

TURKISH ADAPTATION OF THE GREEN ORGANIZATIONAL IDENTIFICATION (GOI) SCALE: A VALIDITY AND RELIABILITY STUDY.

Abstract:

Background: Green organizational identification (GOI) reflects the extent to which employees identify with their organizations' environmental values and goals and has become increasingly relevant in sustainability-oriented organizational behavior research. This study aimed to adapt the GOI Scale into Turkish and examine its psychometric properties in a sample of Turkish employees. **Methods:** Data were collected from 369 employees actively engaged in the workforce in Elazığ, Türkiye. The scale was adapted using a forward-backward translation procedure, and linguistic and conceptual equivalence was evaluated through expert review. The factorial structure was examined using principal component analysis (PCA) and confirmatory factor analysis (CFA). Reliability was assessed using Cronbach's alpha, Spearman-Brown, Guttman split-half, and composite reliability coefficients; convergent validity was evaluated using average variance extracted (AVE). Nomological validity was examined through the relationships of GOI with psychological ownership and work alienation. **Results:** PCA supported a six-item, single-factor structure explaining 51.459% of the total variance (eigenvalue = 3.08), with item loadings ranging from .641 to .779. CFA further supported the single-factor model ($\chi^2/df = 2.018$, CFI = .990, TLI = .983, RMSEA = .053, SRMR = .034), with standardized loadings ranging from .642 to .776. Composite reliability (CR = .878) and AVE (.540) met the recommended criteria. Reliability was further supported by Cronbach's alpha (.863), the Spearman-Brown coefficient (.847), and the Guttman split-half coefficient (.847). GOI was positively associated with psychological ownership ($r = .406$, $p < .01$) and negatively associated with work alienation ($r = -.315$, $p < .01$). **Conclusion:** The findings support the six-item, single-factor structure of the Turkish GOI Scale and provide evidence of construct validity, convergent validity, nomological validity, and reliability. The Turkish GOI Scale may therefore be used as a brief and psychometrically adequate instrument for assessing employees' identification with their organizations' environmental values.

Key words:

Green organizational identification; Psychometric validation; Cross-cultural adaptation; Organizational sustainability; Psychological ownership; Work alienation

Introduction:

Climate change and global warming continue to pose increasingly serious global challenges, while greenhouse gas emissions remain at high levels. This pattern indicates that environmental initiatives implemented to date have been insufficient to reverse these trends (Norgaard, 2011; Giddens, 2015). Promoting environmentally responsible behavior is therefore critical to advancing sustainability and addressing environmental problems (Vlek & Steg, 2007; Steg & Vlek, 2009). Previous studies have emphasized the role of human activity and carbon emissions in environmental degradation and climate change (Tang et al., 2018; Mi et al., 2020; Li et al., 2021; Al-Swidi et al., 2021). These macro-level environmental threats affect not only natural ecosystems but also the functioning of economic and industrial systems.

The evolution and practices of modern industries have left a substantial environmental footprint, while increasingly stringent international agreements and regulations have reshaped the business environment (Chen et al., 2014). Environmental regulation and growing environmental awareness among consumers have intensified pressure on firms to adopt proactive environmental management strategies, integrate sustainability into core operations, and pursue green innovation (Chang & Chen, 2013). These institutional and market pressures have also increased employees' awareness of sustainability and transformed everyday work practices (Benn et al., 2014).

The growing urgency of climate change has increased the need for advanced green management practices across sectors, including small and medium-sized enterprises, which play an important role in economic development (Braun et al., 2024). Organizations increasingly encourage employee-level pro-environmental behaviors such as recycling and conserving energy and other resources, bringing a behavioral perspective to the forefront of the literature (Dangelico & Pujari, 2010; Norton et al., 2015; Zhang et al., 2018; Kim et al., 2019). The effectiveness of these efforts depends in part on management's visible commitment to environmental sustainability and on a climate that motivates employees to engage with environmental goals (Karatepe et al., 2022; Haldorai et al., 2022). Within this context, organizational identity and identification provide an important basis for understanding how organizational values are translated into employee attitudes and behavior.

Organizational identity concerns members' shared beliefs about what is central, enduring, and distinctive about an organization (Albert & Whetten, 1985). Organizational identification, by contrast, refers to a perceived oneness

with or belongingness to the organization (Mael & Ashforth, 1992). These related concepts operate at different analytical levels: organizational identity concerns how the organization is collectively defined, whereas organizational identification concerns the extent to which individuals incorporate organizational membership into their self-concept (Ashforth & Mael, 1989; Mael & Ashforth, 1992). Extending organizational identity to the environmental domain provides the conceptual foundation for green organizational identity and, at the employee level, green organizational identification.

