

Article

Development and Validation of a Workplace Happiness Inventory for Sustainable Human Resource Management Among Corporate Employees

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Abstract

Employee happiness is increasingly recognized as a core condition underpinning sustainable human resource management in organizations, yet existing measurement instruments have a limitation in that they do not sufficiently reflect the workplace context. Building on a workplace happiness conceptual model (four dimensions—work, relationship, system, and culture—comprising 11 sub-factors) that was separately established through a literature review and expert Delphi surveys, this study aimed to develop and validate an inventory capable of measuring this construct in practice. From an initial pool of 125 preliminary items, two rounds of expert Delphi surveys refined the item set to 91 items, and a pilot survey of 122 respondents narrowed this further to 87 items. A main survey was then conducted with 580 corporate employees, and exploratory and confirmatory factor analyses yielded a final inventory of 85 items comprising four dimensions and 11 sub-factors (model fit: RMSEA = 0.048, CFI = 0.888). Overall reliability was very high (Cronbach's α = 0.982), and criterion validity—assessed through correlations with existing happiness-related scales—was also confirmed to be adequate (r = 0.675–0.897, p < 0.01). Unlike existing instruments largely adapted from Western scales, this inventory incorporates system- and culture-level dimensions specific to the Korean corporate workplace context and complements existing K-ESG Social-area disclosure indicators, which do not capture employees' psychological experience of institutional conditions. This inventory offers a valid tool for systematically diagnosing employees' workplace happiness and can serve as evidence to support sustainable human resource management interventions.

Keywords: workplace happiness; sustainable human resource management; scale development; Delphi method; exploratory factor analysis; confirmatory factor analysis; criterion validity; corporate employees

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1. Introduction

Since 2012, the United Nations has published the World Happiness Report annually, measuring and quantifying the happiness levels of citizens across countries. The fact that happiness is continuously measured and reported at the national level suggests that it is a domain of human life requiring ongoing management [1]. Individuals spend more than 90,000 h of their lives working [2,3], and adults spend more than a third of their lives, on

average, at work [4]. South Korea, in particular, recorded average annual working hours of 1833 in 2025—97 h longer than the OECD average and 501 h longer than Germany (1332 h), the country with the shortest working hours—making it the sixth-longest working-hours country among the 36 OECD member states [5,6]. This context underscores the need to systematically diagnose and manage the happiness that corporate employees experience in the workplace.

Employees with higher levels of happiness have been reported to show superior outcomes across a range of organizational performance indicators, including job performance, sales performance, and supervisor evaluations [7–11]. In addition, a study by Park and Lee examining the mediating effect of happiness in the relationship between social support and turnover intention among new employees found that, while social support did not directly reduce turnover intention, it could reduce turnover intention indirectly by enhancing employee happiness [12]. Despite these findings, the happiness of corporate employees has tended to be relatively undervalued given its importance [13]. Although scientific research on happiness has accumulated for approximately 25 years [14], most measurement instruments used in Korea are adaptations of scales developed by Western scholars, and questions have persistently been raised as to whether these instruments adequately reflect the cultural conception of happiness among Koreans [15]. In the workplace context as well, domestic studies have frequently drawn on sub-factors of Western scales such as Diener's Satisfaction with Life Scale [16,17] or the PANAS [18]; because happiness is a multidimensional construct encompassing multiple attributes [19], such approaches have been limited in their ability to faithfully measure the workplace happiness actually experienced by Korean corporate employees. In particular, such scales primarily capture individual affective experience (corresponding to the work dimension in the present study) but do not adequately represent the structural and institutional conditions organizations establish—such as compensation, working arrangements, career development, and shared organizational culture—that the system and culture dimensions of the present model are intended to capture.

In response to this problem, our research team established a conceptual model of workplace happiness for Korean corporate employees in a separate, previously conducted study, through a review of prior research and three rounds of expert Delphi surveys [20]. The results confirmed that workplace happiness consists of four dimensions—work, relationship, system, and culture—and 11 sub-factors. These dimensions were conceptually derived through a systematic review of prior workplace happiness and employee well-being frameworks, combined with expert Delphi consensus; the resulting structure distinguishes experiential sources of happiness arising directly from the work itself and interpersonal relationships (work, relationship) from structural and cultural conditions that organizations establish and maintain (system, culture), together representing the range of sources from which corporate employees' workplace happiness arises. Building on this previously established conceptual model, the present study therefore aims to develop an inventory capable of measuring this construct in practice and to verify its validity and reliability.

Employee happiness is not merely a psychological outcome at the individual level; it is also directly linked to an organization's capacity to sustainably maintain and manage its human resources [21]. A culture that values employee happiness, along with corporate efforts to promote it, has been reported to affect corporate reputation and competitiveness over the long term [22], and as happiness emerges as a core agenda in corporate management philosophy, employee workplace happiness is expanding into a matter of broader social discussion [23].

