**PUBLISHING INSTITUTE**

Journal Website

Validation of the "Charles Handy Organizational Culture Questionnaire" in the Fire Department of Karaj

Leila. Javaheri[1], Khadijeh. Amoei Dizaji[2*], Roghayeh. Shahani Shalamani[2]

[1] M.A in Industrial and Organizational Psychology, Department of Psychology, Karaj Branch, Islamic Azad University, Karaj, Iran
[2] Assistant Professor, Department of Psychology, Karaj Branch, Islamic Azad University, Karaj
[3] Assistant Professor, Department of Psychology, Karaj Branch, Islamic Azad University, Karaj, Iran

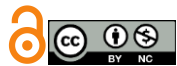*** Corresponding author email address**: khamoei@yahoo.com

A r t i c l e   I n f o

Article type:

Original Research

How to cite this article:

A B S T R A C T

Objective: This study aimed to translate and psychometrically evaluate the "Charles Handy Organizational Culture Questionnaire" in the Fire Department of Karaj.

Methodology: The study employed a validation research design, using a sample of 294 employees and personnel of the Karaj Fire Department in 2021, selected through simple random sampling. The original English version of the questionnaire was translated into Persian, and exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were conducted to assess the construct validity. Internal consistency was evaluated using Cronbach's alpha.

Findings: Exploratory factor analysis revealed two main components, "Organizational Preferences" and "Personal Preferences," explaining 65% of the total variance. The Cronbach's alpha coefficients were 0.81 for organizational preferences and 0.88 for personal preferences, indicating acceptable internal consistency. Confirmatory factor analysis supported the two-factor structure of the questionnaire, with all fit indices showing a good model fit.

Conclusion: The Persian version of the "Charles Handy Organizational Culture Questionnaire" was found to have acceptable validity and reliability, making it a suitable tool for assessing organizational culture in Iranian organizations, particularly in the fire department context.

Keywords: *Validation, Fire Department, Reliability, Charles Handy, Validity, Organizational Culture.*

1   Introduction

In recent years, there has been considerable attention given to the "socio-psychological factors" of individuals, and industrialized countries have placed a particular focus on the workplace and employed individuals (Lincoln, 1985). In today's rapidly changing and highly competitive environmental conditions, organizations must focus more than ever on efficiency and effectiveness to ensure their survival. "Organizational culture" has been identified as an important stabilizing factor for the effectiveness of any organization. A misalignment between organizational culture and principles, beliefs, methods of task execution, communication, and strategic direction can limit its

effectiveness. Recently, the topic of organizational culture has been discussed in both management and the study of organizational behavior (Naveed et al., 2022).

Organizational culture is defined as a phenomenon composed of individual elements. The most common elements of organizational culture include artifacts, norms, attitudes, values, and basic assumptions. In other words, the values, attitudes, and basic beliefs within an organization create behavioral patterns derived from shared meanings and symbols that convey the relationship between beliefs, values, and the behaviors of organizational members (Mikušová et al., 2023). According to modern criteria, organizational culture generally refers to the collective vision, assumptions, and membership criteria within an organization. The determinants of organizational culture include structure, leadership, tasks, and strategies of the organization (Chalmers, 2024). Harel and colleagues describe organizational culture as a collection of all signs, rituals, concepts, values, and behavioral standards shared among members of a human group, passed down as a generational life experience (Harel et al., 2020). Wang and colleagues believe that the shared understanding that employees have of an organization's atmosphere, which guides their behavior, forms the basis of organizational culture (Wang et al., 2022). In other words, organizational culture constitutes the shared values that determine employees' perceptions and their response to the organization (Robbins, 2005).

Handy describes four distinct management styles, each with its own values. These values and expectations, over time, create an internal organizational culture. The four types of culture are "power culture," "role culture," "task culture," and "existential culture." The most successful organizations are those that balance these four cultures and combine elements from each, or apply one or more cultures in specific situations and roles (Handy, 2011a, 2011b).