Chen (2011) extended organizational identity into the environmental domain and introduced the concept of green organizational identity, defining it as an interpretive scheme collectively constructed around environmental management and protection to give meaning to members' behavior. Green organizational identity provides a cognitive structure through which environmental management becomes part of how the organization defines itself and may strengthen members' attachment to environmental strategies (Chen, 2011; Liu et al., 2021; Soewarno et al., 2019; Robertson & Carleton, 2018). In this sense, green organizational identity captures the organization-level environmental identity, whereas green organizational identification focuses on the extent to which employees define themselves in relation to that identity and its environmental values.

As organizations increasingly prioritize environmental sustainability, employees' identification with environmental values and goals becomes more salient. Green organizational identification (GOI) refers to the extent to which employees identify with the environmental sustainability goals and values adopted by their organization (Quan et al., 2022). It reflects the incorporation of organizational environmental values into the employee's psychological connection with the organization. Employees who identify more strongly with their organizations' green values, goals, and practices are more likely to align their behavior with sustainability objectives and engage voluntarily in environmentally supportive activities (Quan et al., 2022; Chang et al., 2019; Freire & Pieta, 2022). GOI has also been linked to stronger environmental responsibility and proactive engagement with organizational environmental initiatives (Song & Yu, 2018).

In summary, GOI is relevant to understanding how employees internalize environmental values, engage voluntarily in green behavior, and contribute to organizational sustainability goals. Prior research links GOI-related processes to environmentally responsible behavior, innovation, and sustainability-oriented outcomes. Nevertheless, the psychometric properties of the six-item GOI measure have not yet been established in the Turkish context. Accordingly, this study aims to adapt the GOI Scale into Turkish and examine evidence of its validity and reliability in a Turkish employee sample. By doing so, the study provides a measurement basis for future organizational behavior and sustainability research conducted in Turkish-speaking contexts.

Materials and Methods:

Research Design and Ethical Considerations:

This study employed a cross-sectional quantitative survey design to adapt the Green Organizational Identification (GOI) Scale into Turkish and examine its psychometric properties. The study was conducted in accordance with principles of research and publication ethics following approval from the Ethics Committee of Osmaniye Korkut Ata University dated May 7, 2025 (Decision No. 30963). After ethical approval was obtained, data were collected through an online survey on a voluntary basis. All participants were informed about the purpose of the study, the voluntary nature of participation, and data confidentiality, and were informed that personal data would be used solely for scientific purposes.

Participants and Data Collection Procedure:

The sample consisted of individuals aged 18-65 who were actively employed under the supervision of a manager in Elazığ, Türkiye. Participants were recruited through convenience sampling, a non-probability sampling technique. Data collection was conducted between May and August 2025.

The questionnaire included five demographic questions and 23 scale items: the six-item GOI Scale, the seven-item Psychological Ownership Scale, and the ten-item Work Alienation Scale. The measures used five- and seven-point Likert-type response formats. The questionnaire was administered through Google Forms, and the survey link was distributed to participants reached through convenience sampling. After data cleaning and removal of outlying observations, data from 369 participants were retained for analysis.

Translation and Cross-Cultural Adaptation:

The Turkish adaptation of the GOI Scale followed a forward-backward translation approach commonly used in cross-cultural scale adaptation (Brislin, 1970; Beaton et al., 2000). First, the original English form was

independently translated into Turkish by two experts with advanced proficiency in both English and Turkish. The two translations were compared for semantic meaning and contextual consistency and synthesized into a preliminary Turkish version.

The preliminary Turkish form was then back-translated into English by two different experts who had not participated in the forward translation. The back-translated versions were compared with the original instrument to assess linguistic and conceptual equivalence. After necessary revisions, the Turkish version was reviewed by three academics specializing in organizational behavior. The experts evaluated the items for semantic integrity, conceptual appropriateness, cultural relevance, and clarity. Revisions were made in line with their recommendations, resulting in the final Turkish form.

Measures:

Green Organizational Identification Scale:

The six-item measurement structure adapted in this study is based on Chen's (2011) green organizational identity measure and was subsequently used by Quan, Tian, and Qiu (2022) in the context of green organizational identification. The single-factor scale assesses the extent to which employees identify with their organizations' environmental values, goals, and practices.

