model and the observed data and is considered a standard procedure in psychometric validation studies ([Hair et al., 2019a, 2019b; Brown, 2015](#)). The ML method was appropriate in contexts with moderate or large samples and moderate deviations from multivariate normality ([Kline, 2016](#)).

The four-factor model obtained satisfactory fit indices, indicating a good correspondence between the theoretical structure of the instrument and the empirical data.



**Figure 1.** Scree plot of the extracted factors  
**Source:** Jamovi 2.6.26

**Table 7.** Composite reliability, average variance extracted (AVE) and square root of AVE ( $\sqrt{\text{AVE}}$ ) for each factor

Factor	AVE	Composite reliability (CR)	$\sqrt{\text{AVE}}$
Ethics and integrity	0.469	0.469	0.685
Competence and discipline	0.509	0.509	0.713
Growth and resilience	0.566	0.566	0.752
Empathy and relationships	0.482	0.482	0.694

**Source(s):** Own elaboration

In particular, the comparative fit index (CFI = 0.963) and the Tucker–Lewis index (TLI = 0.952) exceeded the recommended threshold of 0.90, whereas the SRMR (0.045) and RMSEA (0.0632) error indices were within the acceptable range for models with adequate parsimony (Hu and Bentler, 1999). The chi-square test was significant ( $\chi^2 = 112$ ,  $df = 71$ ,  $p = 0.001$ ), as is common in large samples, but the RMSEA values (90% CI = [0.0396–0.084]) confirm a good fit.

The factor loadings of the items ranged between 0.625 and 0.852, all statistically significant ( $p < 0.001$ ), which supports the convergent validity of the instrument. In addition, the covariances between factors were high and significant, reflecting a close but differentiated relationship between the dimensions of the ethical-attitudinal construct. All these values are presented below in Table 8.

Figure 2 presents the graphic model of the four factors.

**Table 8.** Confirmatory factor analysis (CFA)

Dimension	Item	Std.	SE	95% CI		Z	p
		Loading		Lower	Upper		
Ethics and integrity	ETI2	0.638	0.0951	0.452	0.825	6.71	<0.001
	ETI3	0.755	0.0662	0.626	0.885	11.41	<0.001
	ETI4	0.656	0.0723	0.514	0.798	9.08	<0.001
Professional competence and discipline	ETI6	0.711	0.0649	0.584	0.838	10.95	<0.001
	ETI7	0.645	0.0715	0.505	0.785	9.02	<0.001
	ETI8	0.779	0.0739	0.634	0.924	10.55	<0.001
Growth attitudes and resilience	ETI11	0.672	0.0741	0.527	0.818	9.07	<0.001
	ETI12	0.795	0.0727	0.652	0.937	10.93	<0.001
	ETI14	0.852	0.0705	0.714	0.991	12.08	<0.001
	ETI15	0.703	0.0835	0.539	0.866	8.41	<0.001
Empathy and interpersonal relations	ETI16	0.726	0.0605	0.607	0.844	12	<0.001
	ETI17	0.655	0.0871	0.484	0.825	7.52	<0.001
	ETI18	0.625	0.0916	0.446	0.805	6.82	<0.001
	ETI20	0.792	0.0767	0.641	0.942	10.32	<0.001

