FUDMA Journal of Sciences (FJS)
ISSN online: 2616-1370
ISSN print: 2645 - 2944
Vol. 8 No. 6, December, (Special Issue) 2024, pp 466 - 480
DOI: https://doi.org/10.33003/fjs-2024-0806-2999

JOB SATISFACTION SCALE FOR TECH WORKERS: IMPLEMENTATION COMPASS

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ABSTRACT

Tech workers are not just employees but ubiquitous architects and drivers of the imminent digitalized future. Tech worker's wellbeing is, therefore, crucial for global prosperity – necessitating their continuous monitoring and management in the workplace. Although a cross-cultural job satisfaction scale has been specifically developed and validated to help gauge the wellbeing of tech workers, christened JSST, it lacked an implementation guideline. This lack of implementation guidelines for the JSST questionnaire can stifle its practicality and, by extension, the wellbeing of Tech workers. The aim of this study, therefore, is to design an implementation guideline for JSST. The implementation guideline was designed using descriptive statistics and algorithmic specification. Adopting a self-assessment online survey on the original Five-point Likert JSST Questionnaire, this study also demonstrated the implementation of the guideline. 276 valid Tech workers' job satisfaction self-assessment data solicited globally using the JSST questionnaire was employed to demonstrate the guideline's feasibility. Overall, the job satisfaction index of the global tech workers has been estimated to fall into the third quartile of satisfaction, Q3, which is low. This low satisfaction index may account for the high turnover and turn-away in the global Tech industry. A notable outcome of this study is the seamless JSST implementation scheme, which is not only effective but also highly adaptable. This scheme can be tailored for the implementation of any multi-faceted psychometric scale, making it a versatile tool for assessing employee wellbeing. The automation for web accessibility of the JSST implementation scheme is encouraged.

Keywords: Job satisfaction, JSST, Psychometric scale, Self-assessment, Tech worker

INTRODUCTION

A *job satisfaction scale* is an abstract diagnostic device that can gauge employee's wellbeing in the workplace. Several job satisfaction scales abound (Azash and Thirupalu, 2017; Yanchovska, 2022; Muwanguzi, 2022), including the Job satisfaction scale for Tech Workers (JSST), which was uniquely developed and validated for Tech Workers in the global context (Ehigbochie and Ekuobase, 2024). JSST is a seven-factor psychometric scale globally validated for gauging the job satisfaction of Tech Workers. JSST consists of seven factors and 25 predictors, as shown in Table 1. As evident in Table 1, the seven factors are (i) Communications, (ii) IT Knowledge, (iii) Time Pressure and Cognition Overload, (iv) Career Advancement, (v) Changing Career Aspiration, (vi) Team Player, and (vii) Creativity and Innovation. JSST, like most psychometric scales, lacks schemes in the public domain for its implementation. A lack of a public implementation scheme for a psychometric scale stifles its practicality, undermines its worth, and can expose the scale to misuse and abuse.

Table 1: The JSST Questionnaire (Ehigbochie and Ekuobase, 2024)

Factors	Measurable Values (Items)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Communication	My management's effective internal communication during crisis motivates me to serve as an ambassador by communicating positive opinion about my organization with external stakeholders.					
	My management tries to defend us from external criticism during crisis.					
	My management inspires me to the extent that I contribute by putting more efforts in the promotion of products, satisfying customers and other stakeholders when my organization is facing an economic crisis.					
	I have been frequently informed by my management about its operational and financial situation during crisis.					
	My management communicates to employees its commitment to protect their welfare and well-being.					
	Communication with employees is very important for our management during crises.					
	Management response to my questions during crisis gives me job satisfaction.					

IT Knowledge	Our firm possesses a high degree of computer-based technical expertise. We are very knowledgeable about new computer-based innovations. We have the knowledge to develop and maintain computer-based communication links with our customers.
Time Pressure and Cognition Overload	I feel comfortable to do the things that I have to do. I do not feel pressed for time. There is much information available on topics of interest to me. But I don't have trouble choosing what is important and what's not.
Career Advance-ment	My supervisors have told me I do a good job. The organizations I work for have recognized me as a good performer. I have been recognized for my contribution.
Changing Career Aspiration	I am at the top leadership position of my organization or business. I have moved up to a leadership position in my organization. I am a leader in my career field.
Team Player	Did a fair share of the team's work. Fulfilled responsibilities to the team. Completed work in a timely manner.
Creativity and Innovation	I often have new and innovative ideas. I suggest new ways of performing work tasks. I have a fresh approach to problems.

The lack of an implementation scheme for JSST is the gap this study exploits. The urgency for this exploitation is strengthened by the unending calls on the authors of JSST since its publication through E-mails requesting an implementation guideline. Besides, this guideline will be highly sought after as digitalization deepens and the Tech industry's workforce advances its role as the undisputed architects and drivers of human endeavors (Gomez Gandia et al., 2024). This study, therefore, explicates how the JSST questionnaire should be implemented in gauging the job satisfaction of individual Tech Workers or a group of Tech workers and summarizes the process into an implementation guideline for easy and consistent implementation of JSST.

Most works on psychometric scales in literature are concerned with the scale's development, adaptation, and validation, with little or no information on how the scale can uniformly be used or implemented by others for the intended psychometric measurement (Azash and Thirupalu, 2017; Yanchovska, 2022; Muwanguzi, 2022; Abiona et al., 2023; Ehigbochie and Ekuobase, 2024). In recognition of this dearth of practical guidelines for psychometric scales, Robinson (2018) gave a comprehensive guideline for using multi-faceted psychometric scales, such as JSST, for human resource management research and practice. Their guideline was, however, theoretical and not specific to the scale's implementation. Oguntayo et al. (2023) employed an existing validated multi-faceted job satisfaction scale questionnaire for a specialized workforce – the university librarians – to analyze their job satisfaction in the workplace. Their work was only concerned with the librarians' satisfaction as a group, and they did not expose the results of the individual librarians who participated in their survey. Besides, the mechanism for realizing the satisfaction results in their work was not explicit. This study provides a practical implementation guideline for estimating employees' job satisfaction in the workplace as an individual and a group using a multi-faceted psychometric scale, JSST, and demystifying the scale's application process with an illustrative step-by-step demonstration of the implementation guideline.

MATERIALS AND METHODS

The study relied on self-assessment data from an online Five-point Likert Questionnaire survey (Bernhard and Schultze, 2015; Zhang et al., 2017) based on JSST (see Table 1) administered randomly to individual Tech workers across the globe. However, the questionnaire can be administered as a structured interview (Segal et al., 2006) to an individual Tech worker for a small group of Tech workers by an experienced human resource manager or professional psychologist. The following subsections explicate the study participants as well as the instruments and mechanism for data collection.

Study Participants

The study respondents were Tech workers across the continents of the globe. A total of 585 Tech workers participated in the self-assessment study. However, only 276 participants' responses were used after screening to eliminate incomplete and biased responses. This number of responses implies a completion rate of 47.2%, which exceeds the average completion rate of 44.1% in contemporary online surveys (Wu et al., 2022). This valid number of respondents (n = 276) also exceeded the minimum sample size of 273 computed using Cochran's formulae (Asenahabi and Ikoha, 2023) with a 90% confidence limit, 5% error threshold, and 50% population proportion. Guobadia and Ekuobase (2024) posit that a 90% confidence limit is suitable for social

research. The large number of the survey instrument's predictors (N = 61) may account for the below excellent completion rate. The respondents freely consented and participated in the self-assessment survey without coercion or inducement.

Instrument

The study questionnaire administered consists of two parts. Section A captures the respondent's cross-cultural demographic data, while Section B holds the JSST questionnaire (Ehigbochie and Ekuobase, 2024), weighted on a Five-point Likert scale from strongly disagree (-2) to strongly agree (+2).

Data Collection

The study data was collected online using Google Forms. The Google Forms replica of the study questionnaire was launched within one month to randomly assess the job satisfaction of tech workers in their workplaces across the globe. The online mode of questionnaire administration was employed in this study because the target population, Tech workers across the globe, can most conveniently and efficiently be reached online in large numbers. The Google Forms was deactivated after exceeding the magic number of 384 in sample size (Memon et al., 2020), and no response was recorded after that in 48 hours stretch. The number of Tech workers globally has been estimated to exceed 50 million as of 2022 (Statista, 2023). No Email, IP address, or information that can reveal the exact identity of the respondents was solicited or covertly extracted. A total of 585 Tech workers across the globe responded to the online self-assessment survey. However, only 276 (47.2%) valid respondents' responses were used to demonstrate the implementation of JSST of Tech workers as individuals and as a group.

JSST Implementation Scheme Development

The study noted that the seven factors of JSST unequally contributed to the overall job satisfaction measure, as evident in their contribution to the scale's total variance explained (TVE) of 65.336 (Ehigbochie and Ekuobase, 2024) as shown in Table 2. Implementers of the scale could choose to employ these relative contributions in the weighting of the scale's factors in estimating the job satisfaction of Tech Workers or choose to assign an equal weighting to the factors for convenience.

Table 2: TVE Weighting of JSST Factors for Implementations

S/N	Factors	TVE Contribution	Equivalent Weighting (α)
1	Communication	33.125	0.507
2	IT Knowledge	7.975	0.122
3	Time Pressure and Cognition Overload	6.704	0.103
4	Career Advancement	5.493	0.084
5	Changing Career Aspiration	5.446	0.083
6	Team Player	3,523	0.054
7	Creativity and Innovation	3.070	0.047
Total		**65.336**	**1**

After the valid respondent's responses were codified into numeric form (e.g. strongly agree = 2, and disagree = -1), the following formulae based on the mean statistic were used to compute the individual and group satisfaction as follows:

$$Individual\ Satisfaction = \sum_{i=1}^{p} \propto_i . F_i \quad (1)$$

$$Group\ Satisfaction = \sum_{i=1}^{p} \propto_i . G(F_i) \quad (2)$$

where

$$\sum_{i=1}^{p} \propto_i = 1 \quad (3)$$

$$F_i = \left(\sum_{j=1}^{k} I_{i,j}\right)/(2.k) \quad (4)$$

$$G(F_i) = \left(\sum_{t=1}^{n} F_{i,t}\right)/n \quad (5)$$

and p is the number of factors for the scale under consideration (e.g. JSST has seven factors and thus for JSST, p = 7); α is the assigned weighting of each factor F_i in a scale; F_i denotes the ith factor score in a scale; similarly, $F_{i,t}$ denotes the i^{th} factor score for the t^{th} respondent; k is the number of predictors for each factor (e.g. Communication in JSST has seven predictors and thus k = 7 for communication); $I_{i,j}$ denotes the j^{th} predictor score for the ith factor in a scale and n is the group size of Tech Workers under consideration. Thus, in this study, n = 276.