This growing interest in employee happiness intersects with theoretical developments in the field of human resource management. The concept of sustainability originally

emerged from the triple bottom line perspective, which holds that the environmental, economic, and social pillars must be balanced [24]; as this perspective was applied to human resource management, it developed into the concept of sustainable HRM [25]. Sustainable HRM is defined as the adoption of HR strategies and practices that enable the simultaneous achievement of financial, social, and ecological goals and that have long-term-horizon effects both within and beyond the organization [26]. This distinguishes it from strategic HRM, which has primarily focused on short-term organizational performance, in that sustainable HRM treats the reproduction and long-term sustainability of human resources itself as a management goal [25]. The triple bottom line approach, a representative perspective within sustainable HRM, argues that organizational performance should be evaluated not only in terms of financial performance (prosperity) but also human and social performance (people) and ecological and environmental performance (planet); within this framework, employee well-being is treated as a core performance domain that organizations must manage [27]. This trend also parallels the internal development of HRM theory itself. In the early transition from personnel management (PM) to human resource management (HRM), the focus of management was on effectively utilizing human resources as a means of achieving organizational and job goals. More recently, however, the perspective has evolved further—from viewing human resource as human capital—expanding the scope of consideration to include not only organizational and job goals but also the goals and expectations held by individual employees [28]. This aligns with the underlying premise of sustainable HRM, namely that employee happiness and well-being should be treated on an equal footing with organizational performance.

The K-ESG Guidelines, published by the Ministry of Trade, Industry and Energy and the Korea Productivity Center, consist of four areas—information disclosure, environment, social, and governance—comprising 61 items in total. Among these, the Social (S) area includes 22 items covering labor, diversity, industrial safety, human rights, and community engagement, treating the structural and institutional conditions related to employees as a core axis of corporate management evaluation [29]. In addition, the Financial Services Commission has announced a roadmap for phasing in mandatory sustainability management report disclosure, beginning with KOSPI-listed companies with total assets of KRW 2 trillion or more [30]. However, these Social (S) area diagnostic items measure only the existence and level of institutional systems an organization has in place—such as turnover rate, welfare expenditure, and occupational health and safety systems—without measuring how such systems are actually experienced psychologically by employees, that is, the happiness employees themselves feel in the workplace. It is at this juncture that a reliable and valid workplace happiness inventory holds significance, in that it provides a methodological basis for empirically verifying whether institutional conditions actually translate into employee happiness.

Recent sustainability research has also empirically confirmed that leaders' compassionate behavior fosters a sustainable workplace by enhancing work engagement through employee well-being as a mediator [31], and that sustainable HRM practices are positively associated with employees' workplace happiness and subsequent work engagement [32]. In this context, a reliable and valid workplace happiness inventory has practical implications in that it can be used as evidence to objectively diagnose employees' happiness levels and to evaluate the effectiveness of sustainable HRM interventions.

Accordingly, the research questions of this study are as follows. First, how are the preliminary items for measuring corporate employees' workplace happiness constructed? Second, what are the validity and reliability of the developed inventory?

2. Materials and Methods

The aim of this study was to develop and validate a workplace happiness inventory for corporate employees. Building on a separately established conceptual model of workplace happiness (four dimensions, 11 sub-factors), the inventory was developed through three sequential stages: preliminary item development, pilot survey, and main survey (Table 1; Figure 1).

Table 1. Procedure for inventory development.

Stage	Content	Method
1	Preliminary Item Development	Literature review and two rounds of expert Delphi survey
2	Pilot Survey	Item analysis and reliability analysis (n = 122)
3	Main Survey	Factor analysis, validity, reliability, and group difference verification (n = 580)

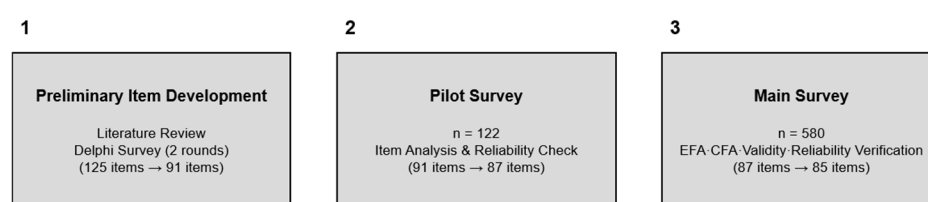


Figure 1. Flowchart of the three-stage inventory development procedure.