Organizational culture can give employees a sense of unity and purpose, helping the organization cope with complex and dynamic changes. A strong organizational culture can act as an asset, helping members of the organization achieve goals and realize their potential in their profession (Chalmers, 2024). Organizational culture plays a critical role in the success and failure of organizations, as it provides a framework for employees to apply in reality, helping them assess what is important to them (Rass et al., 2023). Due to its impact on both employee and organizational performance, organizational culture has attracted the attention of many researchers as well as public

and private organizations (Shahmohammadi, 2022). Organizational culture is considered a factor in the survival of organizations and the provision of their organizational growth. The attention that organizations give to the learning, development, and competence of their employees highlights the significant role of organizational culture. Providing an environment that identifies and meets individuals' learning needs and fosters a sense of competence is one of the advantages of a favorable organizational culture (Abbasi, 2013). On the other hand, organizational culture is the result of a learning process; this outcome is an accumulation of experiences transmitted to individuals, providing continuity, reducing employees' uncertainty, and influencing their job satisfaction and emotional well-being (Mikušová et al., 2023). The coherence and strength of organizational culture depend on the goals that the organization sets for itself, which lead to improved performance by organizations and individuals (Shahmohammadi, 2022).

Organizational culture affects all aspects of organizational activities. Researchers categorize organizational culture as either strong or weak. According to Robbins, a strong organizational culture reduces employee turnover and ensures that members of the organization reach a consensus on employee status and placement. This factor leads to cohesion, loyalty, and a high level of commitment to the organization. A strong and positive culture increases employee satisfaction, reduces the likelihood of quitting, increases behavioral stability, and directs organizational behavior, enhancing social commitment and work ethic. It can be more influential than formal organizational controls and lead to improved individual and organizational performance (Robbins, 2005).

In this context, some studies indicate the influence of organizational structure and culture on employees' tasks and roles. Jo and Joo demonstrated that when an organizational culture exists, employees are more inclined to perform their tasks (Jo & Joo, 2011). Sorakraikitikul and Siengthai showed that organizational culture has a strong effect on employees' tasks and performance, inspiring the need for learning to perform tasks better (Sorakraikitikul & Siengthai, 2014). Wang and Wang mentioned that organizational culture is a key factor in cooperation, learning ability, loyalty, and commitment in carrying out tasks, which are all elements that impact the success of organizations (Wang & Wang, 2004). Nasaireh and colleagues' research also showed the impact of organizational structure on the formation of organizational culture dimensions, including power culture, task culture, and role culture (Nasaireh et al., 2019). Other

studies have also emphasized the role-centered organizational culture in organizations. For instance, Ketprapakorn and Kantabutra noted that the organizational culture in most organizations is role-centered, and the desired culture is a successful one (Ketprapakorn, 2022).

The activities of employees collectively shape organizational culture, which is constantly influenced by internal and external changes. Decision-making methods, planning for tasks, and selecting and appointing individuals in the organization act as internal influencing factors, while economic and social factors serve as external ones, all playing a role in shaping organizational culture. In general, understanding organizational culture, which helps organizations evaluate and assess employee and organizational performance, is of great importance. Although many researchers have considered organizational culture as a guarantor of organizational sustainability, the dimensions that make up organizational culture remain relatively unknown and are often overlooked (Ketprapakorn, 2022).

In developed countries, the success of fire departments and their personnel, who are considered a core element of a country's safety and rescue system, is highly significant. Thus, understanding the organizational culture that influences this success is also of special importance (Darvishi et al., 2015). Today, the role of organizations in the development process of societies is well understood, and the question is often raised: why are some organizations successful in fulfilling their duties while others are not? Answering such questions requires extensive studies on factors related to organizational effectiveness. Based on the above, it is inferred that for an organization to achieve better and more successful performance, it must assess and fully understand its organizational culture to address weaknesses and enhance strengths. For this purpose, it is necessary to use appropriate and standardized tools to achieve desirable results. Naturally, achieving goals in an organization like a fire department requires a strong organizational culture, and organizational culture should be studied and examined in this organization before anything else. Reviews of existing tools in the field of organizational culture indicate the lack of a reliable and valid tool in the domestic fire department. Therefore, this study was conducted to translate and psychometrically evaluate the "Organizational Culture Questionnaire" in the Fire Department of Karaj.