While Equation (1) goes with Equations (3) and (4) for calculating the job satisfaction of an individual Tech worker, Equation (2) goes with Equations (3) and (5) for calculating the job satisfaction of a set of Tech workers as a group (e.g. a project team, a department, a unit of a firm or the entire firm). While Equations (1) is the sum of weighted factor score for individual assessment, Equations (2) is the sum of the aggregate weighted factor score for individual assessment for a group. Equation (3) places a computation constraint on the assigned factor weighting such that the estimated job satisfaction is in the range of ±1. Equation (4) computes and normalized to a unity the arithmetic mean of the individual predictor rating on a scale's facet basis while Equation (4) computes the arithmetic mean of the computed and normalized arithmetic mean of the individual predictor rating on a scale's facet basis for the group.

Overall, the scheme collectively presented mathematically in Equations (1) to (5) is a multi-level arithmetic mean computation whose proof of correctness is trivial. The use of arithmetic mean is particularly appropriate for computing the central tendency of the predictor rating because the issue of outliers will not occur since the assessment rating range is within ±2. This study employed the Microsoft Excel Worksheet to process the codified self-assessment data from the online survey using Equations (1) to (5). The Microsoft Excel is a comprehensible and accessible data analytics tool for scientific computation and presentation.

From Equations (1) to (5), it is evident that computed job satisfaction will be in the range of ±1 where a negative satisfaction value implies dissatisfaction otherwise it implies satisfaction. Thus, adopting the quartile statistic for both satisfaction and dissatisfaction, Figure 1 depicts the job satisfaction quartiles for JSST. In Figure 1, dissatisfaction increases from Q_5 to Q_8 and satisfaction increases from Q_4 to Q_1.

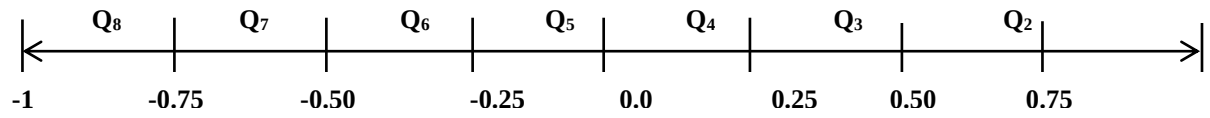

Figure 1: JSST Satisfaction Quartiles

RESULTS AND DISCUSSION

Table 3 presents the demography of the 276 valid responses from Tech Workers. The diversity of the respondents, spanning different cultures, age groups, work experiences, exposures, competencies, and Tech firms, is a significant aspect of this study. This diversity underscores the universal nature of the self-report data from Tech workers, emphasizing the importance of our research.

The intermediate and final job satisfaction estimates of the 276 Tech Workers, both as individuals and as a group, for both equal and unequal weighting of the scale's factors, are captured in Table 4. From Table 4, it is evident that the global job satisfaction level of Tech workers is in the third quartile (Q3) from both the TVE (unequal) weighting (30.34%) and the equal weighting (33.82%) of the factors. The overall satisfaction results show that either equal or unequal weighting estimates fall closely into the same satisfaction quartile. Therefore, the global job satisfaction index of Tech workers is Q3, which is low. This low satisfaction index of the global Tech workers, as estimated, may account for the high turnover and turn-away in the global Tech industry (Oehlhorn et al., 2020; Ferreira et al., 2021; Wei and Tang, 2024) – a trend that needs to be curtailed to prevent potential negative impacts. On the individual level, it is evident from Table 4 that the use of the TVE weighting is a more sensitive measure than equal weighting as it exposed more dissatisfied Tech workers in the ratio of 2:1 (i.e., 42 to 23). The TVE weighting, as shown in Table 2, is therefore strongly recommended. Also, the computation was done on a facet-by-facet level to properly guide intervention towards mitigating the turnover and turn-away effects on Tech firms, as exposed by Wei and Tang (2024) and Oehlhorn et al. (2020). The study noted that the seven factors of JSST unequally contributed to the overall job satisfaction measure as evident in their individual contribution to the scale's total variance explained (TVE) of 65.336 (Ehigbochie and Ekuobase, 2024) as shown in Table 2. Implementers of the scale could choose to employ these relative contributions in the weighting of the scale's factors in estimating the job satisfaction of Tech Workers or choose to assign equal weighting to the factors for convenience.

Table 3: Demography of Tech Workers in a Job Satisfaction Self-Assessment Survey

Physical Location		**Highest IT Qualification**		**Years of Experience**		**Company Size**	
Continent	**Frequency (%)**	**Qualification**	**Frequency (%)**	**Number of Years**	**Frequency (%)**	**Number of Staff**	**Frequency (%)**
Africa	44 (15.94%)	Diploma	52 (18.84%)	Less than 2	80 (28.98%)	1 – 10	30 (10.87%)
Asia	62 (22.46%)	Graduate	121 (43.84%)	2 – 5	106 (38.41%)	11 – 50	55 (19.93%)
Europe	69(25%)	None	10 (3.62%)	6 – 10	47 (17.03%)	50 – 200	49 (17.75%)
North. America	88 (31,88%)	Post – Graduate	52 (18.84%)	11- 20	29 (10.51%)	Over 200	142 (51.45%)
South America	9 (3.26%)	Professional Certification	41 (14.86%)	Over 20	14 (5.07%)		
Oceania	3 (1.09%)						
Antarctica	1 (0.36%)						
Total	276 (100%)	Total	276 (100%)	Total	276 (100%)	Total	276 (100%)

Gender		**Age**		**Work Hours Per Week**		**Ancestry**	
Sex	**Frequency (%)**	**Age**	**Frequency (%)**	**Hours**	**Frequency (%)**	**Race**	**Frequency (%)**
Female	95 (34.42%)	18 – 29	140 (50.72%)	40 hours and below	153 (55.43%)	American Indian	3 (1.09%)
Male	178 (64.49%)	30 – 39	86 (31.2%)	41 – 60	107 (38.77%)	Asian	35 (12.68%)
Non-Binary/ Third Gender	3 (1.09%)	40 – 49	35 (12.68%)	61 – 80	13 (4.71%)	Black/ African American	70 (25.36%)
		50 – 59	13 (4.71%)	81 – 100	2 (0.72%)	Hispanic or Latino	25 (9.06%)
		60+	2 (0.72%)	Above 100 hours	(0.36%)	White	133 (48.19%)
						Others	10 (3.62 %)
Total	276 (100%)	Total	276 (100%)	Total	276 (100%)	Total	276 (100%)

The whole process of the practical application of the JSST questionnaire as demonstrated in this study is summarized in Algorithm 1 and illustrated in the following subsection.

Table 4: Intermediate and Final Job Satisfaction Estimate of Tech Workers for Weighted and Linear Implementation Schemes