2.1. Development of Preliminary Items

After the sub-factors of workplace happiness had been conceptually defined and the factor structure organized, preliminary items were drafted to measure each sub-factor. Recommendations regarding the number of preliminary items vary: some suggest 1.5–2 times the final number of items [33], others recommend at least twice as many [34], and still others recommend 3–4 times as many to secure the scale's internal consistency [35]. The number of items per sub-factor likewise varies across scholars, ranging from 4–6 items [36,37] to 3–15 items [38–40]. In this study, a pool of preliminary items was constructed for the 11 sub-factors of the established conceptual model by drawing on prior research and incorporating the researchers' own modifications and additions, with items worded so as to be expressed as observable behavioral indicators [41]. A Likert-type response format, the most commonly used format in inventory development, was adopted [42–44]. The item-development Delphi panel consisted of 13 experts, including 8 experts who had participated in the earlier conceptual-model Delphi (2 with doctorates in psychology, 1 in business administration, and 5 in education) and 5 newly recruited experts with instrument-development experience (all with doctorates in education); professional experience ranged from 7 months to 19 years across academia, large corporations, and public institutions. Item retention, revision, or deletion was determined using the Content Validity Ratio (CVR), with a minimum threshold of 0.54 applied for a 13-member panel following Lawshe's criterion [45].

Through this process, a total of 125 preliminary items were derived to measure the 11 sub-factors across the four dimensions. Based on this preliminary item pool, two rounds of expert Delphi surveys were conducted, incorporating expert opinions on whether to retain, revise, or remove each item based on its accuracy in measuring the intended construct and its fit with the definition of the corresponding sub-factor. As a result, a final set of 91 items was confirmed for the pilot survey.

2.2. Pilot Survey

The purpose of the pilot survey was to collect data for the statistical development of the inventory. Various criteria exist regarding an adequate sample size, including recommendations of 4–5 times the number of variables [43,46], 100–200 respondents [47], and a minimum of 200 respondents for factor analysis [39]. This study conducted the pilot survey over approximately one week, from 17–23 April 2023, and confirmed 122 respondents, excluding insincere responses, as the final analysis sample. It should be noted that, at this stage, the pilot survey was used specifically for item analysis and reliability screening rather than for determining the factor structure; the la main survey was conducted from the larger sample-size recommendations cited above pertain to the subsequent factor-analytic stage conducted with the main survey (N = 580), for which recommended sample sizes were met.

Data analysis proceeded in the order of item analysis followed by reliability analysis [43]. In the item analysis stage, item difficulty was examined through the mean, standard deviation, skewness, and kurtosis of each item, and item discrimination was examined through item-total correlations. Reliability was assessed using Cronbach's α , an internal consistency reliability coefficient, which is generally considered to require a minimum value of 0.6 in the social sciences [48,49].

2.3. Main Survey

2.3.1. Participants

The participants of the main survey were Korean corporate employees. Based on data from the Basic Statistics on Small and Medium Enterprises, which applies the 10th Korean Standard Industrial Classification (KSIC), the sizes and numbers of employees of large and small/medium enterprises were identified by industry. Participants were employees working at companies belonging to business groups subject to cross-shareholding restrictions—designated as such by the Korea Fair Trade Commission based on combined affiliate assets of KRW 10 trillion or more—operating in the top 10 industries (manufacturing; wholesale and retail trade; construction; accommodation and food service; business facility management, business support, and rental services; real estate; transportation and warehousing; professional, scientific, and technical services; information and communication; and finance and insurance).

Based on the 87 items confirmed through the pilot survey, the main survey was conducted from 4–17 May 2023. Of 609 total responses, 580 were confirmed as the final analysis sample after excluding insincere responses and outliers. The general characteristics of the analysis sample are presented in Table 2.

Table 2. General characteristics of the main survey sample (N = 580).

Category	Subcategory	Percentage (%)
Gender	Male	89.7
	Female	10.3
Age	20s	1.6
	30s	16.4
	40s	41.0
	50s	36.0
	60s	5.0
Education	High school graduate	6.4
	Junior college graduate	9.0
	University graduate	62.1
	Master's degree	16.4

Job Position	Doctoral degree or higher	6.2
	Staff/Assistant	15.2
	Assistant Manager	11.2
	Manager	20.7
	Deputy General Manager	21.6
	General Manager	27.2
Annual Salary	Executive	4.1
	Under KRW 40 million	9.8
	KRW 40–60 million	17.3
	KRW 60–80 million	27.6
	KRW 80–100 million	24.5
	KRW 100 million or more	20.9

2.3.2. Data Analysis

Item analysis by sub-factor (mean, standard deviation, skewness, kurtosis, and item-total correlation) was conducted on the 87 items of the main survey, followed by exploratory factor analysis. Because the purpose of factor analysis is to reduce data while extracting underlying factors common to multiple variables [50], common factor analysis rather than principal component analysis was applied, using the principal axis factoring method for extraction [51]. Given the likelihood of correlation among factors, an oblique rotation method—direct oblimin—was adopted [52]. Sampling adequacy was verified using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett’s test of sphericity [53].