2   Methods and Materials

This study utilized a validation research method. The statistical population included the employees and personnel of the Karaj Fire Department in 2021, from which 294 individuals were selected through simple random sampling. The inclusion criterion was employment at the Karaj Fire Department, and the exclusion criterion was failure to respond to an item in the questionnaire.

The tool used for validation in this research was the "Charles Handy Organizational Culture Questionnaire," which was developed by Handy in 1991. This questionnaire provides a method for analyzing and classifying the preferences of the respondent and the organization in which they work. The organizational culture assessment tool consists of 9 sections, each containing 4 items labeled A, B, C, and D. The response format is a rating system, with items ranked from 1 to 4 in each section. Participants must respond to the questionnaire in two stages. In the first stage, participants read the items under each section carefully and rank them based on how well they fit the current state of the organization. The item that best fits the organization's current atmosphere is rated (1), and the item that fits the least is rated (4). In the second stage, the participants independently rank the same items again, reflecting their personal preferences and beliefs about the organization.

Once all the items in both the "organizational preferences" and "personal preferences" columns are ranked, the scores for the A items are summed and recorded under the "sum of all A items" column in front of the "organizational total" in the total score table. This process is repeated for items B, C, and D in the organization column. The same process is then applied to the "self" column, where the total scores for A, B, C, and D are calculated and recorded in the "sum of all A items" column in front of the "self-total." Items labeled A represent power culture (Zeus), items labeled B represent role culture (Apollo), items labeled C represent task culture (Athena), and items labeled D represent existential culture (Dionysus). The lower the total score for each set, the more dominant that culture is in the organization or the individual (Handy, 2011a; Morais et al., 2021).

In the first stage, after obtaining permission from the questionnaire copyright holders via email, the English version of the tool, approved by the developers, was translated into Persian. This translation was initially performed by an English language specialist, an industrial-organizational psychology expert, and a psychometrician.

The initial translations were combined into a single version and reviewed multiple times to ensure correct Persian writing. To ensure clarity, the items were provided to several experts familiar with organizational culture, and their feedback was considered. To minimize potential translation errors, an English language expert was asked to retranslate the items back into English. The results confirmed the accuracy of the initial translators' work. The questionnaires were then distributed among the sample participants. Instructions on how to respond to the questionnaire were provided, and participants were assured of the confidentiality of their information. Once participants agreed to the response conditions, the questionnaires were distributed. Volunteers for the study, after being fully informed about the research objectives, provided informed consent and completed the demographic information form before responding to the scale. Completing the "Organizational Culture Questionnaire" took 5 to 10 minutes. Data collection across all phases of the study took 2 months.

Construct validity was assessed using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), and reliability was evaluated by calculating Cronbach's alpha coefficient. Before performing exploratory factor analysis, it was necessary to ensure that the data were sufficient for factor analysis. For this purpose, the Kaiser-Meyer-Olkin (KMO) sampling adequacy test, with a cut-off point of 0 to 1, and Bartlett's test of sphericity were used (Field, 2013). To test the goodness of fit in confirmatory factor analysis, the following fit indices were used: Chi-square goodness of fit with a probability value greater than 0.05, root mean square error of approximation (RMSEA) with a cut-off point of less than 0.08, goodness of fit index (GFI) with a cut-off point greater than 0.90, adjusted goodness of fit index (AGFI) with a cut-off point greater than 0.80, and comparative fit index (CFI) with a cut-off point greater than 0.90, using SPSS 24 and AMOS 24 software, with a significance level of 0.05.

3 Findings and Results

In the present study, 129 participants (43.9%) were under 30 years old, 64 participants (21.8%) were aged between 31 and 35, 43 participants (14.6%) were aged between 36 and 40, and 58 participants (19.7%) were over 40 years old. Among the participants, 165 individuals (56.1%) were single, and 129 individuals (43.9%) were married. In terms of education level, 40 participants (13.6%) had a high school diploma, 80 participants (27.2%) had an associate degree, 110 participants (37.4%) had a bachelor's degree, 45 participants (15.3%) had a master's degree, and 19 participants (6.5%) held a doctorate. Regarding work experience, 103 participants (35%) had less than 5 years of experience, 119 participants (40.5%) had 6 to 10 years, 47 participants (16%) had 11 to 15 years, and 25 participants (8.5%) had more than 15 years of experience.