Psychological Ownership Scale:

Psychological ownership was included to provide additional evidence of the nomological validity of the GOI Scale because it was theoretically expected to be positively related to GOI. The seven-item Psychological Ownership Scale developed by Van Dyne and Pierce (2004) and adapted into Turkish by Kalmaz and Tozkoparan (2020) was used to assess employees' feelings of ownership and belonging toward their organization.

Work Alienation Scale:

Work alienation was included as a second construct for evaluating nomological validity. The ten-item Work Alienation Scale developed by Özbek (2011) assesses negative work-related experiences such as alienation, loss of meaning, and emotional distance. Because organizational identification is theoretically expected to be negatively related to work alienation, this measure was included to provide additional nomological validity evidence for GOI.

Data Analysis:

Data were analyzed using IBM SPSS Statistics 25 and AMOS 20. Descriptive statistics were examined first. Sampling adequacy for factor analysis was assessed using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity.

Principal component analysis (PCA) was used to examine the scale's exploratory structure, and items with loadings of .50 or higher were retained (Çokluk et al., 2010). The resulting structure was then evaluated using confirmatory factor analysis (CFA) in AMOS 20. Model fit was assessed using χ^2/df , CFI, TLI, GFI, AGFI, RMSEA, and SRMR (Kline, 2016). Internal consistency was evaluated using Cronbach's alpha, and split-half reliability was assessed using the Spearman-Brown and Guttman split-half coefficients. Composite reliability (CR) and average variance extracted (AVE) were used to evaluate composite reliability and convergent validity, respectively. CR values of .70 or higher and AVE values of .50 or higher were considered adequate (Fornell & Larcker, 1981; Hair et al., 2018). Finally, Pearson correlations among GOI, psychological ownership, and work alienation were examined as evidence of nomological validity.

Results:

Principal Component Analysis:

Before examining the factor structure of the GOI Scale, the suitability of the data for factor analysis was evaluated using the KMO measure of sampling adequacy and Bartlett's test of sphericity. The KMO value was .884, indicating adequate sampling adequacy for factor analysis (Kaiser, 1974). Bartlett's test of sphericity was statistically significant ($\chi^2 = 882.480$, $p < .001$), supporting the appropriateness of the inter-item correlation matrix for factor analysis (Bartlett, 1954).

PCA showed that all six items loaded on a single component. The component had an eigenvalue of 3.08 and explained 51.459% of the total variance. In social science research, an explained variance of 40% or higher is generally considered adequate for a unidimensional structure (Büyüköztürk et al., 2008). Communalities ranged from .411 to .607, all exceeding the recommended .40 level (Hair et al., 2018). Component loadings ranged from

.641 to .779 and exceeded commonly recommended minimum loading criteria (Field, 2018). No rotation was applied because a single-component solution was obtained. The results are presented in Table 1.

Table 1: Principal Component Analysis Results for the GOI Scale

Item	Loading	Communality (h ²)
M1	.748	.559
M2	.755	.570
M3	.704	.495
M4	.668	.446
M5	.779	.607
M6	.641	.411

Eigenvalue = 3.08; Total variance explained = 51.459%.

Inter-item relationships were also examined using Pearson correlations. Correlations ranged from .426 to .601 and were positive. According to Cohen (1988), correlations between .30 and .50 may be interpreted as moderate, whereas values above .50 indicate stronger relationships. The statistically significant inter-item correlations ($p < .01$) further support the consistent relationship of the items with the same underlying construct (Field, 2018).

Confirmatory Factor Analysis:

CFA was conducted to evaluate the six-item, single-factor structure identified in the PCA. Model fit indices were $\chi^2/df = 2.018$, CFI = .990, TLI = .983, GFI = .985, AGFI = .965, RMSEA = .053, and SRMR = .034. These values indicate that the single-factor model demonstrated good fit to the data according to commonly used model-fit criteria (Hu & Bentler, 1999; Browne & Cudeck, 1993; Kline, 2016).

Standardized factor loadings ranged from .642 to .776, and all loadings were statistically significant. Composite reliability and convergent validity were assessed using CR and AVE. The CR value was .878 and the AVE value was .540. Because CR exceeded .70 and AVE exceeded .50, the recommended criteria for composite reliability and convergent validity were satisfied (Fornell & Larcker, 1981; Hair et al., 2018). Taken together, these results provide support for the construct validity of the six-item, single-factor GOI measurement model.