Based on the results of the exploratory factor analysis, confirmatory factor analysis was conducted to verify model fit (RMSEA, RMR, NFI, IFI, TLI, and CFI) [54]. Convergent validity was assessed through standardized path coefficients and average variance extracted (AVE) [55], and criterion validity was verified through correlation analysis with existing scales that have been developed and validated both domestically and internationally [56–59]. Reliability was verified using Cronbach’s α , and finally, group differences in corporate employees’ workplace happiness by gender, age, marital status, education, job position, and annual salary were analyzed using *t*-tests and F-tests (ANOVA). All statistical analyses, with the exception of the confirmatory factor analysis, were performed using IBM SPSS Statistics (version 22.0; IBM Corp., Armonk, NY, USA); the confirmatory factor analysis was conducted using IBM SPSS Amos (version 23.0; IBM Corp., Armonk, NY, USA).

3. Results

3.1. Results of the Pilot Survey

Item analysis of the 91 items used in the pilot survey showed item means ranging from 2.64 to 3.88, with skewness and kurtosis for all items within an appropriate range [60]. Standard deviations ranged from 0.569 to 1.132. In total, six items fell below the recommended threshold of 0.750 [61]; two of these items (Items 3 and 12) were removed due to insufficient response variability (see Table 3), while the remaining four items were retained given the theoretical importance of emotional vitality [58] and colleague trust [62]. Item analysis led to the removal of 2 of the 91 items, and reliability analysis led to the additional removal of 2 items whose deletion would improve sub-factor reliability, yielding a final set of 87 items for the main survey. In the subsequent exploratory factor analysis of the main survey, 2 additional items with low factor loadings were removed, yielding a final set of 85 items. The items removed across the three stages of item refinement are summarized in Table 3.

Table 3. Items removed at each stage of item refinement.

Stage	Item No.	Reason for Removal	Statistic
Pilot Survey (91 → 87)	Item 3	Below SD threshold (<0.750)	SD = 0.639
	Item 12	Below SD threshold (<0.750)	SD = 0.569
	Item 20	Deletion improved sub-factor reliability	-
	Item 27	Deletion improved sub-factor reliability	-
Main Survey EFA (87 → 85)	Item 65 (Career Growth)	Below factor loading threshold (0.30)	Loading = 0.287
	Item 71 (Belongingness & Pride)	Below factor loading threshold (0.30)	Loading = 0.280

3.2. Results of the Exploratory Factor Analysis

Prior to conducting exploratory factor analysis on the 87 items of the main survey, sampling adequacy was examined. The KMO measure of sampling adequacy was 0.975, indicating a level highly suitable for factor analysis, and Bartlett's test of sphericity was also significant ($\chi^2 = 42,797.211$, $df = 3741$, $p < 0.001$), confirming that the data were suitable for factor analysis.

Extracting factors based on an eigenvalue criterion of 1 or greater yielded 11 factors that accounted for 63.977% of total variance. These did not fully correspond to the factor structure originally hypothesized by the researchers, and the following adjustments were identified. First, within the work dimension, the 'meaning and purpose of work' factor and the 'sense of achievement and self-realization through work' factor merged into a single factor, named 'meaning & achievement.' Second, the 'positive feelings about work' factor within the work dimension was extracted as two separate factors—positive affect and negative affect—consistent with the distinction found in traditional affect scales such as the PANAS. Third, the 'relationship with supervisor' and 'relationship with colleague' factors within the relationship dimension were extracted exactly as originally hypothesized by the researchers. Fourth, the 'work environment' factor within the system dimension split into a factor measuring the physical work environment and a factor measuring work arrangements; within the 'career growth' factor, one item with a low factor loading (0.287) was removed (item 65, Table 3). Fifth, within the culture dimension, the 'sense of belonging and respect' factor and the 'organizational pride' factor merged into a single factor, named 'belongingness & pride'; in this process, one item with a low factor loading (0.280) was removed (item 71, Table 3). To further support the number of factors retained beyond the eigenvalue-greater-than-one criterion, a parallel analysis [63] was conducted using principal axis factoring, comparing the raw-data eigenvalues against the mean eigenvalues from 1000 randomly generated datasets of the same size ($N = 580$, 87 variables). The raw-data eigenvalue exceeded both the mean random eigenvalue and the more conservative 95th-percentile random eigenvalue [64] through the 11th factor (0.748 vs. 0.674 [mean] and 0.701 [95th percentile]) but not the 12th (0.613 vs. 0.649 [mean] and 0.677 [95th percentile]), providing robust additional support for the 11-factor solution under both criteria. The full item-level pattern matrix from this exploratory factor analysis is reported in Supplementary Table S1.