In this study, exploratory factor analysis was conducted, and the results from the rotated factor loading table indicated that this questionnaire consists of two factors. The results showed that the Kaiser-Meyer-Olkin (KMO) index was 0.663 (P=0.001), indicating the adequacy of the sample size and the suitability of the data for conducting exploratory factor analysis. Additionally, Bartlett's test of sphericity was statistically significant (P=0.001, $\chi^2(15)=309.07$). Since Bartlett's test was significant at the 0.01 level, it can be concluded that the variables are not independent of each other and there is a sufficient level of correlation among them, suggesting that clustering is likely.

According to the results in Table 1, there is a positive and significant relationship between cultural knowledge and the job success of managers. The highest correlation is between supervision and control with job success (0.918), while the lowest correlation is between leadership and job success (0.352). Stepwise regression was used to predict job success based on the components of cultural knowledge. The results of stepwise regression indicated that all seven components have the ability to predict managers' job success.

Table 1

Number of Components, Total Variance Explained, Eigenvalues, and Variance Explained by Each Component

Component	Eigenvalue	Unique Contribution to Total Variance Explained (%)	Cumulative Variance Explained (%)
1	2.69	33.63	33.63
2	2.54	31.80	65.44

Table 1 shows that two components with eigenvalues greater than 1 were extracted, explaining approximately 65% of the total variance. Consistent with the number of components suggested by the eigenvalues greater than 1, the scree test (Figure 1) also supported the existence of two components.

Figure 1

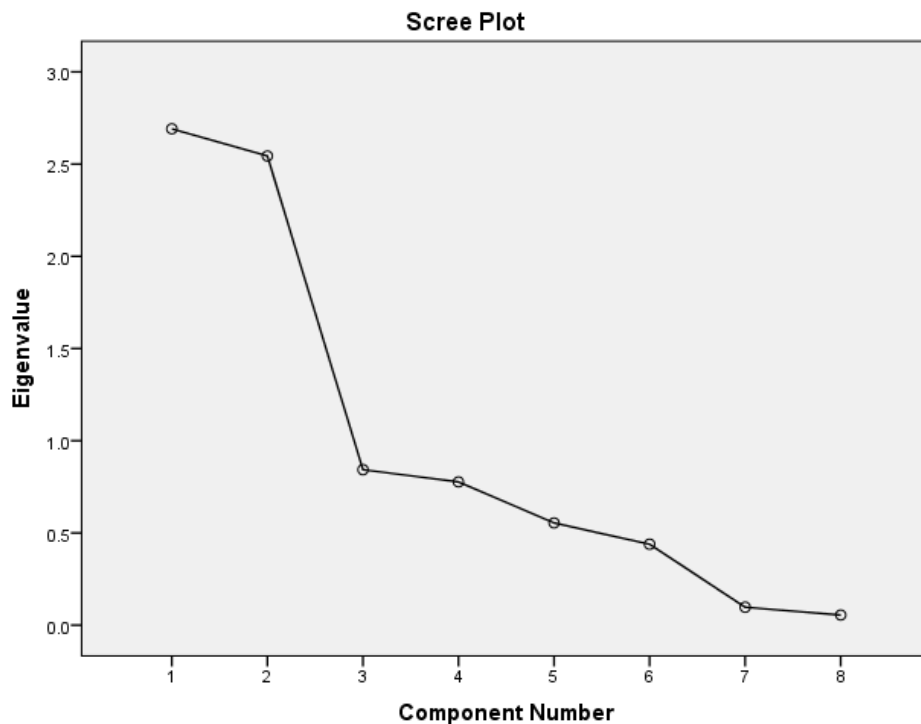*Scree Test for Determining the Number of Components*

Figure 1 shows that the scree plot breaks between components 2 and 3, suggesting that the scree test considers the number of extracted components to be 2.