	Equal Weighting							TVE Weighting								
S/N	**F_1**	**F_2**	**F_3**	**F_4**	**F_5**	**F_6**	**F_7**	**F_1**	**F_2**	**F_3**	**F_4**	**F_5**	**F_6**	**F_7**	**PSW**	**PSE**
1.	0.286	-0.500	0.000	-0.500	-0.167	0.500	0.333	0.145	-0.061	0.000	-0.042	-0.014	0.027	0.016	0.071	-0.007
2.	0.357	1.000	0.333	0.500	0.333	0.833	0.500	0.181	0.122	0.034	0.042	0.028	0.045	0.024	0.476	0.551
3.	-0.643	0.667	-0.333	-0.333	-1.000	0.500	0.667	-0.326	0.081	-0.034	-0.028	-0.083	0.027	0.031	-0.332	-0.068
4.	0.143	0.333	0.167	0.000	-0.333	0.500	0.167	0.072	0.041	0.017	0.000	-0.028	0.027	0.008	0.137	0.139
5.	0.643	0.667	0.667	1.000	0.500	1.000	0.500	0.326	0.081	0.069	0.084	0.042	0.054	0.024	0.679	0.711
6.	0.214	0.667	0.667	0.167	-0.667	0.667	0.500	0.109	0.081	0.069	0.014	-0.055	0.036	0.024	0.277	0.316
7.	0.286	1.000	0.333	0.833	0.000	0.500	0.667	0.145	0.122	0.034	0.070	0.000	0.027	0.031	0.430	0.517
8.	-0.571	0.333	0.167	-0.333	-0.500	0.500	0.833	-0.290	0.041	0.017	-0.028	-0.042	0.027	0.039	-0.235	0.061
9.	0.857	1.000	0.667	1.000	-1.000	1.000	1.000	0.435	0.122	0.069	0.084	-0.083	0.054	0.047	0.727	0.646
10.	-0.143	0.500	-0.167	0.167	0.333	0.167	0.500	-0.072	0.061	-0.017	0.014	0.028	0.009	0.024	0.046	0.194
11.	1.000	1.000	0.667	1.000	1.000	1.000	0.500	0.507	0.122	0.069	0.084	0.083	0.054	0.024	0.942	0.881
12.	0.500	0.500	0.000	0.833	0.167	0.500	0.833	0.254	0.061	0.000	0.070	0.014	0.027	0.039	0.465	0.476
13.	0.357	0.833	1.000	1.000	-0.333	0.167	0.500	0.181	0.102	0.103	0.084	-0.028	0.009	0.024	0.475	0.503
14.	0.357	0.167	0.500	0.500	0.000	0.000	0.167	0.181	0.020	0.052	0.042	0.000	0.000	0.008	0.303	0.241
15.	-0.286	-0.500	0.000	0.167	-0.167	0.500	0.333	-0.145	-0.061	0.000	0.014	-0.014	0.027	0.016	-0.163	0.007
16.	0.143	0.500	0.167	0.500	-0.333	0.667	-1.000	0.072	0.061	0.017	0.042	-0.028	0.036	-0.047	0.154	0.092
17.	0.143	0.500	-0.167	-0.167	-0.500	0.333	0.500	0.072	0.061	-0.017	-0.014	-0.042	0.018	0.024	0.102	0.092
18.	0.857	1.000	0.500	1.000	0.167	1.000	0.333	0.435	0.122	0.052	0.084	0.014	0.054	0.016	0.776	0.694
19.	-0.071	0.333	-0.167	0.167	-1.000	0.833	0.167	-0.036	0.041	-0.017	0.014	-0.083	0.045	0.008	-0.029	0.037
20.	-0.429	0.167	-0.167	1.000	-0.333	0.833	0.500	-0.217	0.020	-0.017	0.084	-0.028	0.045	0.024	-0.089	0.224
21.	0.143	0.333	0.333	0.500	0.000	0.000	0.667	0.072	0.041	0.034	0.042	0.000	0.000	0.031	0.221	0.282
22.	0.071	0.167	0.167	0.333	0.333	0.167	0.500	0.036	0.020	0.017	0.028	0.028	0.009	0.024	0.162	0.248
23.	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.254	0.061	0.052	0.042	0.042	0.027	0.024	0.500	0.500
24.	0.357	-0.167	0.167	0.000	-0.167	0.500	0.500	0.181	-0.020	0.017	0.000	-0.014	0.027	0.024	0.215	0.170
25.	0.143	0.333	0.000	0.500	-1.000	0.167	0.833	0.072	0.041	0.000	0.042	-0.083	0.009	0.039	0.120	0.139
26.	0.214	1.000	0.000	0.667	-0.500	0.667	0.333	0.109	0.122	0.000	0.056	-0.042	0.036	0.016	0.297	0.340
27.	0.500	0.500	0.167	0.500	0.000	0.500	0.500	0.254	0.061	0.017	0.042	0.000	0.027	0.024	0.424	0.381
28.	0.571	0.833	0.833	0.667	0.833	1.000	1.000	0.290	0.102	0.086	0.056	0.069	0.054	0.047	0.703	0.820
29.	0.786	0.667	0.333	0.833	0.833	0.667	0.667	0.398	0.081	0.034	0.070	0.069	0.036	0.031	0.721	0.684
30.	0.000	1.000	-0.167	0.000	-1.000	0.500	0.000	0.000	0.122	-0.017	0.000	-0.083	0.027	0.000	0.049	0.048
31.	0.500	0.500	0.833	1.000	-0.667	0.500	-0.333	0.254	0.061	0.086	0.084	-0.055	0.027	-0.016	0.440	0.333
32.	0.000	-0.500	-0.167	0.500	-0.500	0.500	0.333	0.000	-0.061	-0.017	0.042	-0.042	0.027	0.016	-0.035	0.024
33.	0.214	0.000	0.167	0.500	0.500	0.167	0.333	0.109	0.000	0.017	0.042	0.042	0.009	0.016	0.234	0.269
34.	0.714	0.833	0.833	0.833	0.667	0.833	0.667	0.362	0.102	0.086	0.070	0.055	0.045	0.031	0.751	0.769
35.	0.714	0.667	0.833	0.667	0.667	0.833	0.833	0.362	0.081	0.086	0.056	0.055	0.045	0.039	0.725	0.745
36.	0.286	0.333	0.167	0.000	-0.333	0.500	0.500	0.145	0.041	0.017	0.000	-0.028	0.027	0.024	0.226	0.207
37.	0.786	1.000	1.000	1.000	-1.000	1.000	0.000	0.398	0.122	0.103	0.084	-0.083	0.054	0.000	0.678	0.541
38.	0.500	1.000	0.333	0.667	0.500	0.500	0.500	0.254	0.122	0.034	0.056	0.042	0.027	0.024	0.558	0.571

	Equal Weighting							TVE Weighting								
S/N	**F_1**	**F_2**	**F_3**	**F_4**	**F_5**	**F_6**	**F_7**	**F_1**	**F_2**	**F_3**	**F_4**	**F_5**	**F_6**	**F_7**	**PSW**	**PSE**
39.	-0.286	0.000	0.000	0.000	-0.500	0.000	0.500	-0.145	0.000	0.000	0.000	-0.042	0.000	0.024	-0.163	-0.041
40.	-0.500	1.000	0.000	0.500	0.500	0.500	0.500	-0.254	0.122	0.000	0.042	0.042	0.027	0.024	0.003	0.357
41.	0.143	0.500	0.333	0.333	0.167	0.333	0.000	0.072	0.061	0.034	0.028	0.014	0.018	0.000	0.228	0.259
42.	0.571	1.000	0.167	0.500	0.333	0.833	0.500	0.290	0.122	0.017	0.042	0.028	0.045	0.024	0.567	0.558
43.	0.643	-0.167	0.167	1.000	0.167	0.667	0.833	0.326	-0.020	0.017	0.084	0.014	0.036	0.039	0.496	0.473
44.	0.000	1.000	0.500	0.000	0.167	-0.500	0.167	0.000	0.122	0.052	0.000	0.014	-0.027	0.008	0.168	0.190
45.	0.000	0.333	0.167	-0.167	-0.500	-0.167	-0.333	0.000	0.041	0.017	-0.014	-0.042	-0.009	-0.016	-0.022	-0.095
46.	-0.429	0.833	0.833	0.333	-1.000	0.333	0.000	-0.217	0.102	0.086	0.028	-0.083	0.018	0.000	-0.067	0.129
47.	-0.714	-0.667	-0.833	-0.667	-0.667	-0.833	-0.667	-0.362	-0.081	-0.086	-0.056	-0.055	-0.045	-0.031	-0.717	-0.721
48.	0.500	0.500	0.667	0.500	-1.000	0.333	-0.167	0.254	0.061	0.069	0.042	-0.083	0.018	-0.008	0.352	0.190
49.	-0.071	0.667	0.167	0.500	-0.833	0.167	0.333	-0.036	0.081	0.017	0.042	-0.069	0.009	0.016	0.060	0.133
50.	-0.357	0.333	0.333	0.167	-0.500	0.500	-0.167	-0.181	0.041	0.034	0.014	-0.042	0.027	-0.008	-0.114	0.044
51.	0.000	1.000	0.500	0.167	-0.500	0.833	0.500	0.000	0.122	0.052	0.014	-0.042	0.045	0.024	0.215	0.357
52.	0.357	1.000	0.833	0.500	0.500	0.833	1.000	0.181	0.122	0.086	0.042	0.042	0.045	0.047	0.564	0.718
53.	0.357	0.667	0.167	0.667	-0.500	0.500	0.667	0.181	0.081	0.017	0.056	-0.042	0.027	0.031	0.352	0.361
54.	-0.429	0.500	-0.333	-0.833	-0.833	-1.000	0.000	-0.217	0.061	-0.034	-0.070	-0.069	-0.054	0.000	-0.384	-0.418
55.	0.429	0.000	0.000	0.500	0.000	0.500	0.000	0.217	0.000	0.000	0.042	0.000	0.027	0.000	0.286	0.204
56.	0.214	-0.167	0.000	-0.500	-0.333	0.000	0.167	0.109	-0.020	0.000	-0.042	-0.028	0.000	0.008	0.026	-0.088
57.	0.286	1.000	-0.333	0.167	0.000	-0.167	0.333	0.145	0.122	-0.034	0.014	0.000	-0.009	0.016	0.253	0.184
58.	1.000	1.000	1.000	1.000	0.833	1.000	1.000	0.507	0.122	0.103	0.084	0.069	0.054	0.047	0.986	0.976
59.	0.500	0.500	0.500	0.500	0.500	0.500	0.000	0.254	0.061	0.052	0.042	0.042	0.027	0.000	0.477	0.429
60.	-0.857	-1.000	-0.333	-0.333	-1.000	0.500	-0.500	-0.435	-0.122	-0.034	-0.028	-0.083	0.027	-0.024	-0.698	-0.503
61.	-0.286	0.167	-0.333	-0.167	0.167	1.000	0.167	-0.145	0.020	-0.034	-0.014	0.014	0.054	0.008	-0.097	0.102
62.	0.071	1.000	0.333	0.500	0.167	0.500	0.500	0.036	0.122	0.034	0.042	0.014	0.027	0.024	0.299	0.439
63.	-0.357	0.500	0.500	0.500	-0.333	0.500	0.167	-0.181	0.061	0.052	0.042	-0.028	0.027	0.008	-0.019	0.211
64.	0.143	0.500	0.333	0.500	-0.167	0.500	0.500	0.072	0.061	0.034	0.042	-0.014	0.027	0.024	0.246	0.330
65.	0.429	0.500	0.000	0.667	-0.333	0.500	0.500	0.217	0.061	0.000	0.056	-0.028	0.027	0.024	0.357	0.323
66.	0.643	0.833	0.667	1.000	1.000	1.000	1.000	0.326	0.102	0.069	0.084	0.083	0.054	0.047	0.764	0.878
67.	0.000	0.167	0.333	0.500	-0.667	0.333	0.500	0.000	0.020	0.034	0.042	-0.055	0.018	0.024	0.083	0.167
68.	0.500	0.000	0.333	0.500	-0.833	0.333	0.333	0.254	0.000	0.034	0.042	-0.069	0.018	0.016	0.294	0.167
69.	-0.286	0.000	-0.167	0.000	-1.000	0.000	0.167	-0.145	0.000	-0.017	0.000	-0.083	0.000	0.008	-0.237	-0.184
70.	-0.643	0.000	-0.500	-0.500	-1.000	0.500	0.500	-0.326	0.000	-0.052	-0.042	-0.083	0.027	0.024	-0.452	-0.235
71.	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.507	0.122	0.103	0.084	0.083	0.054	0.047	1.000	1.000
72.	0.500	0.500	0.500	0.500	-0.333	0.500	0.500	0.254	0.061	0.052	0.042	-0.028	0.027	0.024	0.431	0.381
73.	0.071	0.833	0.000	-0.500	-0.500	0.167	0.333	0.036	0.102	0.000	-0.042	-0.042	0.009	0.016	0.079	0.058
74.	0.500	0.667	0.500	0.667	0.333	0.667	0.500	0.254	0.081	0.052	0.056	0.028	0.036	0.024	0.530	0.548
75.	0.643	1.000	0.333	0.333	1.000	0.833	0.833	0.326	0.122	0.034	0.028	0.083	0.045	0.039	0.677	0.711
76.	0.714	1.000	0.500	1.000	0.833	1.000	1.000	0.362	0.122	0.052	0.084	0.069	0.054	0.047	0.790	0.864
77.	0.286	0.167	0.333	0.333	0.167	0.333	0.500	0.145	0.020	0.034	0.028	0.014	0.018	0.024	0.283	0.303