Following these adjustments, the exploratory factor analysis yielded a final set of 85 items comprising four dimensions and 11 sub-factors. The number of items per dimension was 23 for work, 18 for relationship, 23 for system, and 21 for culture (Table 4).

Table 4. Dimensions, sub-factors, and number of items confirmed through exploratory factor analysis.

Dimension	Sub-Factor	No. of Items
Work (23 items)	Meaning & Achievement	14

Relationship (18 items)	Positive Affect	5
	Negative Affect	4
	Relationship with Supervisor	9
System (23 items)	Relationship with Colleague	9
	Compensation for work	7
	Working Space	3
Culture (21 items)	Working hour	5
	Career Growth	8
	Shared Vision and Value	5
	Belongingness & Pride	16

3.3. Results of the Confirmatory Factor Analysis

Confirmatory factor analysis was conducted based on the 85 items confirmed through exploratory factor analysis. Because the χ^2 test becomes excessively sensitive when sample size exceeds 500, model fit was evaluated using six fit indices excluding χ^2 —RMSEA, RMR, NFI, IFI, TLI, and CFI (Table 5).

Table 5. Model fit indices from the confirmatory factor analysis.

Index	RMSEA	RMR	NFI	IFI	TLI	CFI
Value	0.048	0.040	0.818	0.888	0.884	0.888

An RMSEA value of 0.05 or below is generally interpreted as indicating close or excellent fit; the RMSEA in this study was 0.048, meeting this criterion. All path coefficients were significant at $p < 0.001$, with standardized coefficients ranging from 0.447 to 0.952—a generally acceptable level given the common benchmark of 0.5 or above. Average variance extracted (AVE) values also met the benchmark of 0.5 for every sub-factor, confirming that convergent validity was established. Full standardized path coefficients and AVE values for each sub-factor are presented in Table 6. Item-level standardized loadings for all 85 items, obtained by re-estimating the confirmatory factor model on the original response data, ranged from 0.517 to 0.869 (all $ps < 0.001$) and are reported in full in Supplementary Table S2.

Table 6. Standardized path coefficients and average variance extracted (AVE) from the confirmatory factor analysis.

Dimension	Sub-Factor	Standardized Loading (β)	AVE
Work	Meaning & Achievement	0.952	0.576
Work	Positive Affect	0.897	0.671
Work	Negative Affect	0.447	0.618
Relationship	Relationship with Supervisor	0.780	0.670
Relationship	Relationship with Colleague	0.790	0.594
System	Compensation for work	0.761	0.625
System	Working Space	0.739	0.621
System	Working hour	0.653	0.532
System	Career Growth	0.876	0.652
Culture	Shared Vision and Value	0.909	0.716
Culture	Belongingness & Pride	0.927	0.598

3.4. Criterion Validity

To verify criterion validity, correlations were analyzed between the inventory developed in this study and three existing measures: the domestically developed and widely

used Concise Measure of Subjective Well-Being (COMOSWB), the internationally developed Happiness at Work (HAW) scale, and a workplace happiness measure developed by a Korean corporate research institute (Table 7).

Table 7. Results of the correlation analysis for criterion validity.

Comparison Scale	Correlation Coefficient (r)	Significance
Concise Measure of Subjective Well-Being (COMOSWB)	0.675	$p < 0.01$
HAW (Happiness at Work)	0.897	$p < 0.01$
Workplace Happiness Scale by a Korean Corporate Research Institute	0.779	$p < 0.01$

All correlation coefficients were significant at the 1% level, confirming that the workplace happiness inventory for corporate employees developed in this study possesses adequate criterion validity.

3.5. Reliability

The overall reliability of the main survey inventory was very high (Cronbach's $\alpha = 0.982$). Reliability by dimension was 0.951 for work, 0.947 for relationship, 0.945 for system, and 0.969 for culture; no items were identified whose deletion would improve reliability (Table 8).

Table 8. Reliability (Cronbach's α) of the workplace happiness inventory for corporate employees.