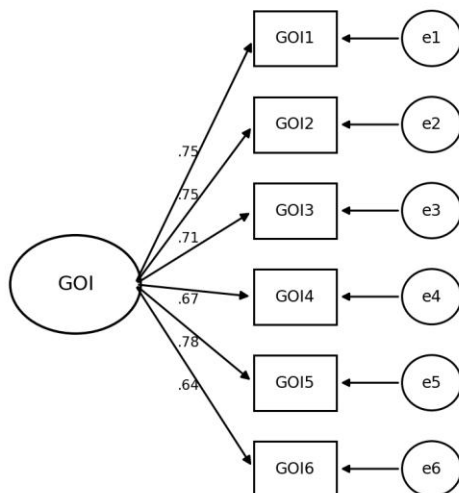


Figure 1: Single-Factor Measurement Model of the GOI Scale

Nomological Validity:

Pearson correlations among GOI, psychological ownership, and work alienation were examined to obtain additional evidence of nomological validity. The results are presented in Table 2.

GOI was positively and significantly associated with psychological ownership ($r = .406, p < .01$) and negatively and significantly associated with work alienation ($r = -.315, p < .01$). Psychological ownership was also negatively associated with work alienation ($r = -.462, p < .01$). The magnitudes of these coefficients generally indicate moderate relationships (Cohen, 1988). The theoretically expected directions of the relationships provide additional evidence supporting the nomological validity of the GOI Scale.

Table 2: Correlations for Nomological Validity

Variables	1	2	3
1. Green Organizational Identification	1.00		
2. Psychological Ownership	.406**	1.00	
3. Work Alienation	-.315**	-.462**	1.00

Note. ** $p < .01$.

Reliability Analyses:

The internal consistency of the GOI Scale was evaluated using Cronbach's alpha. For the six-item scale, Cronbach's alpha was .863, exceeding the widely accepted .70 criterion and indicating adequate internal consistency (Nunnally & Bernstein, 1994; Hair et al., 2018). The standardized-item alpha was identical to the raw-item alpha. Inter-item correlations ranged from .426 to .601, supporting adequate homogeneity among the items (Clark & Watson, 1995; Tavakol & Dennick, 2011).

Split-half reliability was also examined. Cronbach's alpha was .789 for the first half and .748 for the second half, with a correlation of .734 between the two halves. The Spearman-Brown coefficient and the Guttman split-half coefficient were both .847. These findings provide further evidence of adequate consistency across the two halves of the scale.

Table 3: Reliability Results for the GOI Scale

Reliability indicator	Value
Cronbach's alpha	.863
First-half Cronbach's alpha	.789
Second-half Cronbach's alpha	.748
Correlation between halves	.734
Spearman-Brown coefficient	.847
Guttman split-half coefficient	.847

Discussion:

This study adapted the GOI Scale into Turkish and examined its psychometric properties in a sample of Turkish employees. The findings supported the preservation of the six-item, single-factor structure in the Turkish version and provided evidence of construct validity, convergent validity, and reliability. The single-component structure identified through PCA was also supported by CFA, and the model-fit indices indicated an acceptable-to-good fit. In addition, CR and AVE exceeded recommended thresholds, providing further evidence that the items adequately represent a common underlying construct (Fornell & Larcker, 1981; Hair et al., 2018).

The six-item, single-factor structure supported in the present study is broadly consistent with the six-item measurement structure used by Chen (2011) in the context of green organizational identity and later employed by Quan et al. (2022) in the context of green organizational identification. The Cronbach's alpha coefficient (.863) and composite reliability value (.878) further indicate that the items measure the same underlying construct consistently. The Spearman-Brown and Guttman split-half coefficients, both .847, provide convergent evidence from alternative reliability indicators. Overall, these results are consistent with the adequate reliability reported in previous applications of the measure (Chen, 2011; Quan et al., 2022).

The nomological validity findings were also consistent with theoretical expectations. GOI was positively related to psychological ownership and negatively related to work alienation. This pattern suggests that employees who identify more strongly with their organizations' environmental values also tend to report a stronger psychological connection to the organization and lower levels of alienation from work. These relationships are conceptually consistent with organizational identification as a process through which organizational values and characteristics become incorporated into the individual's self-definition (Chen, 2011; Quan et al., 2022). Because the study is cross-sectional, however, these associations should not be interpreted as causal effects.

Taken together, the findings indicate that the Turkish GOI Scale is a psychometrically adequate instrument for assessing employees' identification with their organizations' environmental values. The convergence of the PCA and CFA results on the same single-factor structure, together with consistent evidence across several reliability indices, supports the structural coherence of the Turkish version.

