

Identifying and Ranking Factors Affecting the Improvement of Human Resources in Relief Organizations in the Red Crescent Society of Yazd Province

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Abstract

INTRODUCTION: The improvement of human resources refers to the activities through which the employees continuously keep pace with the changes and growth of the organization. It involves the improvement of the skills, knowledge, and capabilities of the employees in the perceptual and operational dimensions to increase the efficiency of the employees' performance. The present study aims to identify and rank the factors affecting the improvement of human resources in relief organizations in the RCS in Yazd province.

METHOD: The present study is applied in terms of purpose and descriptive survey methodically. The statistical population included all the senior employees and experts of the RCS of Yazd province (478 people). About 215 people were selected based on Cochran's formula. Data analyzed using fuzzy SWARA and SPSS-24 software.

FINDINGS: According to the findings, 21 factors affecting the improvement of human resources in the RCS of Yazd province were identified and prioritized using the fuzzy SWARA technique. It gives this opportunity to decision-makers and policy-makers to choose their environment and strategy based on the current situation.

CONCLUSION: The results revealed that the highest weight or the most important factor is the implementation and evaluation system (development of group activities and team building).

Keywords: Human power; Human resources; Red Crescent Society; Fuzzy SWARA.

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Introduction

Knowledgeable, hardworking and productive human resources are maintained and preserved based on their improvement. According to the experts, the improvement of human resources is the same as empowerment, while others consider it as the qualitative development of human resources. All of them aim to empower, give power, strengthen skills, build self-confidence, and creates job qualifications in employees, so that in this way they can achieve better performance. It means that the capabilities of human resources consisting of the role, competence and skill of performing tasks in line with organizational affairs that lead to the realization of organizational goals have been

improved; in other words, capable human resources perform qualitative tasks with professional maturity, therefore the author has used the term "improvement".

Shafizadeh (2009) indicated that the current status of faculty improvement programs in Islamic Azad University is not desirable. Among the five dimensions of faculty improvement, only the mean scores of educational improvement were above average and the other four dimensions (research, individual, organizational, and ethical) were below average. The final model was designed in seven sections: philosophy and goals, dimensions and components, theoretical foundations, method, implementation process, facilitators, and the output of the model (1).

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Jamshidi (2011) investigated the performance of Shahid Beheshti University regarding the professional, individual, educational, and organizational dimensions of faculty improvement (2).

Pourkarimi (2012) presented the final model of improvement of senior managers of public organizations in three professional, organizational, and individual dimensions. Also, seven factors affecting scientific improvement were identified such as rules and regulations, provision of resources, planned action, organizational culture, structure and process, participation of members, and attitude of managers (3).

Ghanbari and Mohammadi (2016) classified the professional development model of Kurdistan industrial managers into six primary categories including causal conditions, central phenomenon, managers' professional development strategies, mediating conditions, intervening conditions and implications for the professional development of managers (4).

Ghanizadeh Graeili et al. (2020) identified the competencies required to improve teachers in eight dimensions including: pedagogical and subject knowledge, technology, research, self-growth, basic competencies, social-emotional, moral-spiritual, and professional identity (5).

Bizzell (2013) concluded that the professional improvement and development program of managers of public organizations in the state of Virginia is at a low level in terms of continuity and development, at a moderate level in terms of appropriateness with the goals of the organization and management area, and above the moderate level in terms of institutionalization of professional development. The most significant barriers to the professional development of managers in this study included the lack of professional development opportunities by the organization, the lack of professional development knowledge available to managers, and geographical barriers (6).

Kanokorn et al. (2016) also found that the greater satisfaction of most managers of industrial companies is determined by the effectiveness of

internal processes. Thus, they should improve their knowledge, skills, and professional qualifications and somehow improve human resources in their companies. Their results revealed that managers promote their professional development and improvement by using activities such as action research, strategic planning and structural leadership. The effective model of managers' professional development also includes dimensions such as needs assessment, targeting, empowerment, self-learning, focused seminars, action research, and continuous assessment (7).

Reston (2018) showed that the most significant professional standards for the improvement of experts include mission, vision, and fundamental values of educational leadership, ethics, observing professional norms, educational program, organizational justice and accountability, training and assessment methods, customer care and support process, improving the professional capabilities of experts, developing professional programs for experts, applying the capacities of associations related to companies, research orientation, and observing the principles of management and comprehensive improvement of the organization or company (8).

Khaef Ellahi et al. (2020) in their research, they found that according to the presented model, gaining a competitive advantage, improving the quality and capabilities of human resources, efficiency, entrepreneurship, etc. require the improvement of human resources and paying attention to its components, as the most important criterion for the management of human resources in the electricity industry (9).