Dimension	Sub-Factor	Cronbach's α
Work (0.951)	Meaning & Achievement	0.950
	Positive Affect	0.909
	Negative Affect	0.866
Relationship (0.947)	Relationship with Supervisor	0.947
	Relationship with Colleague	0.929
System (0.945)	Compensation for work	0.935
	Working Space	0.831
	Working hour	0.840
	Career Growth	0.917
Culture (0.969)	Shared Vision and Value	0.932
	Belongingness & Pride	0.959
Total	Workplace Happiness	0.982

3.6. Group Differences

Differences in corporate employees' workplace happiness were examined by gender, age, marital status, education, job position, and annual salary (Table 9). Overall differences by gender were not significant, but men scored significantly higher than women on the meaning and achievement and belongingness & pride sub-factors ($p < 0.05$). Post-hoc comparisons (Scheffé test) indicated that overall differences by age were not significant, but the work dimension differed significantly by age ($F = 13.42$, $p < 0.001$), with employees in their 50s scoring higher than those in their 30s ($p < 0.001$) and 40s ($p = 0.001$), while the 30s and 40s did not differ significantly from each other; although the omnibus F-test for the culture dimension was also significant ($F = 3.23$, $p = 0.040$), no pairwise comparison reached significance under the more conservative Scheffé criterion. Married employees scored significantly higher overall than unmarried employees ($p < 0.001$), and workplace happiness was significantly higher among employees with higher education, higher job position, and higher annual salary (Scheffé post-hoc $ps < 0.05$ – 0.001); specifically, employees with graduate-level education scored higher than university graduates, employees at

the general manager level or above scored higher than staff/assistant- and manager-level employees, and employees earning KRW 100 million or more scored higher than most lower income brackets.

Table 9. Summary of group differences in workplace happiness among corporate employees by demographic and organizational characteristics.

Characteristic	Test	Overall Workplace Happiness	Significant Sub-Dimensions
Gender	Independent samples <i>t</i> -test	n.s.	Meaning & Achievement ($p < 0.05$), Belongingness & Pride ($p < 0.05$)
Age	F-test (ANOVA)	n.s.	Work dimension ($p < 0.001$), Culture dimension ($p < 0.05$)
Marital Status	Independent samples <i>t</i> -test	Significant ($p < 0.01$)	Work and Relationship dimensions ($p < 0.01$), System dimension ($p < 0.05$)
Education	F-test (ANOVA)	Significant ($p < 0.01$)	Work, System, and Culture dimensions ($p < 0.01$)
Job Position	F-test (ANOVA)	Significant ($p < 0.01$)	Work, System, and Culture dimensions ($p < 0.05$ – 0.001)
Annual Salary	F-test (ANOVA)	Significant ($p < 0.01$)	Work, System, and Culture dimensions ($p < 0.05$ – 0.01)

Note: n.s. = not significant.

3.7. Final Inventory

The final workplace happiness inventory for corporate employees developed in this study (Workplace Happiness Scale) measures the extent to which employees experience positive emotions and recognize meaning in their work, form and maintain positive relationships with fellow organizational members, hold positive perceptions of their working conditions, and feel pride in and a sense of belonging to their organization. The inventory comprises four dimensions, 11 sub-factors, and a total of 85 items (Figure 2), and takes approximately 15–20 min to complete. This tool is expected to be useful for diagnosing the level of happiness employees experience in the workplace and for serving as evidence to guide interventions in human resource management, organizational development, and organizational culture aimed at improving it.