	Equal Weighting							TVE Weighting								
S/N	**F_1**	**F_2**	**F_3**	**F_4**	**F_5**	**F_6**	**F_7**	**F_1**	**F_2**	**F_3**	**F_4**	**F_5**	**F_6**	**F_7**	**PSW**	**PSE**
78.	-0.429	1.000	0.000	-0.167	0.667	0.167	0.333	-0.217	0.122	0.000	-0.014	0.055	0.009	0.016	-0.029	0.224
79.	0.429	0.500	0.167	0.167	0.333	0.333	0.500	0.217	0.061	0.017	0.014	0.028	0.018	0.024	0.379	0.347
80.	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.042	0.000	0.000	0.042	0.071
81.	0.214	0.333	0.333	1.000	0.333	0.833	0.667	0.109	0.041	0.034	0.084	0.028	0.045	0.031	0.372	0.531
82.	0.143	-0.500	0.500	0.167	-1.000	0.500	0.500	0.072	-0.061	0.052	0.014	-0.083	0.027	0.024	0.044	0.044
83.	0.857	0.833	0.833	1.000	1.000	1.000	1.000	0.435	0.102	0.086	0.084	0.083	0.054	0.047	0.890	0.932
84.	0.000	0.500	-0.333	0.167	-0.333	0.500	0.333	0.000	0.061	-0.034	0.014	-0.028	0.027	0.016	0.056	0.119
85.	0.143	0.333	0.167	0.000	0.000	1.000	0.000	0.072	0.041	0.017	0.000	0.000	0.054	0.000	0.184	0.235
86.	0.357	0.333	0.667	0.500	0.500	0.500	0.667	0.181	0.041	0.069	0.042	0.042	0.027	0.031	0.432	0.503
87.	0.214	0.500	0.833	0.500	-0.500	0.500	0.167	0.109	0.061	0.086	0.042	-0.042	0.027	0.008	0.291	0.316
88.	0.500	0.500	0.500	1.000	-0.167	1.000	1.000	0.254	0.061	0.052	0.084	-0.014	0.054	0.047	0.537	0.619
89.	0.357	-0.167	-0.333	-0.833	0.000	1.000	0.333	0.181	-0.020	-0.034	-0.070	0.000	0.054	0.016	0.126	0.051
90.	-0.071	0.500	0.167	0.000	-0.333	1.000	0.500	-0.036	0.061	0.017	0.000	-0.028	0.054	0.024	0.092	0.252
91.	0.500	0.333	0.500	0.500	0.500	0.500	0.500	0.254	0.041	0.052	0.042	0.042	0.027	0.024	0.480	0.476
92.	0.500	0.167	0.500	0.500	-0.500	0.500	0.500	0.254	0.020	0.052	0.042	-0.042	0.027	0.024	0.376	0.310
93.	-0.643	0.500	0.500	0.000	-0.167	0.333	0.500	-0.326	0.061	0.052	0.000	-0.014	0.018	0.024	-0.186	0.146
94.	0.857	0.333	0.667	1.000	-0.500	0.500	0.500	0.435	0.041	0.069	0.084	-0.042	0.027	0.024	0.637	0.480
95.	0.571	0.500	0.500	0.500	0.500	0.500	0.500	0.290	0.061	0.052	0.042	0.042	0.027	0.024	0.536	0.510
96.	0.000	0.000	-0.333	0.000	0.500	0.500	0.500	0.000	0.000	-0.034	0.000	0.042	0.027	0.024	0.058	0.167
97.	0.143	0.833	0.167	0.500	-1.000	0.500	0.333	0.072	0.102	0.017	0.042	-0.083	0.027	0.016	0.193	0.211
98.	0.000	-0.167	0.333	0.500	0.833	0.833	0.667	0.000	-0.020	0.034	0.042	0.069	0.045	0.031	0.202	0.429
99.	0.571	0.333	0.500	0.500	0.000	0.667	0.667	0.290	0.041	0.052	0.042	0.000	0.036	0.031	0.491	0.463
100.	0.500	0.667	0.167	0.667	0.667	0.667	0.833	0.254	0.081	0.017	0.056	0.055	0.036	0.039	0.539	0.595
101.	-0.071	0.333	0.333	-0.333	-0.167	0.500	0.500	-0.036	0.041	0.034	-0.028	-0.014	0.027	0.024	0.047	0.156
102.	0.429	0.333	0.333	0.500	0.333	0.333	0.167	0.217	0.041	0.034	0.042	0.028	0.018	0.008	0.388	0.347
103.	0.143	0.333	0.000	0.167	-0.167	0.167	0.167	0.072	0.041	0.000	0.014	-0.014	0.009	0.008	0.130	0.116
104.	0.714	0.833	0.667	0.667	0.833	0.833	0.833	0.362	0.102	0.069	0.056	0.069	0.045	0.039	0.742	0.769
105.	0.286	0.500	-0.167	0.500	-0.500	0.500	0.500	0.145	0.061	-0.017	0.042	-0.042	0.027	0.024	0.240	0.231
106.	0.786	1.000	0.000	0.500	0.500	0.833	0.667	0.398	0.122	0.000	0.042	0.042	0.045	0.031	0.680	0.612
107.	-0.214	0.500	0.500	0.500	0.167	0.500	0.500	-0.109	0.061	0.052	0.042	0.014	0.027	0.024	0.110	0.350
108.	0.214	0.500	0.500	0.500	0.500	0.500	0.667	0.109	0.061	0.052	0.042	0.042	0.027	0.031	0.363	0.483
109.	0.643	0.667	0.333	0.833	-0.500	0.833	0.833	0.326	0.081	0.034	0.070	-0.042	0.045	0.039	0.554	0.520
110.	0.714	1.000	1.000	1.000	-1.000	1.000	1.000	0.362	0.122	0.103	0.084	-0.083	0.054	0.047	0.689	0.673
111.	0.000	0.833	0.000	0.000	0.000	0.333	0.333	0.000	0.102	0.000	0.000	0.000	0.018	0.016	0.135	0.214
112.	0.071	0.500	0.500	0.000	-0.500	0.500	0.167	0.036	0.061	0.052	0.000	-0.042	0.027	0.008	0.142	0.177
113.	0.500	0.667	0.333	0.333	-0.500	0.667	0.167	0.254	0.081	0.034	0.028	-0.042	0.036	0.008	0.400	0.310
114.	0.000	0.167	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.000	0.000	0.000	0.000	0.000	0.020	0.024
115.	-0.214	0.167	0.167	0.000	0.000	0.500	0.500	-0.109	0.020	0.017	0.000	0.000	0.027	0.024	-0.021	0.160
116.	0.214	0.667	0.500	0.500	0.000	0.500	0.500	0.109	0.081	0.052	0.042	0.000	0.027	0.024	0.334	0.412