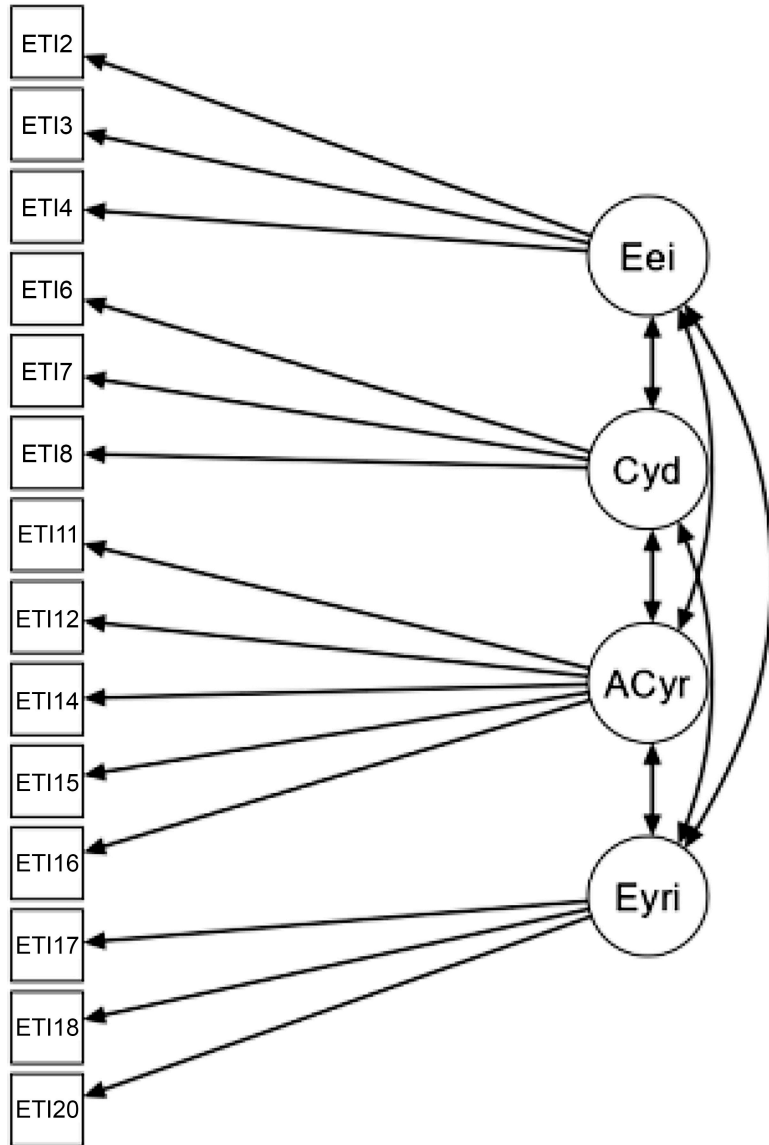
**Source(s):** Own elaboration

#### 4.6 Reliability and validity

Once the factorial structure of the instrument was confirmed through CFA, the internal reliability of the overall construct and each of its dimensions was assessed using Cronbach's alpha coefficient and McDonald's omega. Both measures exceeded acceptable thresholds (>0.70), indicating high internal consistency both overall and by subscales, as recommended in recent psychometric studies (Hair *et al.*, 2019a, 2019b). In particular, the complete scale reached a Cronbach's alpha of 0.925 and a McDonald's omega of 0.930, reflecting excellent reliability (Hair *et al.*, 2019a, 2019b; Nunnally and Bernstein, 1994). Likewise, the specific dimensions showed adequate internal consistency indices, supporting their statistical stability and independent interpretive value within the overall model. The results are presented in Table 9.

Moreover, interdimensional correlations among the identified factors were explored as an additional indicator of convergent validity. The literature establishes that moderate to high correlations between related factors are desirable, provided they do not imply conceptual redundancy (Brown, 2015). In this study, a strong yet distinct relationship was observed among the four main factors, which supports the existence of a familiar underlying ethical construct composed of dimensions that contribute in a complementary manner. Figure 3 presents a heat map with the correlations between dimensions, illustrating this theoretical and statistical coherence.

Figure 3 displays a heat map of the Pearson correlation coefficients between the 14 retained items of the WAVE scale. The matrix shows that all inter-item correlations are positive and statistically significant, ranging from moderate to substantial magnitude. These results suggest an appropriate level of internal coherence across the scale while preserving enough distinction between items to justify their distribution into four separate but related dimensions. The observed pattern further supports the instrument's structural validity, as items from the same dimension tend to correlate more strongly with each other than with items from other dimensions. This visual representation complements the factorial and reliability analyses by illustrating the theoretical and empirical consistency of the scale's underlying structure.



**Figure 2.** Final model  
Source: Jamovi 2.6.26

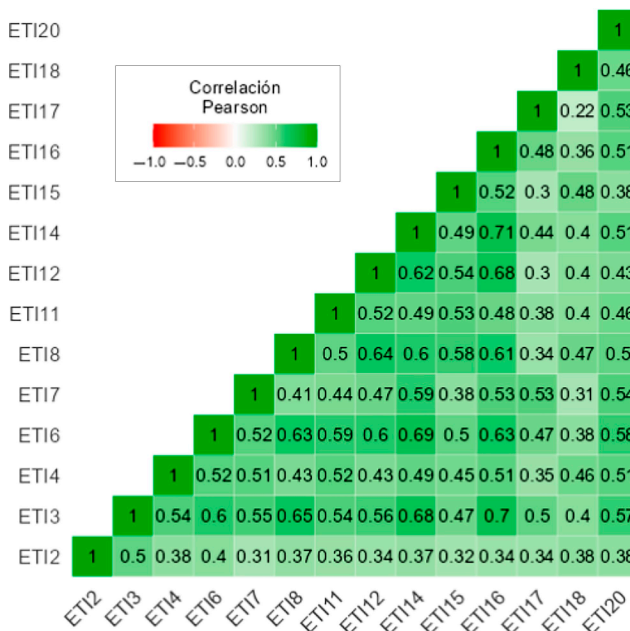
#### 4.7 Validated final instrument

After completing the exploratory and confirmatory factor analyses and verifying the reliability and validity levels of the model, the final version of the WAVE instrument was consolidated. This version includes 14 items distributed across four dimensions, which reflect the components of ethical and attitudinal behaviour in the workplace context: ethics

**Table 9.** Reliability statistics for the WAVE scale

Dimension	Cronbach's alpha	McDonald's omega
Ethics and integrity	0.821	0.839
Professional competence and discipline	0.793	0.814
Growth attitudes and resilience	0.863	0.869
Empathy and interpersonal relationships	0.793	0.819
WAVE global construct	0.925	0.930

Source(s): Own elaboration



**Figure 3.** Heat map of correlations among WAVE scale factors

Source: Jamovi 2.6.26

and integrity, professional competence and discipline, growth and resilience attitudes and empathy and interpersonal relationships.

Each of the retained items showed significant factor loadings, adequate levels of uniqueness and strong coherence with its corresponding theoretical dimension. Likewise, the model presented optimal fit indicators, supporting its structural validity. This process allowed for the refinement and optimisation of the initial instrument, prioritising those items with greater explanatory power and statistical stability.

Including this validated final instrument facilitates the empirical assessment of ethical and attitudinal behaviour in organisational contexts and offers a valuable tool for diagnosis and design interventions in talent management, values training and the development of ethical capital. Table 10 presents WAVE Scale items grouped according to their theoretically and psychometrically validated dimensions.