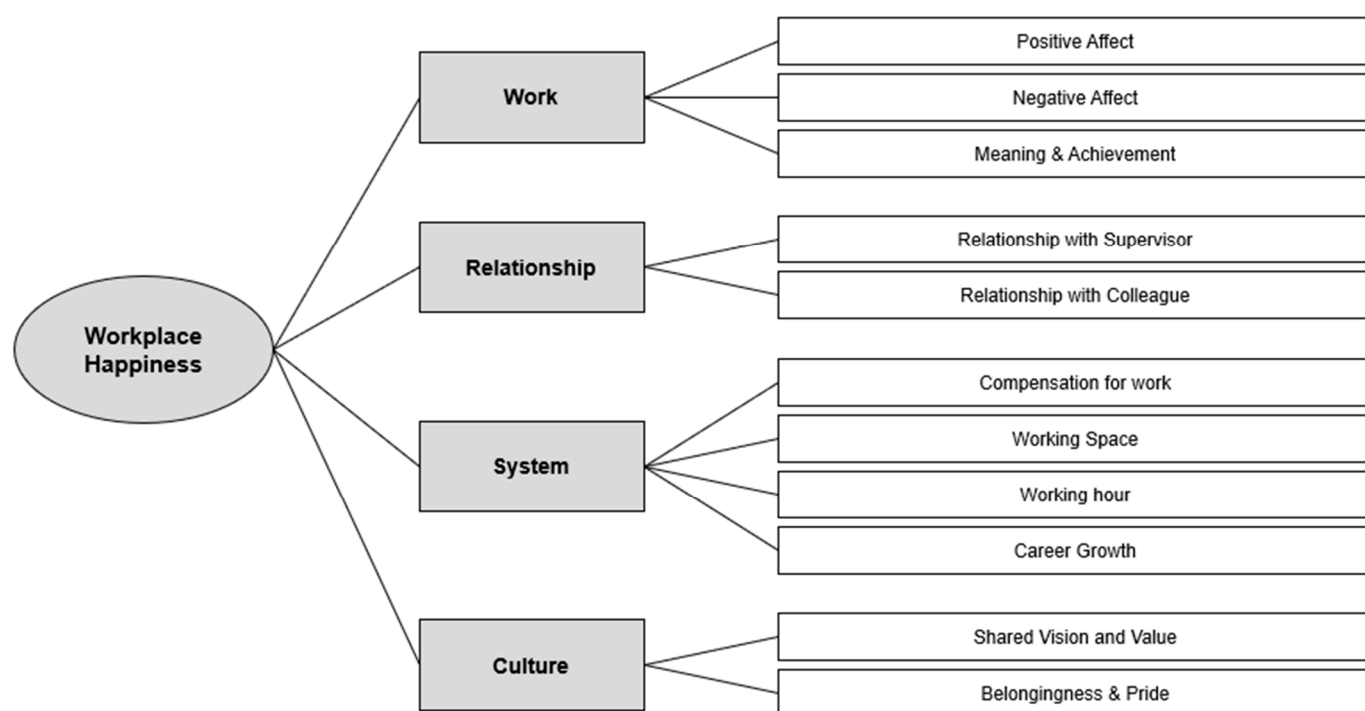


Figure 2. Workplace happiness inventory for corporate employees.

4. Discussion

This study developed a separately established conceptual model of workplace happiness into a measurable inventory and verified its validity and reliability from multiple angles. Several points warrant discussion.

First, the adjustments to the factor structure identified during exploratory factor analysis were theoretically interpretable. The division of the affective factor within the work dimension into positive and negative affect is consistent with the distinction found in traditional affect scales such as the PANAS [18], and the merging of ‘meaning and purpose of work’ and ‘achievement through work’ into a single factor aligns with prior discussions suggesting that a sense of achievement presupposes recognition of meaning in one’s work. The merging of ‘belonging and respect’ and ‘organizational pride’ within the culture dimension likewise parallels prior interpretations suggesting that organizational belonging can lead to pride.

Second, taken together, the results of the confirmatory factor analysis, criterion validity, and reliability testing indicate that the inventory developed in this study can be evaluated as a statistically stable and valid tool. In particular, the fact that the inventory showed significant positive correlations with all three heterogeneous existing scales—one domestic concise happiness scale, one international HAW scale, and one workplace happiness scale developed by a domestic corporate research institute—suggests that this inventory is theoretically consistent with established conceptions of happiness and workplace happiness.

Third, the results of the group difference tests can also be interpreted as known-groups validity evidence for construct validity [65]. That is, the fact that significant differences in inventory scores were confirmed between groups theoretically expected to differ in workplace happiness (e.g., employees in higher versus lower job positions, married versus unmarried employees) provides additional validity evidence that the inventory can discriminate between groups in the theoretically expected direction. Specifically, the finding that workplace happiness was significantly higher among employees with higher job positions and higher annual salaries is consistent with prior discussions suggesting that the distribution of organizational resources and authority is not unrelated to employees’ happiness experiences [66,67], and supports the notion that this inventory captures differences in happiness by organizational position in a theoretically valid direction. This suggests that when organizations seek to promote employee happiness in a sustainable manner, a comprehensive human resource management strategy that is not limited to specific job positions or age groups is required.

Fourth, the inventory developed in this study carries practical implications from the perspective of sustainable HRM. Given that employee well-being is treated as a component of an organization’s social sustainability [31], and that sustainable HRM practices are positively associated with employees’ workplace happiness and work engagement [32], the inventory developed in this study can function as an empirical tool for diagnosing and tracking the effects of such practices. In particular, the system dimension (compensation for work, working space, working hour, and career growth) and the culture dimension (shared vision and value, and belongingness & pride) captured by this inventory reflect structural conditions that organizations must continuously maintain and manage, beyond momentary emotional experiences, and can therefore serve as target indicators for sustainable HRM interventions. More specifically, within the triple-bottom-line framework underlying sustainable HRM, the work and relationship dimensions of this inventory correspond most directly to the people component (individual well-being and interpersonal

experience), while the system and culture dimensions correspond to the institutional conditions organizations establish to sustain that well-being over time, providing a more direct conceptual link between the inventory's dimensional structure and sustainable HRM theory rather than treating sustainable HRM solely as contextual motivation.