	Equal Weighting							TVE Weighting								
S/N	**F_1**	**F_2**	**F_3**	**F_4**	**F_5**	**F_6**	**F_7**	**F_1**	**F_2**	**F_3**	**F_4**	**F_5**	**F_6**	**F_7**	**PSW**	**PSE**
117.	0.286	-0.167	0.167	-0.167	0.000	0.167	0.000	0.145	-0.020	0.017	-0.014	0.000	0.009	0.000	0.137	0.041
118.	0.429	0.500	0.667	0.500	-0.500	1.000	0.333	0.217	0.061	0.069	0.042	-0.042	0.054	0.016	0.417	0.418
119.	-0.214	0.000	-0.500	-0.167	-0.500	-0.167	0.500	-0.109	0.000	-0.052	-0.014	-0.042	-0.009	0.024	-0.201	-0.150
120.	-1.000	0.500	-0.333	0.000	-1.000	0.500	0.500	-0.507	0.061	-0.034	0.000	-0.083	0.027	0.024	-0.513	-0.119
121.	-0.357	0.500	0.500	0.000	-0.500	0.500	0.500	-0.181	0.061	0.052	0.000	-0.042	0.027	0.024	-0.060	0.163
122.	-0.143	0.500	-0.167	-0.167	-0.167	0.500	0.333	-0.072	0.061	-0.017	-0.014	-0.014	0.027	0.016	-0.014	0.099
123.	0.000	0.500	0.500	0.500	0.500	0.500	0.500	0.000	0.061	0.052	0.042	0.042	0.027	0.024	0.247	0.429
124.	1.000	0.500	0.333	1.000	0.667	1.000	0.500	0.507	0.061	0.034	0.084	0.055	0.054	0.024	0.819	0.714
125.	0.500	1.000	0.000	0.833	-0.167	0.500	0.500	0.254	0.122	0.000	0.070	-0.014	0.027	0.024	0.482	0.452
126.	-0.857	0.500	-1.000	-1.000	-1.000	0.333	-1.000	-0.435	0.061	-0.103	-0.084	-0.083	0.018	-0.047	-0.673	-0.575
127.	0.071	0.667	-0.167	0.167	0.000	0.500	0.833	0.036	0.081	-0.017	0.014	0.000	0.027	0.039	0.181	0.296
128.	0.357	0.667	0.500	0.500	-0.500	0.500	0.500	0.181	0.081	0.052	0.042	-0.042	0.027	0.024	0.365	0.361
129.	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.507	0.122	0.103	0.084	0.083	0.054	0.047	1.000	1.000
130.	0.643	1.000	0.167	0.833	0.167	0.333	0.167	0.326	0.122	0.017	0.070	0.014	0.018	0.008	0.575	0.473
131.	0.286	0.500	0.333	0.167	-0.500	0.500	0.333	0.145	0.061	0.034	0.014	-0.042	0.027	0.016	0.255	0.231
132.	0.357	0.500	0.167	0.333	0.000	0.500	0.500	0.181	0.061	0.017	0.028	0.000	0.027	0.024	0.338	0.337
133.	0.786	0.833	0.833	0.833	0.333	0.667	0.667	0.398	0.102	0.086	0.070	0.028	0.036	0.031	0.751	0.707
134.	-0.571	0.000	0.333	0.500	-0.333	-0.333	0.000	-0.290	0.000	0.034	0.042	-0.028	-0.018	0.000	-0.259	-0.058
135.	1.000	0.833	0.500	1.000	0.500	1.000	1.000	0.507	0.102	0.052	0.084	0.042	0.054	0.047	0.887	0.833
136.	0.143	0.500	0.333	0.500	-0.167	0.333	0.500	0.072	0.061	0.034	0.042	-0.014	0.018	0.024	0.237	0.306
137.	0.143	0.667	0.000	0.500	-0.167	0.000	-0.167	0.072	0.081	0.000	0.042	-0.014	0.000	-0.008	0.174	0.139
138.	-0.643	-0.667	-0.333	-0.500	-1.000	0.500	0.333	-0.326	-0.081	-0.034	-0.042	-0.083	0.027	0.016	-0.524	-0.330
139.	-0.071	-0.833	0.167	0.500	0.000	0.667	0.667	-0.036	-0.102	0.017	0.042	0.000	0.036	0.031	-0.011	0.156
140.	0.357	0.833	0.667	1.000	0.000	1.000	0.500	0.181	0.102	0.069	0.084	0.000	0.054	0.024	0.513	0.622
141.	0.071	1.000	0.000	0.500	-1.000	0.833	0.500	0.036	0.122	0.000	0.042	-0.083	0.045	0.024	0.186	0.272
142.	0.143	0.667	0.667	0.500	0.000	0.500	0.167	0.072	0.081	0.069	0.042	0.000	0.027	0.008	0.299	0.378
143.	0.429	0.833	0.333	0.667	-1.000	0.500	1.000	0.217	0.102	0.034	0.056	-0.083	0.027	0.047	0.400	0.395
144.	0.500	0.500	0.333	0.500	-0.500	0.333	0.500	0.254	0.061	0.034	0.042	-0.042	0.018	0.024	0.391	0.310
145.	0.000	0.000	0.000	0.000	-0.167	0.000	0.000	0.000	0.000	0.000	0.000	-0.014	0.000	0.000	-0.014	-0.024
146.	0.429	0.500	0.167	0.500	0.500	0.500	0.500	0.217	0.061	0.017	0.042	0.042	0.027	0.024	0.429	0.442
147.	0.071	0.500	0.333	0.500	-0.667	0.500	0.500	0.036	0.061	0.034	0.042	-0.055	0.027	0.024	0.169	0.248
148.	0.429	0.500	0.167	0.667	0.500	0.500	0.667	0.217	0.061	0.017	0.056	0.042	0.027	0.031	0.451	0.490
149.	0.571	0.667	0.500	1.000	0.167	0.667	0.500	0.290	0.081	0.052	0.084	0.014	0.036	0.024	0.580	0.582
150.	0.000	0.000	0.000	0.000	-0.333	0.333	-0.167	0.000	0.000	0.000	0.000	-0.028	0.018	-0.008	-0.018	-0.024
151.	0.000	0.000	0.167	-0.167	0.167	0.167	0.167	0.000	0.000	0.017	-0.014	0.014	0.009	0.008	0.034	0.071
152.	-0.571	0.000	1.000	0.500	-1.000	0.000	-1.000	-0.290	0.000	0.103	0.042	-0.083	0.000	-0.047	-0.275	-0.153
153.	0.000	1.000	0.167	0.333	-0.500	0.333	0.333	0.000	0.122	0.017	0.028	-0.042	0.018	0.016	0.159	0.238
154.	0.071	0.500	0.167	0.667	0.000	0.667	-0.167	0.036	0.061	0.017	0.056	0.000	0.036	-0.008	0.199	0.272
155.	-0.857	1.000	0.333	-1.000	-1.000	1.000	-0.333	-0.435	0.122	0.034	-0.084	-0.083	0.054	-0.016	-0.407	-0.122

	Equal Weighting							TVE Weighting								
S/N	**F_1**	**F_2**	**F_3**	**F_4**	**F_5**	**F_6**	**F_7**	**F_1**	**F_2**	**F_3**	**F_4**	**F_5**	**F_6**	**F_7**	**PSW**	**PSE**
156.	0.214	0.500	0.500	0.000	-0.500	0.500	0.500	0.109	0.061	0.052	0.000	-0.042	0.027	0.024	0.230	0.245
157.	0.071	0.167	0.500	-0.167	-0.500	0.500	0.500	0.036	0.020	0.052	-0.014	-0.042	0.027	0.024	0.103	0.153
158.	0.500	1.000	0.167	0.500	-0.500	0.500	0.667	0.254	0.122	0.017	0.042	-0.042	0.027	0.031	0.452	0.405
159.	1.000	0.667	1.000	1.000	0.333	0.333	0.667	0.507	0.081	0.103	0.084	0.028	0.018	0.031	0.852	0.714
160.	0.571	1.000	-0.500	-0.333	-1.000	-0.500	1.000	0.290	0.122	-0.052	-0.028	-0.083	-0.027	0.047	0.269	0.034
161.	-0.071	0.500	0.333	-0.667	-1.000	1.000	0.000	-0.036	0.061	0.034	-0.056	-0.083	0.054	0.000	-0.026	0.014
162.	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.254	0.061	0.052	0.042	0.042	0.027	0.024	0.500	0.500
163.	0.500	0.500	0.500	0.500	-0.500	0.500	0.500	0.254	0.061	0.052	0.042	-0.042	0.027	0.024	0.417	0.357
164.	0.071	0.500	0.500	0.500	-0.667	0.667	0.333	0.036	0.061	0.052	0.042	-0.055	0.036	0.016	0.187	0.272
165.	0.500	0.500	0.500	0.500	0.833	0.500	1.000	0.254	0.061	0.052	0.042	0.069	0.027	0.047	0.551	0.619
166.	0.286	0.500	0.333	0.333	0.333	0.500	0.167	0.145	0.061	0.034	0.028	0.028	0.027	0.008	0.331	0.350
167.	-0.071	0.667	0.500	0.500	-1.000	0.667	-0.333	-0.036	0.081	0.052	0.042	-0.083	0.036	-0.016	0.076	0.133
168.	0.071	0.667	-0.167	0.667	-1.000	0.500	0.500	0.036	0.081	-0.017	0.056	-0.083	0.027	0.024	0.124	0.177
169.	-0.071	0.167	0.167	0.500	-0.667	0.500	0.167	-0.036	0.020	0.017	0.042	-0.055	0.027	0.008	0.023	0.109
170.	0.643	0.167	0.167	0.500	0.000	0.500	0.167	0.326	0.020	0.017	0.042	0.000	0.027	0.008	0.440	0.306
171.	0.000	0.167	0.000	0.333	0.000	0.167	0.333	0.000	0.020	0.000	0.028	0.000	0.009	0.016	0.073	0.143
172.	0.429	1.000	0.500	0.500	0.500	0.500	0.333	0.217	0.122	0.052	0.042	0.042	0.027	0.016	0.517	0.537
173.	0.571	0.500	0.667	0.500	-0.500	0.333	1.000	0.290	0.061	0.069	0.042	-0.042	0.018	0.047	0.485	0.439
174.	1.000	1.000	1.000	1.000	0.500	1.000	1.000	0.507	0.122	0.103	0.084	0.042	0.054	0.047	0.959	0.929
175.	-0.143	1.000	0.833	0.500	-1.000	1.000	0.000	-0.072	0.122	0.086	0.042	-0.083	0.054	0.000	0.148	0.313
176.	-0.429	1.000	0.000	0.333	-0.333	0.500	0.667	-0.217	0.122	0.000	0.028	-0.028	0.027	0.031	-0.037	0.248
177.	0.214	0.500	0.167	0.000	0.167	0.167	0.500	0.109	0.061	0.017	0.000	0.014	0.009	0.024	0.233	0.245
178.	-0.071	0.667	0.667	0.667	-0.667	1.000	0.500	-0.036	0.081	0.069	0.056	-0.055	0.054	0.024	0.192	0.395
179.	0.714	0.667	0.333	0.500	-0.333	0.667	0.500	0.362	0.081	0.034	0.042	-0.028	0.036	0.024	0.552	0.435
180.	-0.571	0.667	0.000	0.000	-0.500	0.833	0.667	-0.290	0.081	0.000	0.000	-0.042	0.045	0.031	-0.174	0.156
181.	1.000	1.000	1.000	1.000	-1.000	1.000	1.000	0.507	0.122	0.103	0.084	-0.083	0.054	0.047	0.834	0.714
182.	-0.071	1.000	0.500	0.333	-0.833	0.667	0.667	-0.036	0.122	0.052	0.028	-0.069	0.036	0.031	0.163	0.323
183.	-0.571	0.167	0.000	-0.333	-0.833	0.500	0.500	-0.290	0.020	0.000	-0.028	-0.069	0.027	0.024	-0.316	-0.082
184.	0.143	0.000	0.333	0.500	-0.333	0.500	0.500	0.072	0.000	0.034	0.042	-0.028	0.027	0.024	0.172	0.235
185.	0.500	0.667	0.500	0.667	-0.333	0.833	0.000	0.254	0.081	0.052	0.056	-0.028	0.045	0.000	0.460	0.405
186.	0.071	0.833	0.500	0.333	-0.500	1.000	0.500	0.036	0.102	0.052	0.028	-0.042	0.054	0.024	0.253	0.391
187.	0.214	0.833	0.167	0.500	-1.000	0.667	0.333	0.109	0.102	0.017	0.042	-0.083	0.036	0.016	0.238	0.245
188.	0.357	0.500	0.500	0.500	0.500	0.500	0.500	0.181	0.061	0.052	0.042	0.042	0.027	0.024	0.428	0.480
189.	0.500	0.167	1.000	1.000	0.500	0.500	1.000	0.254	0.020	0.103	0.084	0.042	0.027	0.047	0.576	0.667
190.	0.286	0.167	0.333	0.167	-1.000	0.500	0.500	0.145	0.020	0.034	0.014	-0.083	0.027	0.024	0.181	0.136
191.	0.214	0.000	-0.167	0.000	-0.500	0.500	0.500	0.109	0.000	-0.017	0.000	-0.042	0.027	0.024	0.100	0.078
192.	0.429	0.833	0.333	0.500	-0.333	0.667	0.500	0.217	0.102	0.034	0.042	-0.028	0.036	0.024	0.427	0.418
193.	0.143	0.500	0.333	0.500	0.333	0.667	0.833	0.072	0.061	0.034	0.042	0.028	0.036	0.039	0.313	0.473
194.	0.286	-0.500	-0.333	-0.167	-1.000	0.500	0.500	0.145	-0.061	-0.034	-0.014	-0.083	0.027	0.024	0.003	-0.102