**Table 10.** Final instrument of the work attitudinal and values ethics scale (WAVE)

Dimension	Statement
Ethics and integrity	There is no hypocrisy or lies in the way I communicate and act I am fair, honest and equitable with everyone regardless of my own interests I respect and admire the integrity of others and recognise it, even when it is not in my own interest
Professional competence and discipline	I have vision and am objective in what I set out to do I communicate effectively and harmoniously with everyone around me, regardless of their level I keep my promises and complete necessary tasks with self-discipline, on time and with quality
Growth and resilience attitudes	I can overcome negative events that arise and find solutions I feel enthusiasm for what I get involved in and do, and it makes me feel good When I set a goal, I have the perseverance and resilience needed to achieve it I can smile at life and even laugh at myself in difficult moments I believe I appreciate and am grateful for what happens in my life and work, and I learn to improve constantly
Empathy and interpersonal relationships	Patience, tolerance and humility are values I manage to show in my daily life I can forgive others without resentment, even if they have harmed me in the past I believe I am capable of loving others as fellow human beings, neither better nor worse than me, each on their own path of growth

**Source(s):** Own elaboration

## 5. Discussions

The findings obtained in this study provide solid evidence regarding the validity and reliability of the WAVE Scale, positioning it as a pertinent tool for evaluating ethical values and attitudinal dispositions in an integrated manner within contemporary workplace contexts. The identified and empirically confirmed factorial structure perfectly aligns with the virtues and conceptual foundations that guided its development.

Firstly, the four-factor solution found through exploratory factor analysis and confirmed through CFA supports the theoretical hypothesis, which proposed the existence of differentiated but complementary dimensions in the expression of ethical behaviour at work. The grouping of items around the dimensions of ethics and integrity, professional competence and discipline, growth and resilience attitudes, empathy and interpersonal relationships reveals a coherent, statistically robust and theoretically grounded structure. These results coincide with previous studies highlighting the multifactorial nature of ethical behaviour beyond its reduction to rules or codes of conduct (Treviño *et al.*, 1998; Gustafson and Peterson, 2023).

In addition, the internal consistency of the instrument was high across all its indicators ( $\alpha = 0.925$ ;  $\omega = 0.930$ ), aligning with recommended standards for scales evaluating complex constructs (Hair *et al.*, 2019a, 2019b; Nunnally and Bernstein, 1994). This level of reliability allows for the assertion that the included items coherently measure the proposed dimensions, being sensitive to individual variability without compromising the unity of the evaluated construct.

Regarding structural validity, the CFA results show highly satisfactory fit indices (CFI = 0.963; TLI = 0.952; RMSEA = 0.0632), confirming the empirical adequacy of the theoretical model. Such indicators are consistent with the most stringent psychometric standards (Hu and Bentler, 1999; Brown, 2015) and reinforce the relevance of the selected dimensions and the clarity of the retained items. It is worth noting that the eliminated items presented ambiguous loadings or limited explained variance, a methodological decision

consistent with the recommendations of [Hair et al. \(2019a, 2019b\)](#) and [Tabachnick and Fidell \(2013\)](#) to optimise discriminant validity.

Furthermore, the correlations observed between factors reveal the presence of a general ethical-attitudinal construct composed of dimensions that are not redundant but complementary. It is consistent with assertions from virtue ethics, which maintain that ethical character manifests in a diversity of interrelated behavioural dispositions ([Nguyen and Crossan, 2021](#)). Thus, the instrument allows for evaluating specific behaviours and captures a meticulous configuration of personal virtues that guide workplace action.

Concerning comparison with previous instruments, the WAVE differs by integrating attitudinal dimensions such as resilience and empathy, which have traditionally been excluded from organisational ethics scales and are more focused on institutional norms ([Toro-Arias et al., 2021](#); [Moreno and Marcaccio, 2017](#)). It also responds to the criticism pointed out by [Lemoine et al. \(2023\)](#) regarding the invisibilities of the ethical component at operational levels by proposing a tool centred on the worker as an active ethical subject.

Under these considerations, these findings position the WAVE as a scale with solid psychometric properties that are well-supported theoretically and have high practical application potential. Its parsimonious structure, conceptual clarity and empirical sensitivity make it an innovative tool for diagnosis, training and ethical management of people in organisations.

## 6. Conclusions

The present study aimed at the design, validation and psychometric analysis of the WAVE Scale, providing an empirically sound tool to assess the manifestation of ethical principles and attitudinal dispositions in the workplace. Based on an approach grounded in virtue ethics, it was possible to operationalise abstract constructs into observable indicators distributed across four key dimensions: ethics and integrity, professional competence and discipline, growth and resilience attitudes and empathy and interpersonal relationships.

The exploratory and confirmatory factor analyses supported the structural validity of the instrument, demonstrating a clear and coherent configuration with the initial theoretical proposal. Likewise, the reliability indicators obtained reveal high internal consistency, confirming the psychometric quality of the instrument for evaluating ethical behaviours in an integrated and contextualised manner.

From an organisational perspective, the WAVE represents a relevant advancement by enabling the assessment of ethical character from the direct experience of workers, going beyond approaches focused exclusively on leadership or institutional norms. Moreover, its design facilitates the identification of strengths and areas for improvement in individual ethical culture, providing valuable input for personal development processes, talent selection and organisational diagnosis.