Table 2

Rotated Factor Loadings in the Principal Component Analysis

Items	Factor 1	Factor 2
Organizational Preferences - A	0.543	
Organizational Preferences - B	0.750	
Organizational Preferences - C	0.922	
Organizational Preferences - D	0.909	
Personal Preferences - A		0.874
Personal Preferences - B		0.906
Personal Preferences - C		0.731
Personal Preferences - D		0.745

Based on the results of the principal component analysis, as shown in Table 2, it can be concluded that the organizational culture questionnaire measures two components. Component 1 is measured by items 1, 2, 3, and 4, and component 2 is measured by items 5, 6, 7, and 8. Due to the similarity of the items in each component, the first component was named "Organizational Preferences," and the second component was named "Personal Preferences."

The results in indicate that 96.2% of the variance in the job success variable is explained. Additionally, the Durbin-Watson statistic is within an acceptable range, and the F-statistic in both models is significant, indicating that the models can significantly predict job success. Table 3 shows the variable coefficients.

IJIMOB

Javaheri et al.   International Journal of Innovation Management and Organizational Behavior 3:3 (2023) 212-220

Table 3

Parameters of the Measurement Model for the Organizational Culture Questionnaire

Indicators	C.R	SE	β	b
Organizational Preferences - A	1	0.695	-	-
Organizational Preferences - B	0.954	0.628	**8.96	0.106
Organizational Preferences - C	0.552	0.498	**7.31	0.076
Organizational Preferences - D	1.070	0.817	**10.05	0.103
Personal Preferences - A	1	0.796	-	-
Personal Preferences - B	0.703	0.486	**6.70	0.105
Personal Preferences - C	0.496	0.409	**5.79	0.086
Personal Preferences - D	0.693	0.660	**8.05	0.084

Table 3 shows that all standardized factor loadings are greater than 0.32. The largest factor loading belongs to item D of the organizational preferences factor (β = 0.817), and the smallest factor loading belongs to item C of the personal preferences factor (β = 0.409). Thus, all items have sufficient capability for measuring the two components of the organizational culture questionnaire (organization and self).

Table 4

Fit Indices for the Confirmatory Factor Analysis of the Organizational Culture Questionnaire

Fit Indices	Value
Chi-Square (df = 19)	29.31
Normed Chi-Square	1.54
Goodness of Fit Index (GFI)	0.977
Adjusted Goodness of Fit Index (AGFI)	0.956
Comparative Fit Index (CFI)	0.979
Root Mean Square Error of Approximation (RMSEA)	0.043

Table 4 shows that all fit indices support the acceptable fit of the two-factor model of the questionnaire with the collected data. Based on this, it was concluded that the measurement model of the questionnaire has an acceptable fit with the collected data.

Figure 2

Measurement Model of the Organizational Culture Questionnaire and Factor Loadings Using Standardized Data
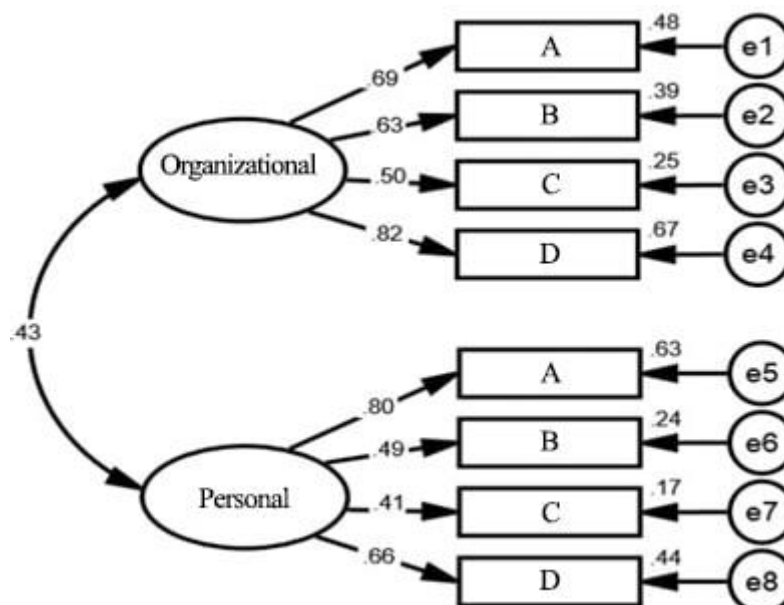
Figure 2 shows that all indicators are greater than 0.32, and all items have sufficient capability for measuring the two components of the organizational culture questionnaire (organization and self).