	Equal Weighting							TVE Weighting								
S/N	**F_1**	**F_2**	**F_3**	**F_4**	**F_5**	**F_6**	**F_7**	**F_1**	**F_2**	**F_3**	**F_4**	**F_5**	**F_6**	**F_7**	**PSW**	**PSE**
195.	0.429	0.333	0.000	0.500	-0.667	0.500	0.333	0.217	0.041	0.000	0.042	-0.055	0.027	0.016	0.287	0.204
196.	0.214	0.500	0.333	0.500	-0.500	0.500	0.167	0.109	0.061	0.034	0.042	-0.042	0.027	0.008	0.239	0.245
197.	-0.429	0.167	0.333	0.333	0.167	1.000	0.500	-0.217	0.020	0.034	0.028	0.014	0.054	0.024	-0.043	0.296
198.	0.857	0.667	0.667	0.833	0.167	0.833	0.833	0.435	0.081	0.069	0.070	0.014	0.045	0.039	0.753	0.694
199.	0.357	0.500	0.667	0.333	-1.000	0.500	-0.500	0.181	0.061	0.069	0.028	-0.083	0.027	-0.024	0.259	0.122
200.	0.071	0.500	0.167	0.500	0.333	0.500	1.000	0.036	0.061	0.017	0.042	0.028	0.027	0.047	0.258	0.439
201.	0.571	0.333	0.000	0.500	-1.000	0.000	0.000	0.290	0.041	0.000	0.042	-0.083	0.000	0.000	0.289	0.058
202.	0.571	0.833	0.500	1.000	-0.500	0.500	0.500	0.290	0.102	0.052	0.084	-0.042	0.027	0.024	0.536	0.486
203.	0.500	0.500	0.333	0.167	-0.500	0.500	-0.500	0.254	0.061	0.034	0.014	-0.042	0.027	-0.024	0.325	0.143
204.	0.286	0.167	-0.333	-0.500	-1.000	0.000	-0.833	0.145	0.020	-0.034	-0.042	-0.083	0.000	-0.039	-0.033	-0.316
205.	-0.071	0.500	0.000	0.000	0.000	0.333	0.333	-0.036	0.061	0.000	0.000	0.000	0.018	0.016	0.058	0.156
206.	0.571	1.000	0.500	0.500	-0.500	0.833	0.333	0.290	0.122	0.052	0.042	-0.042	0.045	0.016	0.524	0.463
207.	0.571	1.000	0.667	1.000	-0.500	0.833	1.000	0.290	0.122	0.069	0.084	-0.042	0.045	0.047	0.615	0.653
208.	0.714	1.000	0.500	1.000	0.833	1.000	0.500	0.362	0.122	0.052	0.084	0.069	0.054	0.024	0.766	0.793
209.	-0.214	0.667	0.667	0.167	-0.500	0.667	0.667	-0.109	0.081	0.069	0.014	-0.042	0.036	0.031	0.081	0.303
210.	0.071	0.333	0.333	0.167	0.000	0.500	0.333	0.036	0.041	0.034	0.014	0.000	0.027	0.016	0.168	0.248
211.	0.000	0.000	0.500	0.000	-0.500	0.000	0.000	0.000	0.000	0.052	0.000	-0.042	0.000	0.000	0.010	0.000
212.	1.000	1.000	-0.167	0.500	-0.500	1.000	0.500	0.507	0.122	-0.017	0.042	-0.042	0.054	0.024	0.690	0.476
213.	0.500	0.500	0.500	0.500	-0.500	0.500	0.500	0.254	0.061	0.052	0.042	-0.042	0.027	0.024	0.417	0.357
214.	0.643	0.667	0.667	0.667	-0.333	0.667	0.333	0.326	0.081	0.069	0.056	-0.028	0.036	0.016	0.556	0.473
215.	0.000	0.500	0.333	0.167	-0.333	1.000	0.000	0.000	0.061	0.034	0.014	-0.028	0.054	0.000	0.136	0.238
216.	0.143	1.000	-0.167	0.500	-0.333	0.667	1.000	0.072	0.122	-0.017	0.042	-0.028	0.036	0.047	0.275	0.401
217.	0.714	1.000	0.833	1.000	1.000	1.000	1.000	0.362	0.122	0.086	0.084	0.083	0.054	0.047	0.838	0.935
218.	0.500	0.500	0.333	0.500	0.000	0.500	0.500	0.254	0.061	0.034	0.042	0.000	0.027	0.024	0.441	0.405
219.	0.571	1.000	1.000	1.000	1.000	1.000	0.833	0.290	0.122	0.103	0.084	0.083	0.054	0.039	0.775	0.915
220.	0.786	0.500	1.000	1.000	0.500	1.000	1.000	0.398	0.061	0.103	0.084	0.042	0.054	0.047	0.789	0.827
221.	0.571	0.667	0.333	0.667	-0.833	1.000	0.167	0.290	0.081	0.034	0.056	-0.069	0.054	0.008	0.454	0.367
222.	0.071	0.333	0.000	-0.167	0.500	0.333	0.500	0.036	0.041	0.000	-0.014	0.042	0.018	0.024	0.146	0.224
223.	0.500	0.333	0.000	0.500	0.333	0.500	0.500	0.254	0.041	0.000	0.042	0.028	0.027	0.024	0.414	0.381
224.	0.643	0.833	0.833	0.333	0.833	0.833	0.833	0.326	0.102	0.086	0.028	0.069	0.045	0.039	0.695	0.735
225.	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.254	0.061	0.052	0.042	0.042	0.027	0.024	0.500	0.500
226.	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.507	0.122	0.103	0.084	0.083	0.054	0.047	1.000	1.000
227.	0.500	0.500	0.333	0.500	-0.500	0.667	0.500	0.254	0.061	0.034	0.042	-0.042	0.036	0.024	0.409	0.357
228.	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.254	0.061	0.052	0.042	0.042	0.027	0.024	0.500	0.500
229.	1.000	0.833	0.500	1.000	0.667	1.000	0.500	0.507	0.102	0.052	0.084	0.055	0.054	0.024	0.877	0.786
230.	0.643	1.000	0.500	0.500	-0.500	0.500	0.000	0.326	0.122	0.052	0.042	-0.042	0.027	0.000	0.527	0.378
231.	-0.429	0.333	0.167	0.500	-0.500	0.500	0.667	-0.217	0.041	0.017	0.042	-0.042	0.027	0.031	-0.101	0.177
232.	0.357	0.000	0.333	0.333	-0.500	0.500	0.500	0.181	0.000	0.034	0.028	-0.042	0.027	0.024	0.252	0.218
233.	0.071	1.000	0.000	0.167	-0.167	0.500	1.000	0.036	0.122	0.000	0.014	-0.014	0.027	0.047	0.232	0.367