## 7. Practical, theoretical and social implications

From a practical and managerial perspective, the WAVE scale offers a robust and versatile strategic human resource management tool. It enables structured and valid assessment of key ethical attitudes and workplace values, supporting processes such as personnel selection, performance reviews, ethical climate diagnosis and values-based leadership training. Importantly, the scale can help address concrete organisational challenges such as integrity gaps, low engagement, or breakdowns in interpersonal trust – problems commonly observed in the industrial and service sectors from which our data were collected. By allowing organisations to identify attitudinal strengths and deficits across hierarchical levels (operational, middle and top management), WAVE provides actionable insights to reinforce

---

ethical culture, guide talent development and reduce misalignment between formal values and informal behaviours. Furthermore, the self-assessment design encourages individual reflection and behavioural alignment, fostering intrinsic motivation for ethical conduct.

Theoretically, the WAVE scale contributes to advancing virtue ethics theory in organisational settings. While traditional organisational ethics models often prioritise rules or consequences, WAVE draws directly from virtue ethics, grounding its constructs in character traits and attitudinal dispositions (e.g. integrity, discipline, empathy). This focus bridges the gap between normative ethical theory and workplace realities by operationalising ethical traits in observable, measurable and behaviourally anchored ways. In addition, by applying rigorous psychometric procedures (EFA, CFA, AVE, CR), the study reinforces the empirical foundation of virtue ethics as a viable framework for ethical assessment. Integrating culturally relevant traits also expands the global applicability of virtue-based ethics models, contributing to a more inclusive and context-sensitive theoretical discourse.

Regarding social implications, the WAVE scale supports the creation of more ethical, collaborative and psychologically healthy workplaces. In contexts where short-term productivity often overshadows ethical considerations, this tool empowers organisations to prioritise soft traits, such as empathy, resilience and interpersonal integrity that enhance quality of life, team cohesion and long-term sustainability. It also has potential applications in policy design, public education and civic training by offering a measurable framework to promote ethical awareness and social responsibility. In this way, the study contributes to shifting public attitudes towards ethics in work as a shared responsibility, not just a regulatory obligation.

### **8. Future lines of research**

Based on the findings obtained, new possibilities arise to analyse the study of ethical and attitudinal values in diverse workplace contexts. Future research could assess the cross-cultural validity of the WAVE in different countries or economic sectors, as well as its relationship with organisational variables such as leadership, job satisfaction, workplace happiness, or performance. Likewise, it would be valuable to analyse its longitudinal behaviour to evaluate the stability of the construct over time and its sensitivity to ethical intervention processes within organisations. This type of research would contribute to consolidating the WAVE as an empirical benchmark in measuring ethical behaviour at work.

### **Acknowledgements**

The authors express their sincere gratitude to all the participants who generously contributed their time and perspectives to this research. The authors also thank the anonymous peer reviewers and the editorial team for their valuable feedback and guidance throughout the publication.

### **Funding**

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

### **Ethics statement**

This study was submitted to the Research Ethics Committee of CETYS Universidad and received ethical approval on 2 January 2025. All participants were provided with detailed information about the study's purpose and procedures, and their participation was entirely voluntary. Each participant read and signed an informed consent form before data collection according to ethical principles for research involving human participants.