In the present study, Cronbach's alpha values for 294 participants were 0.81 for organizational preferences and 0.88 for personal preferences and self, both exceeding 0.70, indicating good internal consistency and reliability of the measurement model.

4 Discussion and Conclusion

The present study aimed to translate and psychometrically evaluate the "Charles Handy Organizational Culture Questionnaire" in the Fire Department of Karaj.

This research revealed that "Power Culture" is one of the dimensions of organizational culture based on Charles Handy's model in the Fire Department. These findings align with prior studies (Handy, 2011a, 2011b; Nasaireh et al., 2019). Power is often defined as the potential ability of one person (or an organizational department) to influence others (or other organizational departments) to execute orders or perform tasks that otherwise would not be accomplished. It is also the potential ability of a person or department to influence others within the organization to achieve desired outcomes, which are overseen by those in power. In reality, power is created through division of labor, organizational segmentation, and task differentiation, with power gaps existing within the organizational system, particularly regarding access to power bases. In an organization, individuals and departments responsible for important tasks naturally exert more power (Hossein Gholizadeh et al., 2015). The foundation of power culture is communication, respect, and leadership. This culture often exists in organizations where individuals share common goals and a strong leader is the core of the organization. The use of power culture involves providing services, facilities, equipment, and essentials, as well as planning, organizing, leading, and controlling organizational resources (Selart & Schei, 2011). In this culture, leaders tend to be participative, thoughtful, and supportive. The effectiveness indicator in this culture is the development of human capacity and the enhancement of members' commitment to the organization (Shahmohammadi, 2022).

The study also showed that "Task Culture" is another dimension of organizational culture in the Fire Department based on Charles Handy's model. These findings are consistent with prior studies (Handy, 2011a, 2011b; Jo & Joo, 2011; Sorakraikitikul & Siengthai, 2014; Wang & Wang, 2004; Wang et al., 2022). In task culture, individuals are judged based on their results and the number of problems they solve. Expertise, talent, creativity, and problem-solving ability are valued, and individuals possessing these qualities are deemed worthy of rewards. In this culture, participation and motivation levels are high, and organizations are typically composed of professionals who have a genuine desire to improve the organization. Every organization and its jobs, based on the overall culture of the employees, internal and external relationships, and organizational behavior, develop their own personality or identity (Mehdizadeh et al., 2019). Task culture creates the organizational structure and encompasses utilizing potential opportunities, adapting to changes, structural mechanisms, and aligning with specific directions. Mehdizadeh et al. (2019) found that task-oriented organizational culture impacts business efficiency and effectiveness (Mehdizadeh et al., 2019). This culture has a significant relationship with organizational effectiveness and strongly influences it, as well as being linked to reduced employee inefficiency (Terhorst et al., 2018).

The present study further revealed that "Role Culture" is one of the dimensions of organizational culture in the Fire Department based on Charles Handy's model. These results are consistent with the prior findings (Handy, 2011a, 2011b; Ketprapakorn, 2022). Role culture is commonly found in large, hierarchical, and bureaucratic organizations. The work approach of the organization is based on an individual's role or a specific task that needs to be completed. The value of stability, efficiency, and predictability takes precedence over individual needs. Organizational needs and goals are the result of planned efforts by top management to influence organizational outcomes and achieve goals through managing relationships between the organization and its environment (Silvius & Marnewick, 2022). Planning to achieve organizational goals involves behaviors that are aligned with organizational objectives and based on individual skills, helping individuals assess and control the extent to which strategic plans and goals are realized (Shahmohammadi, 2022).