	Equal Weighting							TVE Weighting								
S/N	**F_1**	**F_2**	**F_3**	**F_4**	**F_5**	**F_6**	**F_7**	**F_1**	**F_2**	**F_3**	**F_4**	**F_5**	**F_6**	**F_7**	**PSW**	**PSE**
234.	0.643	1.000	0.333	1.000	0.167	1.000	0.500	0.326	0.122	0.034	0.084	0.014	0.054	0.024	0.658	0.663
235.	0.000	0.167	0.000	0.000	0.000	0.500	0.500	0.000	0.020	0.000	0.000	0.000	0.027	0.024	0.071	0.167
236.	0.500	0.667	0.333	0.667	0.333	0.833	0.667	0.254	0.081	0.034	0.056	0.028	0.045	0.031	0.529	0.571
237.	0.500	0.833	0.667	0.667	0.333	1.000	1.000	0.254	0.102	0.069	0.056	0.028	0.054	0.047	0.609	0.714
238.	-0.143	0.500	0.500	0.167	-0.500	0.500	0.000	-0.072	0.061	0.052	0.014	-0.042	0.027	0.000	0.040	0.146
239.	-0.143	-0.333	0.333	0.333	-0.833	0.500	0.167	-0.072	-0.041	0.034	0.028	-0.069	0.027	0.008	-0.085	0.003
240.	0.643	1.000	0.333	0.667	-0.667	1.000	0.500	0.326	0.122	0.034	0.056	-0.055	0.054	0.024	0.560	0.497
241.	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.507	0.122	0.103	0.084	0.083	0.054	0.047	1.000	1.000
242.	0.071	0.500	0.167	0.500	-0.333	0.333	0.500	0.036	0.061	0.017	0.042	-0.028	0.018	0.024	0.170	0.248
243.	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.507	0.122	0.103	0.084	0.083	0.054	0.047	1.000	1.000
244.	0.500	1.000	0.000	0.667	0.000	0.667	0.833	0.254	0.122	0.000	0.056	0.000	0.036	0.039	0.507	0.524
245.	0.214	0.333	0.333	0.167	0.500	0.000	0.500	0.109	0.041	0.034	0.014	0.042	0.000	0.024	0.263	0.293
246.	0.214	1.000	0.500	0.500	-0.167	0.000	0.500	0.109	0.122	0.052	0.042	-0.014	0.000	0.024	0.334	0.364
247.	0.857	0.667	0.500	0.667	0.667	0.500	0.500	0.435	0.081	0.052	0.056	0.055	0.027	0.024	0.729	0.622
248.	0.357	0.500	0.500	0.500	0.167	0.500	0.667	0.181	0.061	0.052	0.042	0.014	0.027	0.031	0.408	0.456
249.	0.429	0.667	0.833	0.833	0.333	0.333	0.833	0.217	0.081	0.086	0.070	0.028	0.018	0.039	0.539	0.609
250.	-0.429	0.667	-0.500	-0.333	-1.000	0.500	0.333	-0.217	0.081	-0.052	-0.028	-0.083	0.027	0.016	-0.256	-0.109
251.	0.357	-0.500	-0.167	0.167	-0.833	1.000	1.000	0.181	-0.061	-0.017	0.014	-0.069	0.054	0.047	0.149	0.146
252.	0.571	0.667	0.500	0.667	0.167	0.667	0.667	0.290	0.081	0.052	0.056	0.014	0.036	0.031	0.560	0.558
253.	0.000	0.167	0.000	0.167	0.000	0.500	-0.167	0.000	0.020	0.000	0.014	0.000	0.027	-0.008	0.054	0.095
254.	0.500	0.500	0.500	0.500	0.000	0.500	0.500	0.254	0.061	0.052	0.042	0.000	0.027	0.024	0.459	0.429
255.	0.500	0.500	0.500	-0.333	-0.333	0.167	0.167	0.254	0.061	0.052	-0.028	-0.028	0.009	0.008	0.327	0.167
256.	0.571	0.333	0.667	1.000	-0.167	0.333	0.333	0.290	0.041	0.069	0.084	-0.014	0.018	0.016	0.503	0.439
257.	0.643	1.000	0.667	1.000	-0.500	1.000	1.000	0.326	0.122	0.069	0.084	-0.042	0.054	0.047	0.660	0.687
258.	-0.071	0.167	0.000	0.500	-0.333	0.167	0.333	-0.036	0.020	0.000	0.042	-0.028	0.009	0.016	0.023	0.109
259.	0.071	1.000	0.167	0.833	-0.333	0.333	0.333	0.036	0.122	0.017	0.070	-0.028	0.018	0.016	0.251	0.344
260.	-0.214	0.000	0.333	-1.000	-1.000	1.000	1.000	-0.109	0.000	0.034	-0.084	-0.083	0.054	0.047	-0.140	0.017
261.	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.507	0.122	0.103	0.084	0.083	0.054	0.047	1.000	1.000
262.	0.143	-0.167	0.000	0.667	0.167	0.500	0.333	0.072	-0.020	0.000	0.056	0.014	0.027	0.016	0.165	0.235
263.	0.357	0.000	0.167	0.667	-0.667	0.667	0.667	0.181	0.000	0.017	0.056	-0.055	0.036	0.031	0.266	0.265
264.	0.929	1.000	1.000	1.000	0.000	0.000	0.000	0.471	0.122	0.103	0.084	0.000	0.000	0.000	0.780	0.561
265.	0.429	0.500	0.500	0.500	-0.500	0.500	0.333	0.217	0.061	0.052	0.042	-0.042	0.027	0.016	0.373	0.323
266.	0.786	0.500	1.000	1.000	0.500	0.833	0.333	0.398	0.061	0.103	0.084	0.042	0.045	0.016	0.749	0.707
267.	0.000	0.500	0.500	0.167	0.500	0.500	0.500	0.000	0.061	0.052	0.014	0.042	0.027	0.024	0.219	0.381
268.	0.214	0.333	0.167	0.167	0.167	0.167	-0.167	0.109	0.041	0.017	0.014	0.014	0.009	-0.008	0.195	0.150
269.	0.286	0.500	0.333	0.500	0.000	0.500	0.500	0.145	0.061	0.034	0.042	0.000	0.027	0.024	0.333	0.374
270.	0.500	0.500	0.500	0.500	0.167	0.500	1.000	0.254	0.061	0.052	0.042	0.014	0.027	0.047	0.496	0.524
271.	0.714	0.500	0.167	1.000	0.333	0.667	1.000	0.362	0.061	0.017	0.084	0.028	0.036	0.047	0.635	0.626
272.	0.357	1.000	1.000	1.000	-1.000	0.500	0.333	0.181	0.122	0.103	0.084	-0.083	0.027	0.016	0.450	0.456

	Equal Weighting							TVE Weighting								
S/N	**F_1**	**F_2**	**F_3**	**F_4**	**F_5**	**F_6**	**F_7**	**F_1**	**F_2**	**F_3**	**F_4**	**F_5**	**F_6**	**F_7**	**PSW**	**PSE**
273.	0.214	0.833	0.333	1.000	-0.500	0.500	0.833	0.109	0.102	0.034	0.084	-0.042	0.027	0.039	0.353	0.459
274.	0.357	0.333	0.500	0.167	-0.667	0.167	0.833	0.181	0.041	0.052	0.014	-0.055	0.009	0.039	0.280	0.241
275.	0.071	0.000	0.333	0.167	0.167	0.000	0.000	0.036	0.000	0.034	0.014	0.014	0.000	0.000	0.098	0.105
276.	0.429	1.000	1.000	1.000	1.000	1.000	1.000	0.217	0.122	0.103	0.084	0.083	0.054	0.047	0.710	0.918
G(Fi)	0.263	0.513	0.323	0.414	-0.132	0.539	0.446	0.134	0.063	0.033	0.035	-0.011	0.029	0.021	0.303	0.338
Overall Job Satisfaction Level of the Global Tech Worker (%)															**30.34**	**33.82**

S/N denotes the individual respondents

PSW is the job satisfaction index for the factors weighted by contribution to TVE

PSE is the job satisfaction index with the factors equally weighted

Algorithm 1: The Scheme for Implementing JSST

Step 1: Administer the JSST Questionnaire
Step1.1: Inspect questionnaire for completeness and keep track of the numbers, n.
Step2: Codify responses
Step2.1 Convert the Tech worker responses for all Tech workers to their numeric equivalent (i.e Strongly disagree = -2; Disagree = -1; Neutral = 0; Agree = 1; Strongly agree = 2)
Step 3: Perform for each Tech worker Codified responses, the satisfaction for each factor, F_i
Step3.1: Sum all the predictor scores (I) for the i^{th} factor and divide by twice the number of predictors in the factor
// *Hint: Communications have seven predictors while the others have three predictors*
Step3.2: Keep track of each computed summation, F_i
Step3.3: Repeat Step3.2 for the next factor for all factors
// this step implements Equation (3)
Step 4: If TVE (unequal) weighting is to be applied goto Step 5 otherwise goto Step 6
// *TVE weighting is strongly recommended*
// for a group of Tech workers the scheme does not permit different weighting – it is
// either you adopt the TVE weighting for same set of respondents or you adopt the equal // weighting
Step 5: Multiply the computed summations F_i for each factor i by their respective equivalent weighting (α) as given in Table 2
Step5.1: Get the sum of the resultant values for all the seven factors
// this step implements Equation (1)
Step5.2: Print the overall summation value (Individual Summation) from Step5.1 or store for future computations in terms of group measurement
Step5.3: Goto Step 7
Step 6: Get the sum of the resultant values for all the seven factors
// this step implements Equation (1)
Step 6.1: Divide the resultant summation value from Step 6 by 7, the number of factors of JSST // this step implements Equation (1)
Step 6.2: Print the overall summation value (Individual Summation) from Step 6.1 or store for future computations in terms of group measurement
Step 7: Repeat Steps 3 to 6 for all members of the group
Step 7.1: Sum the individual summation values at each execution
Step 8: Divide the resultant summation value from Step 7 by the number of group members (n) considered in the measurement exercise to get the overall group satisfaction
// this step implements Equation (2)
Step 9: Print the overall summation value (Group Summation) from Step 8
// N.B: Equation (3) is a constraint while Equations (4) and (5) are components
// of Equations (1) and (2) respectively

Illustration of JSST Implementation using Algorithm 1

Table 5 contains the coded value of the raw data from the first five respondents in Table 4.