Therefore, according to these studies and similar existing studies, the present study aims to identify and rank the factors affecting the improvement of human resources in relief organizations in the RCS of Yazd province in order to answer the questions: which factors optimize the human resources in the RCS of Yazd province and how to identify the optimization components of human resources.

Methods

The current applied research is a descriptive survey. Data was collected by library and field method. Experts and specialists of the RCS play a crucial role in the decision-making process regarding the volunteers needed.

The purpose of SWARA (Stepwise Weight Assessment Ratio Analysis) method is to calculate the weight of the factors and the relative importance of criteria more logically. By implementing this method in the fuzzy environment, the ambiguities in the words of the respondents are removed and the results are more accurate.

The steps of the fuzzy SWARA method are presented:

Step 1- The research factors were arranged in descending order based on their importance.

Step 2- Based on the spectrum of Table 1, the relative importance of factor j compared to factor $j-1$, which has a higher importance, is determined to reach the last factor. After determining all the relative importance scores of all experts, we obtained the geometric mean of the desired scores to integrate their judgments. The output of this step is the calculation of S_j (10).

Table 1. Linguistic terms and fuzzy SWARA numbers

Linguistic terms	Fuzzy triangular numbers
Equal importance	(1, 1, 1)
Relatively low importance	(1.5, 1, 0.67)
Low importance	(0.67, 0.5, 0.4)
Very low importance	(0.4, 0.33, 0.286)
Very low importance	(0.286, 0.25, 0.22)

Step 3- Calculation of the coefficient K_j

This coefficient is calculated using equation 1:

$$\text{Equation 1: } \tilde{K}_j = \begin{cases} \tilde{1} & j = 1 \\ \tilde{s}_j + \tilde{1} & j > 1 \end{cases}$$

Step 4- Calculation of fuzzy weights (q_j)

$$\text{Equation 2: } \tilde{q}_j = \begin{cases} \tilde{1} & j = 1 \\ \frac{\tilde{x}_{j-1}}{\tilde{k}_j} & j > 1 \end{cases}$$

Step 5- Calculation of relative weights

$$\text{Equation 3: } \tilde{w}_j = \frac{\tilde{q}_j}{\sum_{k=1}^n \tilde{q}_k}$$

The output of this step is the fuzzy relative weights in the form of (w_j^l, w_j^m, w_j^u) . Equation 4 is used to convert these weights into definite numbers.

$$\text{Equation 4: } W_{crisp} = \frac{(w_j^m - w_j^l) + (w_j^u - w_j^l)}{3} + w_j^l$$

These calculations will be done using fuzzy SWARA.

Statistical population and sample size

The statistical population in the construct validity section included all 478 senior employees and experts of the RCS of Yazd province. A total of 215 people were selected to calculate the sample size due to Cochran's formula.

In this study, in which the size of the population is known, the parameters are developed as follows (Equation 5):

$$\text{Equation 5: } n = \frac{NZ^2pq}{Nd^2 + Z^2pq} = \frac{(487)(1.96)^2(0.5)(0.5)}{487(0.05)^2 + (1.96)^2(0.5)(0.5)} = 215$$

In this formula:

n = sample size

N = the statistical population size (including 487 senior employees and experts of the RCS of Iran)

t or z =percentage of the standard error of the acceptable reliability coefficient

p =a proportion of the population without a certain attribute (e.g. the population of men)

q = $(p-1)$ a proportion of the population without a certain trait (e.g. the population of women)

d =degree of confidence or possible desirable accuracy

Based on the above formula, if we want the sample size with a population gap of 0.5 (that is, half of the population has a certain attribute), the other half will not have it. The z -value is mostly 1.96. D can be 0.01 or 0.05. To minimize the error, we use $p=q=0.5$. In the above formula, sampling is done at a 95% confidence level, and the of p,q value is considered at 5%. Therefore, the sample size is equal to 215 using the above formula. Also, the population size in this study is considered 215. Using Cochran's formula with an error percentage of 0.05, the sample size is considered to be 215 to distribute the questionnaire.

Testing the validity and reliability of the questionnaire

Before the final assurance of the measurement tools and their use in the primary steps of data collection, the researcher should find the necessary relative certainty regarding the reliability and validity of the questionnaire through scientific methods. Validity and reliability criteria are used for testing the fit of the research tool. Validity determines how well a

measurement tool measures a specific concept. The validity of the questionnaire in this study was confirmed by supervisors, advisors, and experts. After entering the data, the reliability coefficient (Cronbach's alpha) was calculated using SPSS-24 software (higher than 0.7) which indicates the high reliability of the questionnaire.