**References**

- Ayieko, S.A., Atkinson, J., Llamas, A. and Fernandez-Esquer, M.E. (2024), "Coping with stress during the COVID-19 pandemic: resilience and mental health among latino day laborers", *COVID*, Vol. 5 No. 1, p. 1, doi: [10.3390/covid5010001](https://doi.org/10.3390/covid5010001).
- Bartlett, M.S. (1954), "A note on the multiplying factors for various  $\chi^2$  approximations", *Journal of the Royal Statistical Society. Series B (Methodological)*, Vol. 16 No. 2, pp. 296-298, available at: [www.jstor.org/stable/2984057](http://www.jstor.org/stable/2984057)
- Böhm, S., Carrington, M., Cornelius, N., De Bruin, B., Greenwood, M., Hassan, L., Jain, T., Karam, C., Kourula, A., Romani, L., Riaz, S. and Shaw, D. (2022), "Ethics at the Centre of global and local challenges: thoughts on the future of business ethics", *Journal of Business Ethics*, Vol. 180 No. 3, pp. 835-861, doi: [10.1007/s10551-022-05239-2](https://doi.org/10.1007/s10551-022-05239-2).
- Bravo-Blandín, D. (2021), "Fortalecimiento de las capacidades interpersonales de los recicladores de cuenca", *Uda Akadem*, Vol. 8 No. 8, pp. 294-319, doi: [10.33324/udaakadem.vi8.445](https://doi.org/10.33324/udaakadem.vi8.445).
- Brown, T.A. (2015), *Confirmatory Factor Analysis for Applied Research*, 2nd ed. Guilford Publications, New York, NY.
- Byrne, B.M. (2016), *Structural Equation Modeling with AMOS*, 3rd ed. Routledge, New York, NY.
- Cai, Z., Tian, Y. and Wang, Z. (2022), "Career adaptability and proactive work behaviour: a relational model", *Journal of Occupational and Organizational Psychology*, Vol. 96 No. 1, pp. 182-202, doi: [10.1111/joop.12411](https://doi.org/10.1111/joop.12411).
- Carranza-Esteban, R.F., Mamani-Benito, O., Huancahuire-Vega, S. and Lingan, S.K. (2022), "Design and validation of a research motivation scale for Peruvian university students (MOINV-U)", *Frontiers in Education*, Vol. 7, doi: [10.3389/educ.2022.791102](https://doi.org/10.3389/educ.2022.791102).
- Casalengua, M.L.T., Maderuelo-Fernández, J.A., Peña, M.P.A. and Rodríguez, R.A. (2021), "La seguridad de los profesionales como condición indispensable Para la seguridad de los pacientes", *Atención Primaria*, Vol. 53, p. 102216, doi: [10.1016/j.aprim.2021.102216](https://doi.org/10.1016/j.aprim.2021.102216).
- Clayton, S., Czellar, S., Nartova-Bochaver, S., Skibins, J.C., Salazar, G., Tseng, Y., Irkhin, B. and Monge-Rodriguez, F.S. (2021), "Cross-Cultural validation of a revised environmental identity scale", *Sustainability*, Vol. 13 No. 4, p. 2387, doi: [10.3390/su13042387](https://doi.org/10.3390/su13042387).
- Colominas, D.G. (2021), "Trabajo decente y sociedades cooperativas de trabajo asociado: propuestas de implementación en la ley 27/1999", *REVESCO Revista De Estudios Cooperativos*, No. 139, p. e77442, doi: [10.5209/reve.77442](https://doi.org/10.5209/reve.77442).
- Corti, L. and Bishop, L. (2019), "Ethical issues in data sharing and archiving", in *Springer eBooks*, pp. 1-24, doi: [10.1007/978-3-319-76040-7\\_17-1](https://doi.org/10.1007/978-3-319-76040-7_17-1).
- Costello, A.B. and Osborne, J.W. (2005), "Best practices in exploratory factor analysis: four recommendations for getting the most from your analysis", *Practical Assessment, Research, and Evaluation*, Vol. 10 No. 1, pp. 1-9.
- Crane, C.A., Hawes, S.W., Mandel, D. and Easton, C.J. (2013), "Informed consent: an ethical issue in conducting research with male partner violent offenders", *Ethics and Behavior*, Vol. 23 No. 6, pp. 477-488, doi: [10.1080/10508422.2013.804795](https://doi.org/10.1080/10508422.2013.804795).
- Dawes, J. (2008), "Do data characteristics change according to the number of scale points used? An experiment using 5-Point, 7-Point and 10-Point scales", *International Journal of Market Research*, Vol. 50 No. 1, pp. 61-104, doi: [10.1177/147078530805000106](https://doi.org/10.1177/147078530805000106).
- De Lurdes-Neves, M. (2025), "Educational leadership in Portugal: navigating ethics, morality, and future trends", *Frontiers in Education*, Vol. 9, doi: [10.3389/educ.2024.1508771](https://doi.org/10.3389/educ.2024.1508771).
- Elliethey, N.S., Hashish, E. and Elbassal, N. (2024), "Work ethics and its relationship with workplace ostracism and counterproductive work behaviours among nurses: a structural equation model", *BMC Nursing*, Vol. 23 No. 1, doi: [10.1186/s12912-024-01785-4](https://doi.org/10.1186/s12912-024-01785-4).
- Fabrigar, L.R., and Wegener, D.T. (2011), *Exploratory Factor Analysis*, Oxford University Press, New York, NY.