Table 5: Selected Tech Worker's Self-assessment Data using the JSST Questionnaire

Factors	Measurable Values (Items)	Tech Worker1	Tech Worker2	Tech Worker3	Tech Worker4	Tech Worker5
Communication	My management's effective internal communication during crisis motivates me to serve as an ambassador by communicating positive opinion about my organization with external stakeholders.	0	0	-1	0	2
	My management tries to defend us from external criticism during crisis.	1	1	-1	0	1
	My management inspires me to the extent that I contribute by putting more efforts in the promotion of products, satisfying customers and other stakeholders when my organization is facing an economic crisis.	0	0	0	0	1
	I have been frequently informed by my management about its operational and financial situation during crisis.	0	2	-2	1	1
	My management communicates to employees its commitment to protect their welfare and well-being.	1	1	-2	1	1
	Communication with employees is very important for our management during crises.	1	1	-1	0	1
	Management response to my questions during crisis gives me job satisfaction.	1	0	-2	0	2

IT Knowledge	Our firm possesses a high degree of computer-based technical expertise.	-2	2	1	1	2
	We are very knowledgeable about new computer-based innovations.	-1	2	1	1	1
	We have the knowledge to develop and maintain computer-based communication links with our customers.	0	2	2	0	1
Time Pressure and Cognition Overload	I feel comfortable to do the things that I have to do.	1	1	0	1	2
	I do not feel pressed for time.	-1	1	0	-1	1
	There is much information available on topics of interest to me. But I don't have trouble choosing what is important and what's not.	0	0	-1	1	1
Career Advancement	My supervisors have told me I do a good job.	-1	1	-1	1	2
	The organizations I work for have recognized me as a good performer.	-1	1	0	0	2
	I have been recognized for my contribution.	-1	1	-1	-1	2
Changing Career Aspiration	I am at the top leadership position of my organization or business.	-1	0	-2	-1	1
	I have moved up to a leadership position in my organization.	1	1	-2	0	1
	I am a leader in my career field.	-1	1	-2	-1	1
Team Player	Did a fair share of the team's work.	1	2	1	1	2
	Fulfilled responsibilities to the team.	1	2	1	1	2
	Completed work in a timely manner.	1	1	1	1	2
Creativity and Innovation	I often have new and innovative ideas.	1	1	2	1	1
	I suggest new ways of performing work tasks.	1	1	1	0	1
	I have a fresh approach to problems.	0	1	1	0	1

As an illustrative example, consider the case of Tech Worker 1 codified responses in Table 5.

Step 3 will yield the following F_i for Communication = 4/(2*7) = 0.28571, IT Knowledge = -3/ (2*3) = -0.50000, Time Pressure and Cognition Overload = 0/(2*3) = 0.00000, Career Advancement = -3/ (2*3) = -0.50000; Changing Career Aspiration = -1/(2*3) = -0.16667, Team Player = 3/(2*3) = 0.5000, Creativity and Innovation = 2/(2*3) = 0.333333.

Step 4 will take us to step 5 if we are to use the TVE weighting in Table 2 or we go to Step 6

Step 5 will yield the following $\alpha_i.F_i$ for Communication = 0.507 x 0.28571 = 0.14485, IT Knowledge = 0.122 x -0.50000 = -0.06100, Time Pressure and Cognition Overload = 0.103 x 0.00000 = 0.00000, Career Advancement = 0.084 x 0.50000 = -0.042; Changing Career Aspiration = 0.083 x -0.16667 = -0.01383, Team Player = 0.054 x 0.5000 = 0.027, Creativity and Innovation = 0.047 x 0.333333 = 0.01567.

Step5.1. will yield 0.14485 + -0.06100 + 0.00000 + -0.042 + -0.01383 + 0.027 + 0.01567 = 0.07069 ≈ 0.071

Observe that the computations are as computed in the TVE weighted factors section of Table 4 to three decimal places.

Step 6 will yield 0.28571 + -0.50000 + 0.00000 + -0.50000 + -0.16667 + 0.50000 + 0.33333 = -0.04763/7 = -0.00680 ≈ -0.007

Observe also that the computations are as computed in the equal weighted factors section of Table 4 to three decimal places. This computation process follows for all other Tech workers' responses whose results can now be summed and divided by the number of respondents for the group satisfaction estimate. While the TVE weighting result implies that Tech worker 1 satisfaction level is Q_4 i.e. very low, that of the equal weighting implies that Tech worker 1 is dissatisfied with his or her job with dissatisfaction level Q_5 i.e. slightly dissatisfied. Readers can try their hands as illustrated on the other Tech Workers' codified data in Table 5 and verify their correctness from Table 4.

CONCLUSION

A job satisfaction scale often used to estimate the wellbeing of employees in their workplace usually needs an explicit scheme for its uniform implementation. As digitalization deepens, tech workers' wellbeing becomes increasingly crucial for global prosperity. This necessitated developing and validating JSST – a global job satisfaction scale for Tech workers. However, no scheme exists for JSST implementation, which can limit its practicality and worth. This study has presented the scheme for JSST implementation using descriptive statistics and demonstrated its applicability. The generalized form of the scheme makes it adaptable for implementing any multi-faceted psychometric scale. The study also exposed the low job satisfaction of tech workers globally, placing it in the third quartile (Q3) level of satisfaction. The study, therefore, calls for the concerted effort of managers of tech firms to efficiently monitor and manage tech workers' experience towards their improved retention and performance and, invariably, the overall prosperity of humanity. The automation for web accessibility of the JSST implementation scheme is also encouraged.

REFERENCES

Abiona, B. G., Adenuga, O. O., Adeosun, K. G., Fapojuwo, O. E., & Roseje, T. O. (2023). Assessment of job satisfaction among employees of Animal Care Services Consult Limited,

Ogbere Remo, Ogun State, Nigeria. *FUDMA Journal of Sciences*, *7*(3), 257-265. https://doi.org/10.33003/fjs-2023-0703-1813

Asenahabi, B. M., & Ikoha, P. A. (2023). Scientific research sample size determination. *The International Journal of Science & Technology*, *11*(7), 8-12. http://dx.doi.org/10.24940/theijst/2023/v11/i7/ST2307-008

Azash, S. M. D., & Thirupalu, N. (2017). Scale for measuring job satisfaction: A review of literature. *International Journal of Economic and Business Review*, *5*(3), 114-123. URL: http://www.eprawisdom.com

Bernhard, U., Porten-Cheé, P., & Schultze, M. (2015). Survey research online. In *Political communication in the online world: Theoretical approaches and research designs* (pp. 218-232). Routledge https://doi.org/10.4324/9781315707495-15

Ehigbochie, A. I., & Ekuobase, G. O. (2024). A job satisfaction scale for tech workers: Development and validation in the global context. *Human Behavior and Emerging Technologies*. DOI: https://doi.org/10.1155/2024/8873743

Ferreira, C., Pedrosa, I., & Calheiros, A. (2021). Turnover in Portuguese technology companies: A literature review. *CRISTI - Revista Ibérica de Sistemas e Tecnologias de Informação, 2021*(E42), 212-227. URL: http://www.risti.xyz

Gomez Gandia, S.A., Gavrila, S.G., Ancillo, A, D,L., & Val, T.D. (2024). RPA as a challenge beyong technology: self-learning and attitude needed for successful RPA implementation in the workplace. *Journal of knowledge economy*. https://doi.org/10.1007/s13132-024-01865-5

Guobadia, F. E., & Ekuobase, G. O. (2024). An estimation of digital learning culture index of secondary education in Nigeria. *Education Research International*, *2024*(16). https://doi.org/10.1155/2024/6671155

Memon, M. A., Tings, H., Cheahs, J. H., Thurasamy, R., Chuah, F., & Cham, T. H. (2020). Sample size for survey research: Review and recommendations. *Journal of Applied Equation Modeling*, *4*(2). https://doi.org/10.47263/JASEM.4(2)01

Muwanguzi, E. (2022). Job satisfaction: A literature review. *Journal of Research in Humanities and Social Science*, *10*(10), 165-172. URL: http://www.questjournals.org

Oguntayo, S. A., Unegbu, V. E., & Alegbeleye, G. O. (2023). Analysis of professional competencies and job satisfaction of Liberians in private universities in south-west Nigeria. *FUDMAN Journal of Sciences*, *7*(6), 382-390. https://doi.org/10.33003/jjs-2023-0706-2218

Oehlhorn, C. E., Maier, C., & Weitzel, T. (2020). Turnover and turnaway of IT workers: A person-environment fit perspective. *SIGMIS-CPR '20*, 103-104. http://dx.doi.org/10.1145/3378539.3393838

Robinson, M. A. (2018). Using the multi-item psychometric scales for research and practice in human resource management. *Human Resource Management*, 739-750. https://doi.org/10.1002/hrm.21852

Segal, D. L., Colidge, F. L., O'Riley, A., & Heinz, B. A. (2006). Structured and semi-structured interviews. In *Clinician's handbook of adult behavioral assessment*,121-144. https://doi.org/10.1016/B978-012343013-7/50007-0

Statista. (2023). Number of ICT professionals worldwide 2019-2023, by share of website. Retrieved from https://www.statista.com/statistics/1126677/it-employment-worldwide/

Wei, L., Wongvanichtawee, C., & Tang, C.-H. (2024). The role of transformational leadership in mitigating employee turnover: Insights from China's high-tech industry. *Journal of Infrastructure, Policy and Development*, *8*(9), 7830. https://doi.org/10.24294/jipd.v8i9.7830

Wu, M. J., Zhao, K., & Fils-Aime, F. (2022). Response rates of online surveys in published research: A meta-analysis. *Computers and Human Behavior Reports*, *7*, 100206. https://doi.org/10.1016/j.chbr.2022.100206

Yanchovska, I. (2022). Scales for measuring employee satisfaction. *Academic Journal of Mechanics, Transport Communications*, *11*(10), 31-38. URL: http://www.mtc-aj.com

Zhang, X., Kuchinke, L., Woud, M. L., Veltin, J., & Margraf, J. (2017). Survey method matters: Online/offline questionnaires and face-to-face or telephone interviews differ. *Computers in Human Behavior*, *71*, 172-180. https://doi.org/10.1016/j.chb.2017.02.006