Fifth, several statistical characteristics of this inventory warrant careful interpretation. In particular, the comparatively lower incremental fit indices (NFI, IFI, TLI, and CFI; Table 5) relative to the conventional 0.90 benchmark may partly reflect the complexity of the measurement model, which comprises 85 items loading onto 11 first-order sub-factors and four second-order dimensions; models with a larger number of indicators and factors are known to yield systematically lower incremental fit indices even when the underlying structure is substantively sound and absolute fit indices (RMSEA, RMR) indicate close fit. The correlation between this inventory and the HAW scale ($r = 0.897$) was relatively high; however, given that both instruments aim to measure overlapping but conceptually distinct constructs, this level of association is consistent with adequate convergent validity rather than construct redundancy, although the possibility of conceptual overlap cannot be entirely ruled out and warrants further investigation using discriminant validity indices in future research. Similarly, the very high overall reliability ($\alpha = 0.982$) may partly reflect the large number of items (85) rather than item redundancy alone; nonetheless, future revisions of the inventory may benefit from examining item-level redundancy to inform the development of a shorter form. Finally, the hierarchical structure of the inventory—in which 85 items are organized into 11 sub-factors that are further organized into four higher-order dimensions—was empirically supported by the confirmatory factor analysis, which modeled the four dimensions as second-order latent factors indicated by their respective sub-factors (Table 6); all path coefficients were significant and AVE values exceeded the recommended threshold, providing evidence for the proposed hierarchical structure.

This study has the following limitations. Because the sample was concentrated among employees at large corporations belonging to business groups subject to cross-shareholding restrictions in Korea, caution is needed in generalizing the findings to employees at small and medium-sized enterprises or in other employment arrangements (e.g., public sector, freelance work). In addition, because the study employed a cross-sectional design, it was not possible to track changes in employees' workplace happiness or the effects of interventions over time. In addition, exploratory and confirmatory factor analyses were both conducted using the same sample rather than independent or split samples, which may limit the robustness of the confirmatory results; future research should cross-validate this structure using an independent sample. The sample was also predominantly male (89.7%), which may limit the generalizability of findings related to gender differences. Additionally, measurement invariance across demographic groups (e.g., gender, age) was not tested in this study; consequently, the group differences reported here should be interpreted as observed mean differences rather than differences confirmed to be free of measurement bias, and future research should establish measurement invariance before drawing stronger comparative conclusions.

5. Conclusions

This study developed and validated an inventory capable of measuring workplace happiness in practice. Through a review of prior research and two rounds of expert Delphi surveys, 125 preliminary items were refined to 91; a pilot survey of 122 respondents narrowed this to 87 items; and a main survey of 580 respondents, through exploratory and confirmatory factor analysis, yielded a final inventory of 85 items comprising four dimensions and 11 sub-factors. This inventory demonstrated close absolute fit (RMSEA = 0.048, RMR = 0.040), together with comparatively weaker incremental fit indices (NFI = 0.818, IFI

= 0.888, TLI = 0.884, CFI = 0.888, all below the conventional 0.90 benchmark), alongside adequate criterion validity and high reliability. Significant group differences were confirmed by marital status, education, job position, and annual salary, and significant sub-dimension-level differences (though not overall differences) were found by gender and age.

This study makes three main contributions. First, it developed an inventory that was independently developed and validated to reflect the workplace context of Korean corporate employees. Second, through pilot and main surveys, it completed a statistically validated measurement instrument suitable for use in subsequent research and practical application. Third, through the system and culture dimensions included in the inventory, it established a foundation for empirically diagnosing, from a sustainable HRM perspective, the structural conditions that organizations must manage.

The following suggestions are offered for future research. First, because the sample in this study was concentrated among employees at large corporations, further examination of the inventory's applicability to employees in small and medium-sized enterprises, the public sector, freelance work, and other diverse employment arrangements is needed. Second, longitudinal research is needed to track the effects of sustainable HRM interventions on changes in employees' workplace happiness over time. Third, research empirically examining the relationship between the inventory developed in this study and organization-level sustainability indicators (e.g., turnover rate, productivity, ESG-related indicators) is warranted. Fourth, given the length of the current 85-item inventory, future research could develop and validate a shorter form to reduce respondent burden while retaining adequate psychometric properties.

Supplementary Materials: The following supporting information can be downloaded at <https://www.mdpi.com/article/10.3390/su18199960/s1>, Table S1: Item-level pattern matrix from the exploratory factor analysis ($N = 580$, 87 items); Table S2: Item-level standardized factor loadings from the confirmatory factor analysis ($N = 580$, 85 items).

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Data Availability Statement: The data used in this study are not publicly available due to the confidentiality agreement made with respondents, under which the data are not shared beyond the research team.

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