- Galván-Vela, E., Mercader, V. and Ravina-Ripoll, R. (2023), "The ethics and social mission of workers and their relationship to social intrapreneurship", *Anduli*, Vol. 23 No. 23, pp. 137-157, doi: [10.12795/anduli.2023.i23.08](https://doi.org/10.12795/anduli.2023.i23.08).
- Grabowski, D., Chudzicka-Czupala, A. and Stapor, K. (2021), "Relationships between work ethic and motivation to work from the point of view of the self-determination theory", *Plos One*, Vol. 16 No. 7, p. e0253145, doi: [10.1371/journal.pone.0253145](https://doi.org/10.1371/journal.pone.0253145).
- Gustafson, A. and Peterson, E. (2023), "Virtue ethics", in *Springer eBooks*, pp. 1856-1859, doi: [10.1007/978-3-030-22767-8\\_398](https://doi.org/10.1007/978-3-030-22767-8_398).
- Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2019a), *Multivariate Data Analysis*, 8th ed. Cengage, Andover.
- Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M. (2019b), "When to use and how to report the results of PLS-SEM", *European Business Review*, Vol. 31 No. 1, pp. 2-24, doi: [10.1108/eb-11-2018-0203](https://doi.org/10.1108/eb-11-2018-0203).
- Hald, E.J., Gillespie, A. and Reader, T.W. (2020), "Causal and corrective organisational culture: a systematic review of case studies of institutional failure", *Journal of Business Ethics*, Vol. 174 No. 2, pp. 457-483, doi: [10.1007/s10551-020-04620-3](https://doi.org/10.1007/s10551-020-04620-3).
- Hayati, K. and Caniogo, I. (2025), "Exploring the influence of ethical leadership on employee performance: the mediating role of Islamic work ethic", *International Journal of Ethics and Systems*, Vol. 41 No. 3, doi: [10.1108/ijoes-09-2024-0269](https://doi.org/10.1108/ijoes-09-2024-0269).
- Hessari, H., Daneshmandi, F., Busch, P. and Smith, S. (2024), "Mitigating cyberloafing through employee adaptability: the roles of temporal leadership, teamwork attitudes and competitive work environment", *Asia-Pacific Journal of Business Administration*, Vol. 17 No. 2, pp. 303-336, doi: [10.1108/apjba-02-2024-0065](https://doi.org/10.1108/apjba-02-2024-0065).
- Hu, L. and Bentler, P.M. (1999), "Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives", *Structural Equation Modeling: A Multidisciplinary Journal*, Vol. 6 No. 1, pp. 1-55, doi: [10.1080/10705519909540118](https://doi.org/10.1080/10705519909540118).
- Hussain, S., Soni, G. and Shah, F.A. (2024), "Soft skills and interpersonal skills for tourism and hospitality industry", in Sharma, A. (Ed), *International Handbook of Skill, Education, Learning, and Research Development in Tourism and Hospitality*, Springer International Handbooks of Education, Springer, Singapore, pp. 119-138, doi: [10.1007/978-981-97-4318-6\\_7](https://doi.org/10.1007/978-981-97-4318-6_7).
- Ismail, H.N., Kertechian, K.S. and Blaique, L. (2022), "Visionary leadership, organisational trust, organisational pride, and organisational citizenship behaviour: a sequential mediation model", *Human Resource Development International*, Vol. 26 No. 3, pp. 264-291, doi: [10.1080/13678868.2022.2108993](https://doi.org/10.1080/13678868.2022.2108993).
- Israel, M. (2015), *Research Ethics and Integrity for Social Scientists: Beyond Regulatory Compliance*, Sage Publications, London, doi: [10.4135/9781473910096](https://doi.org/10.4135/9781473910096).
- Kaiser, H.F. (1974), "An index of factorial simplicity", *Psychometrika*, Vol. 39 No. 1, pp. 31-36, doi: [10.1007/bf02291575](https://doi.org/10.1007/bf02291575).
- Karch, J.D. (2023), "Bmtest: a jamovi module for Brunner–Munzel’s test—a robust alternative to Wilcoxon–Mann–Whitney’s test", *Psych*, Vol. 5 No. 2, pp. 386-395, doi: [10.3390/psych5020026](https://doi.org/10.3390/psych5020026).
- Kim, K. (2023), "The mediating effect of resilience in the effect of emotional labor on job satisfaction of social workers at home elderly welfare facilities", *Korean Association For Learner-Centered Curriculum And Instruction*, Vol. 23 No. 12, pp. 821-833, doi: [10.22251/jlcci.2023.23.12.821](https://doi.org/10.22251/jlcci.2023.23.12.821).
- Kline, R.B. (2016), "Principles and practice of structural equation modeling", 4th ed., The Guilford Press, New York, NY.
- Lange, B., Keeling, G., McCroskery, A., Zevenbergen, B., Blascovich, S., Pedersen, K., Lentz, A. and Arcas, B. (2023), "Engaging engineering teams through moral imagination: a bottom-up approach for responsible innovation and ethical culture change in technology companies", *AI and Ethics*, Vol. 5 No. 1, pp. 607-616, doi: [10.1007/s43681-023-00381-7](https://doi.org/10.1007/s43681-023-00381-7).