Theoretical Implications:

One theoretical contribution of this study is to provide a measurement tool that enables the distinction between green organizational identity and green organizational identification to be examined empirically in Turkish-language research. Green organizational identity refers to the organization's collective identity structure surrounding environmental management and protection (Chen, 2011), whereas GOI concerns the extent to which employees define themselves in relation to that environmental identity and its values. The Turkish GOI Scale therefore provides a methodological basis for examining how organization-level environmental values are internalized at the employee level.

A second contribution is that GOI was evaluated not only in terms of factor structure and internal consistency but also through its relationships with theoretically relevant constructs. The expected relationships with psychological ownership and work alienation indicate that GOI can be meaningfully positioned within a broader nomological network. This creates opportunities to examine GOI alongside green organizational citizenship behavior, green innovative work behavior, employee voice, sustainability-oriented work attitudes, and other organizational behavior constructs.

The supported short, unidimensional structure may also facilitate the inclusion of GOI in broader research models. Future studies can position GOI as an antecedent, outcome, mediator, or moderator in models linking organizational environmental policies and employee behavior, thereby extending sustainability-oriented organizational behavior research.

Practical Implications:

The Turkish GOI Scale offers organizations a brief and practical instrument for systematically assessing the extent to which employees identify with corporate environmental values and goals. Human resources, sustainability, and corporate communication units may use the scale to assess employees' psychological connection with the organization's environmental orientation and to monitor changes over time.

The scale may also help organizations examine how green training, sustainability communication, employee participation mechanisms, green suggestion systems, and environmental leadership practices are associated with employees' GOI levels. Such assessments can provide information about the extent to which sustainability policies are internalized by employees rather than merely communicated at the organizational level. Given the cross-sectional design of the present study, however, GOI scores should be interpreted as indicators of employees' identification with organizational environmental values rather than as evidence of the direct effects of specific organizational interventions.

Periodic assessment of GOI may further allow comparisons across employee groups, units, or organizational practices and can serve as a supporting data source when developing sustainability initiatives intended to strengthen employee engagement.

Limitations and Future Research:

Several limitations should be considered when interpreting the findings. First, participants were recruited through convenience sampling from a specific geographic region. The generalizability of the findings to other regions, sectors, or employee populations is therefore limited. Future research should examine the scale in more geographically and sectorally diverse samples and, where feasible, use probability-based sampling approaches.

Second, the cross-sectional design did not allow the temporal stability of the scale to be evaluated. Test-retest reliability was not assessed in the present study. Future studies should collect repeated measurements from the same participants to examine the temporal stability of GOI. Longitudinal designs could also assess how changes in green

leadership, green human resource management, or organizational sustainability practices are associated with changes in GOI over time.

Third, all study variables were based on self-report data collected from the same participants, creating a potential risk of common method bias. Future studies may reduce this risk through multi-source designs, temporally separated measurement, or the inclusion of behavioral and objective indicators.

Future research should also re-examine the factor structure of the Turkish GOI Scale across different samples. Measurement invariance analyses across sectors, regions, and countries would help determine whether the scale operates equivalently across groups. Multilevel studies could further investigate how organizational or team-level factors, such as green climate, sustainability policies, leadership behaviors, and stakeholder pressures, interact with individual-level GOI.

Finally, the nomological network of GOI should be expanded. Future studies could examine relationships with employee voice, green organizational citizenship behavior, green innovative work behavior, meaningful work, job satisfaction, burnout, and turnover intention. Associations with objective indicators such as energy use, waste reduction, or environmental process improvements may provide additional evidence regarding the scale's relationship with organizational sustainability outcomes.

Conclusion:

This study examined the psychometric properties of the Turkish version of the Green Organizational Identification Scale. The findings supported a six-item, single-factor structure in a Turkish employee sample and provided evidence of construct validity, convergent validity, and strong internal consistency. The theoretically consistent relationships with psychological ownership and work alienation also provided additional evidence of nomological validity.

Accordingly, the Turkish GOI Scale provides a brief and psychometrically adequate instrument for assessing the extent to which employees identify with their organizations' environmental values. Further testing across sectors, regions, and cultural contexts, particularly with respect to temporal stability, measurement invariance, and broader nomological networks, would strengthen the evidence supporting the use of the Turkish version.

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Conflict of Interest: The authors declare that they have no conflicts of interest.

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