The study also showed that "Existential Culture" is one of the dimensions of organizational culture in the Fire Department based on Charles Handy's model. These findings align with Handy's (2011b) research. In the first three cultures, individuals are subordinate to the organization, and their existence serves to help the

organization achieve its goals (Handy, 2011b). In existential culture, however, the organization exists to help individuals achieve their goals. Here, the talent and skills of individuals are the organization's greatest asset. This culture is ideal for organizations entirely reliant on the talent or skills of professional experts and exemplary employees (Ackoff, 2010).

Like other studies, this research faced limitations, such as sampling only from the city of Karaj. Therefore, caution should be exercised when generalizing the results. It is recommended that the scale developed in this study be used in related research.

Based on the findings of the Handy Organizational Culture Questionnaire and the analysis conducted through exploratory and confirmatory factor analyses, the following conclusions can be drawn:

1. The collected data support the two-factor structure of the Handy Organizational Culture Questionnaire.
2. The Handy Organizational Culture Questionnaire demonstrates convergent validity, with lower scores indicating a more dominant organizational culture within the organization.
3. Based on the Cronbach's alpha coefficients obtained for the two factors (organization and self), the factors in the Handy Organizational Culture Questionnaire exhibit acceptable internal consistency.

Given the results, this questionnaire can be introduced as a practical and suitable tool for assessing organizational culture in organizations in Iran. Managers and leaders can use the Handy Organizational Culture Questionnaire to identify their organizational culture and implement necessary changes, as success in any organizational transformation requires an assessment of the existing culture. Failure to do so increases the likelihood of setbacks in change initiatives. Thus, the use of this tool for measuring this construct in fire departments is recommended.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

Ethical Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

References

Abbasi, E., Kaboli N, Farhadian H. (2013). Study on organizational culture in conservation environment organization: Use of learning organization model. *Iranian Journal of Agricultural Economics and Development Research*, *44*(2), 317-328. https://doi.org/10.22059/ijaedr.2013.36728

Ackoff, R., Charles H, John P. (2010). *Differences That Make a Difference: An Annotated Glossary of Distinctions Important in Management* (1st ed.). Triarchy Press.

Chalmers, R., Brannan GD. (2024). *Organizational Culture*. StatPearls Publishing.

Darvishi, E., Sadeghi, F., & Saed Panah, K. (2015). Evaluation of effective factors on occupational stress in firefighting personnel [Research]. *Health System Research*, *11*(1), 184-192. http://hsr.mui.ac.ir/article-1-749-fa.html

Handy, C. B. (2011a). *Beyond Certainty: The Changing Worlds of Organisations* (1st ed.). Cornerstone Digital.

Handy, C. B. (2011b). *Gods of Management: The Changing Work of Organizations* (1st ed.). Souvenir Press.

Harel, R., Schwartz, D., & Kaufmann, D. (2020). Organizational culture processes for promoting innovation in small businesses. *Euromed Journal of Business*, *16*(2), 218-240. https://doi.org/10.1108/EMJB-03-2020-0027

IJIMOB

Javaheri et al.   International Journal of Innovation Management and Organizational Behavior 3:3 (2023) 212-220

Hossein Gholizadeh, R., Ghasemi, Z., Naseri Sadegh, S., & Ahmad Abadi, A. (2015). Assessment of the relationship between gender, culture and distribution of power in the organization. *Woman in Development & Politics*, *13*(2), 263-289. https://doi.org/10.22059/jwdp.2015.55993

Jo, S. J., & Joo, B.-K. (2011). Knowledge sharing: The influences of learning organization culture, organizational commitment, and organizational citizenship behaviors. *Journal of Leadership & Organizational Studies*, *18*(23), 353-364.

Ketprapakorn, N., Kantabutra S. (2022). Toward an organizational theory of sustainability culture. *Sustainable Production and Consumption*, *32*(1), 638-654. https://doi.org/10.1016/j.spc.2022.05.020

Lincoln, Y. S., Guba EG. (1985). *Naturalistic Inquiry*. Sage.