- 
- Lemoine, G.J., Hartnell, C.A., Hora, S. and Watts, D.I. (2023), "Moral minds: how and when does servant leadership influence employees to benefit multiple stakeholders?", *Personnel Psychology*, Vol. 77 No. 3, pp. 1055-1085, doi: [10.1111/peps.12605](https://doi.org/10.1111/peps.12605).
- Lu, Y., Zhang, M.M., Yang, M.M. and Wang, Y. (2022), "Sustainable human resource management practices, employee resilience, and employee outcomes: toward common good values", *Human Resource Management*, Vol. 62 No. 3, pp. 331-353, doi: [10.1002/hrm.22153](https://doi.org/10.1002/hrm.22153).
- MacCallum, R.C., Widaman, K.F., Zhang, S. and Hong, S. (1999), "Sample size in factor analysis", *Psychological Methods*, Vol. 4 No. 1, pp. 84-99, doi: [10.1037/1082-989X.4.1.84](https://doi.org/10.1037/1082-989X.4.1.84).
- Malik, M., Mahmood, F., Sarwar, N., Obaid, A., Memon, M.A. and Khaskheli, A. (2022), "Ethical leadership: exploring bottom-line mentality and trust perceptions of employees on Middle-level managers", *Current Psychology*, Vol. 42 No. 20, pp. 16602-16617, doi: [10.1007/s12144-022-02925-2](https://doi.org/10.1007/s12144-022-02925-2).
- Mercader, V., Galván-Vela, E., Ravina-Ripoll, R. and Popescu, C.R.G. (2021), "A focus on ethical value under the vision of leadership, teamwork, effective communication and productivity", *Journal of Risk and Financial Management*, Vol. 14 No. 11, p. 522, doi: [10.3390/jrfm14110522](https://doi.org/10.3390/jrfm14110522).
- Mercader, V., Galván-Vela, E., Salazar-Altamirano, M.A. and Ravina-Ripoll, R. (2025), "Business ethics, corporate social responsibility and fostering innovation as predictors of employee happiness", *Suma de Negocios*, Vol. 16 No. 34, pp. 92-103, doi: [10.14349/sumneg/2025.v16.n34.a9](https://doi.org/10.14349/sumneg/2025.v16.n34.a9).
- Miranda, C., Goñi, J., Pickenpack, A. and Sotomayor, T. (2021), "The ethical implications of collecting data in educational settings: discussion on the technology and engineering attitude scale (TEAS) and its psychometric validation for assessing a pre-engineering design program", *International Journal of Technology and Design Education*, Vol. 32 No. 3, pp. 1495-1513, doi: [10.1007/s10798-021-09653-x](https://doi.org/10.1007/s10798-021-09653-x).
- Mondal, H., Mondal, S., Ghosal, T. and Mondal, S. (2019), "Using Google forms for medical survey: a technical note", *International Journal of Clinical and Experimental Physiology*, Vol. 5 No. 4, pp. 216-218, doi: [10.5530/ijcep.2018.5.4.26](https://doi.org/10.5530/ijcep.2018.5.4.26).
- Monteverde, S. (2013), "Undergraduate healthcare ethics education, moral resilience, and the role of ethical theories", *Nursing Ethics*, Vol. 21 No. 4, pp. 385-401, doi: [10.1177/0969733013505308](https://doi.org/10.1177/0969733013505308).
- Moreira, A., Nishimura, A., Sousa, M.J. and Au-Yong-Oliveira, M. (2023), "Validation of a scale for the perception of competences and attitudes in the context of public administration", *Industrial and Commercial Training*, Vol. 55 No. 4, pp. 558-567, doi: [10.1108/ict-02-2023-0012](https://doi.org/10.1108/ict-02-2023-0012).
- Moreno, J.E. and Marcaccio, A. (2017), "Escala de valores relativos al trabajo: propiedades psicométricas de una versión en castellano revisada/WorkValuesScale: psychometrics properties of a revised Spanish version", *Praxis Psy*, Vol. 22 No. 22, pp. 65-78, doi: [10.32995/praxispsy.vi22.101](https://doi.org/10.32995/praxispsy.vi22.101).
- Ng, K.Y.N. (2022), "Effects of organisational culture, affective commitment and trust on knowledge-sharing tendency", *Journal of Knowledge Management*, Vol. 27 No. 4, pp. 1140-1164, doi: [10.1108/jkm-03-2022-0191](https://doi.org/10.1108/jkm-03-2022-0191).
- Nguyen, B. and Crossan, M. (2021), "Character-Infused ethical decision making", *Journal of Business Ethics*, Vol. 178 No. 1, pp. 171-191, doi: [10.1007/s10551-021-04790-8](https://doi.org/10.1007/s10551-021-04790-8).
- Nieto-Rojas, P. (2021), "Trabajo doméstico y derechos colectivos. Algunas reflexiones al hilo del RD 1620/2011 y del convenio 189 OIT", *Lex Social Revista de Derechos Sociales*, Vol. 9 No. 2, pp. 397-410, doi: [10.46661/lexsocial.5586](https://doi.org/10.46661/lexsocial.5586).
- Nunnally, J.C. and Bernstein, I.H. (1994), *Psychometric Theory*, 3rd ed. McGraw-Hill, New York, NY.
- Paredes-Saavedra, M., Vallejos, M., Huancahuire-Vega, S., Morales-García, W. and Geraldo-Campos, L. (2024), "Work team effectiveness: importance of organisational culture, work climate, leadership, creative synergy, and emotional intelligence in university employees", *Administrative Sciences*, Vol. 14 No. 11, p. 280, doi: [10.3390/admsci14110280](https://doi.org/10.3390/admsci14110280).