Mehdizadeh, P., Dopeykar, N., Ghaed, M., Akbari, S. M., & Kohestani, S. (2019). Investigating the underlying factors of the establishment of knowledge management in insurance organizations: case study in Social Security Organization [Orginal Research]. *Journal of Military Medicine*, *21*(4), 353-361. http://militarymedj.ir/article-1-2207-en.html

Mikušová, M., Klabusayová, N., & Meier, V. (2023). Evaluation of organisational culture dimensions and their change due to the pandemic. *Evaluation and Program Planning*, *97*(1), 1-13. https://doi.org/https://doi.org/10.1016/j.evalprogplan.2023.102246

Morais, G., Abdala, E., & Rebelatto, D. (2021). Remuneration strategies related to Charles Handy s cultural typology: a case study in a small digital market business in remote work. *Brazilian Journal of Operations & Production Management*, *18*(1), 1-13. https://doi.org/10.14488/BJOPM.2021.040

Nasaireh, M., Abdullah, A. H., & Obeidat, K. (2019). The relationship between cultural types according to handy's model and organizational structure in Jordanian public universities. *International Journal of Academic Research in Business and Social Sciences*, *9*(1), 973-985. https://doi.org/10.6007/IJARBSS/v9-i1/5495

Naveed, R. T., Alhaidan, H., Halbusi, H. A., & Al-Swidi, A. K. (2022). Do organizations really evolve? The critical link between organizational culture and organizational innovation toward organizational effectiveness: Pivotal role of organizational resistance. *Journal of Innovation & Knowledge*, *7*(2), 100178-100187. https://doi.org/https://doi.org/10.1016/j.jik.2022.100178

Rass, L., Treur, J., Kucharska, W., & Wiewiora, A. (2023). Adaptive dynamical systems modelling of transformational organizational change with focus on organizational culture and organizational learning. *Cognitive Systems Research*, *79*(1), 85-108. https://doi.org/https://doi.org/10.1016/j.cogsys.2023.01.004

Robbins, S. P. (2005). *Essentials of Organizational Behavior*. New Jersey: Person Education.

Selart, M., & Schei, V. (2011). Organizational Culture. In M. A. Runco & S. R. Pritzker (Eds.), *Encyclopedia of Creativity (Second Edition)* (pp. 193-196). Academic Press. https://doi.org/https://doi.org/10.1016/B978-0-12-375038-9.00049-2

Shahmohammadi, M., Ameri M, Shahmohammadi S. (2022). Designing organizational cultural model of ir armed forces using Grounded Theory Method. *Strategic Management Studies of National Defence Studies*, *11*(45), 120-195. https://smsnds.sndu.ac.ir/article_1727_91c947260cbef2ba26dfd55e77a784c0.pdf

Silvius, G., & Marnewick, C. (2022). Interlinking sustainability in organizational strategy, project portfolio management and project management a conceptual framework. *Procedia Computer Science*, *196*, 938-947. https://doi.org/https://doi.org/10.1016/j.procs.2021.12.095

Sorakraikitikul, M., & Siengthai, S. (2014). Organizational learning culture and workplace spirituality. Is knowledge-sharing behaviour a missing link? *Learning Organization*, *21*(3), 175-192. https://doi.org/10.1108/TLO-08-2011-0046

Terhorst, A., Lusher, D., Bolton, D., Elsum, I., & Wang, P. (2018). Tacit knowledge sharing in open innovation projects. *Project Management Journal*, *49*(4), 5-19. https://doi.org/10.1177/8756972818781628

Wang, B.-J., & Wang, D.-S. (2004). Organisational knowledge creation capability in Taiwan's manufacturing industry. *International Journal of Manufacturing Technology and Management*, *6*(1/2), 25-42. https://EconPapers.repec.org/RePEc:ids:ijmtma:v:6:y:2004:i:1/2:p:25-42

Wang, S., Abbas, J., Sial, M. S., Álvarez-Otero, S., & Cioca, L.-I. (2022). Achieving green innovation and sustainable development goals through green knowledge management: Moderating role of organizational green culture. *Journal of Innovation & Knowledge*, *7*(4), 100272-100282. https://doi.org/https://doi.org/10.1016/j.jik.2022.100272