- Park, Y., Lee, J.G., Jeong, H.J., Lim, M.S. and Oh, M. (2022), "How does the protean career attitude influence external employability? The roles of career resilience and proactive career behavior", *Industrial and Commercial Training*, Vol. 54 No. 2, pp. 317-332, doi: [10.1108/ict-06-2021-0045](https://doi.org/10.1108/ict-06-2021-0045).
- Parvin, T., Afroze, R. and Sarker, M.A.R. (2024), "The impact of leadership, communication, and teamwork practices on employee trust in the workplace", *Management Dynamics in the Knowledge Economy*, Vol. 12 No. 3, pp. 241-261.
- Paul, M., Jena, L.K. and Sahoo, K. (2019), "Workplace spirituality and workforce agility: a psychological exploration among teaching professionals", *Journal of Religion and Health*, Vol. 59 No. 1, pp. 135-153, doi: [10.1007/s10943-019-00918-3](https://doi.org/10.1007/s10943-019-00918-3).
- Piccolo, R.F., Greenbaum, R., Hartog, D.N.D. and Folger, R. (2010), "The relationship between ethical leadership and core job characteristics", *Journal of Organizational Behavior*, Vol. 31 Nos 2-3, pp. 259-278, doi: [10.1002/job.627](https://doi.org/10.1002/job.627).
- Pobee, F. (2021), "Towards online repurchase intention: a non-probabilistic approach to unpack its antecedents in pécs", *Marketing and Menedzsmen*, Vol. 55 No. 2, pp. 47-59, doi: [10.15170/mm.2021.55.02.05](https://doi.org/10.15170/mm.2021.55.02.05).
- Pokojski, Z., Kister, A. and Lipowski, M. (2022), "Remote work efficiency from the employers' perspective—what's next?", *Sustainability*, Vol. 14 No. 7, p. 4220, doi: [10.3390/su14074220](https://doi.org/10.3390/su14074220).
- Rai, A. (2025), "Meaningfulness at work context, business ethics and decent work: a review of literature", *International Journal of Ethics and Systems*, doi: [10.1108/ijoes-04-2024-0113](https://doi.org/10.1108/ijoes-04-2024-0113).
- Ramírez-Rodríguez, L.T., Sanchez-Pimentel, J.I., Osorio-Galvan, R.C. and Perez-Ortiz, J.O. (2022), "Design and validation of an instrument to measure digital skills in university students of the first cycles of health careers", *2022 IEEE 2nd International Conference on Advanced Learning Technologies on Education and Research (ICALTER)*, pp. 1-4, doi: [10.1109/icalter57193.2022.9964660](https://doi.org/10.1109/icalter57193.2022.9964660).
- Roszkowska, P. and Melé, D. (2020), "Organisational factors in the individual ethical behaviour. The notion of the "organisational moral structure", *Humanistic Management Journal*, Vol. 6 No. 2, pp. 187-209, doi: [10.1007/s41463-020-00080-z](https://doi.org/10.1007/s41463-020-00080-z).
- Saeed, I., Khan, J., Zada, M., Zada, S., Vega-Muñoz, A. and Contreras-Barraza, N. (2022), "Linking ethical leadership to followers' knowledge sharing: mediating role of psychological ownership and moderating role of professional commitment", *Frontiers in Psychology*, Vol. 13, doi: [10.3389/fpsyg.2022.841590](https://doi.org/10.3389/fpsyg.2022.841590).
- Sarti, N.P., Vidal, B.R. and Spinetto, M. (2021), "Trastorno narcisista de la personalidad y esquemas maladaptativos tempranos en una población femenina de bajos recursos socioeconómicos", *Revista Argentina de Ciencias Del Comportamiento*, Vol. 13 No. 1, pp. 73-80, doi: [10.32348/1852.4206.v13.n1.27573](https://doi.org/10.32348/1852.4206.v13.n1.27573).
- Schwepker, C.H., Valentine, S.R., Giacalone, R.A. and Promislo, M. (2020), "Good barrels yield healthy apples: organisational ethics as a mechanism for mitigating Work-Related stress and promoting employee Well-Being", *Journal of Business Ethics*, Vol. 174 No. 1, pp. 143-159, doi: [10.1007/s10551-020-04562-w](https://doi.org/10.1007/s10551-020-04562-w).
- Spohrer, K. (2021), "Resilience, self-discipline and good deeds – examining enactments of character education in English secondary schools", *Pedagogy Culture and Society*, Vol. 32 No. 1, pp. 1-20, doi: [10.1080/14681366.2021.2007986](https://doi.org/10.1080/14681366.2021.2007986).
- Sumlin, C., Hough, C. and Green, K. (2021), "Impact of ethics environment, organisational commitment, and job satisfaction on organisational performance", *J. of Business and Management*, Vol. 27 No. 1, pp. 53-78, doi: [10.1504/jbm.2021.141287](https://doi.org/10.1504/jbm.2021.141287).
- Tabachnick, B.G. and Fidell, L.S. (2013), *Using Multivariate Statistics*, 6th ed. Pearson, Boston, MA.
- Toro-Arias, J., Ruiz-Palomino, P. and Rodríguez-Córdoba, M.P. (2021), "Measuring ethical organisational culture: validation of the Spanish version of the shortened corporate ethical virtues model", *Journal of Business Ethics*, Vol. 176 No. 3, pp. 551-574, doi: [10.1007/s10551-020-04687-y](https://doi.org/10.1007/s10551-020-04687-y).

- Treviño, L.K., Butterfield, K.D. and McCabe, D.L. (1998), "The ethical context in organizations: influences on employee attitudes and behaviors", *Business Ethics Quarterly*, Vol. 8 No. 3, pp. 447-476, doi: [10.2307/3857431](https://doi.org/10.2307/3857431).
- Tshilongamulenzhe, M.C. (2015), "A psychometric assessment of the LPME scale for the South African skills development context", *Risk Governance and Control: Financial Markets and Institutions*, Vol. 5 No. 3, pp. 255-266, doi: [10.22495/rgcv5i3c2art11](https://doi.org/10.22495/rgcv5i3c2art11).
- Tziner, A. and Persoff, M. (2024), "The interplay between ethics, justice, corporate social responsibility, and performance management sustainability", *Frontiers in Psychology*, Vol. 15, doi: [10.3389/fpsyg.2024.1323910](https://doi.org/10.3389/fpsyg.2024.1323910).
- Verenzuela-Barroeta, D.A., Salas-Hernández, A.J. and Araque-Manrique, M.C. (2024), "Diseño/metodología/enfoque y validación psicométrica de una escala de medición del clima organizacional en pequeñas y medianas empresas", *Estudios Gerenciales*, pp. 297-313, doi: [10.18046/j.estger.2024.172.6653](https://doi.org/10.18046/j.estger.2024.172.6653).
- Yang, W. and Lee, P.C. (2023), "Retaining hospitality talent during COVID-19: the joint impacts of employee resilience, work social support and proactive personality on career change intentions", *International Journal of Contemporary Hospitality Management*, Vol. 35 No. 10, pp. 3389-3409, doi: [10.1108/ijchm-07-2020-0761](https://doi.org/10.1108/ijchm-07-2020-0761).
- Yazdanshenas, M. and Mirzaei, M. (2022), "Leadership integrity and employees' success: role of ethical leadership, psychological capital, and psychological empowerment", *International Journal of Ethics and Systems*, Vol. 39 No. 4, pp. 761-780, doi: [10.1108/ijoes-05-2022-0117](https://doi.org/10.1108/ijoes-05-2022-0117).
- Zheng, Y., Epitropaki, O., Graham, L. and Caveney, N. (2021), "Ethical leadership and ethical voice: the mediating mechanisms of value internalisation and integrity identity", *Journal of Management*, Vol. 48 No. 4, pp. 973-1002, doi: [10.1177/01492063211002611](https://doi.org/10.1177/01492063211002611).

#### Corresponding author

Rafael Ravina-Ripoll can be contacted at: [rafael.ravina@uca.es](mailto:rafael.ravina@uca.es)