Findings

After examining relevant research backgrounds, the factors affecting the improvement of human resources in the RCS of Yazd province were identified (Table 2)

Table 2. Factors affecting the improvement of human resources

Row	Criteria for the improvement of human resources	Code
1	Employees' participation in improvement programs	C1
2	Needs assessment and educational planning	C2
3	Implementation and evaluation	C3
4	Use of new technologies	C4
5	Developing and expanding knowledge and job skills	C5
6	Continuous educational programs	C6
7	The organization's vision and mission	C7
8	Activation of reward and encouragement system	C8
9	Favorable organizational culture	C9
10	Expanding effective organizational communication	C10
11	Development of group activities and team building	C11
12	Improving problem-solving skills	C12
13	Knowledge management skills	C13
14	Creativity and innovation	C14
15	Interpersonal communication	C15
16	Decision-making skills	C16
17	Mental power and ability	C17
18	The role model of human resources	C18
19	Ethics	C19
20	Respecting the rules and regulations of the organization	C20
21	Research competencies	C21

Table 3. The weight of the criteria according to the first expert

Code	w _j fuzzy	w _j fuzzy	Q _j	K _j	S _j
C3	0.281115	0.244,0.279,0.321	1,1,1	1,1,1	-
C13	0.112975	0.081,0.112,0.146	0.333,0.401,0.455	1.286,1.33,1.4	0.286,0.33,0.4
C2	0.090733	0.063,0.089,0.12	0.259,0.321,0.373	1.22,1.25,1.286	0.22,0.25,0.286
C17	0.047209	0.025,0.045,0.072	0.103,0.16,0.223	1.67,2,2.5	0.67,1,1.5
C4	0.032041	0.015,0.03,0.051	0.062,0.107,0.16	1.4,1.5,1.67	0.4,0.5,0.67
C15	0.021832	0.009,0.02,0.037	0.037,0.071,0.114	1.4,1.5,1.67	0.4,0.5,0.67
C16	0.014931	0.005,0.013,0.026	0.022,0.048,0.081	1.4,1.5,1.67	0.4,0.5,0.67
C11	0.012076	0.004,0.011,0.021	0.017,0.038,0.067	1.22,1.25,1.286	0.22,0.25,0.286
C14	0.009769	0.003,0.008,0.018	0.013,0.03,0.055	1.22,1.25,1.286	0.22,0.25,0.286
C12	0.006718	0.002,0.006,0.013	0.008,0.02,0.039	1.4,1.5,1.67	0.4,0.5,0.67
C5	0.003756	0.001,0.003,0.007	0.004,0.011,0.023	1.4,1.5,1.67	0.4,0.5,0.67
C20	0.003047	0.001,0.002,0.006	0.003,0.009,0.019	1.22,1.25,1.286	0.22,0.25,0.286
C6	0.002110	0,0.002,0.004	0.002,0.006,0.013	1.4,1.5,1.67	0.4,0.5,0.67
C7	0.001466	0,0.001,0.003	0.001,0.004,0.01	1.4,1.5,1.67	0.4,0.5,0.67
C8	0.001125	0,0.001,0.002	0.001,0.003,0.007	1.286,1.33,1.4	0.286,0.33,0.4
C9	0.000914	0,0.001,0.002	0.001,0.002,0.006	1.22,1.25,1.286	0.22,0.25,0.286
C10	0.000703	0,0,0.002	0,0.002,0.005	1.286,1.33,1.4	0.286,0.33,0.4
C18	0.000540	0,0,0.001	0,0.001,0.004	1.286,1.33,1.4	0.286,0.33,0.4
C19	0.000415	0,0,0.001	0,0.001,0.003	1.286,1.33,1.4	0.286,0.33,0.4
C21	0.01063	0,0,0.001	0,0.001,0.002	1.22,1.25,1.286	0.22,0.25,0.286
C1	0.000114	0,0,0	0,0,0.001	1.286,1.33,1.4	0.286,0.33,0.4

In the following, first the necessary and primary data were collected through a questionnaire and then they are calculated using the fuzzy method so that after determining the final weights of each factor, their ranking is also determined and ranked.

The procedure of working with the fuzzy SWARA process in the analysis of the results

The purpose of this section is to weight and prioritize research factors. The first step of the fuzzy SWARA method is the ranking of these factors by experts. Therefore, 21 criteria were provided to 215 experts and they were asked to rate the indicators from 1 to 21 (Table 3).

In the second step, the criteria should be sorted in descending order for all 15 experts (the criterion with rank 1 is placed at the top and the criterion with rank 21 is placed at the bottom). Then, the relative importance of each criterion j compared and determined to the criterion j-1 based on the spectrum of Table 1. The output of this step is the values of Sj.

In the next step, using relations 1, 3 and 3, the weight of the criteria is calculated based on the opinions of expert 1 (Table 3).

Column Wj is the weights of criteria e.g. for the C21 criterion, different values are calculated as follows:

Equation 6: $K_{C21}(1,1,1) + S_{C21}(1.22,1.25,1.286)$

Equation 7: $q_{C21} = \frac{q_{j-1}}{K_j} = \frac{q_{C21}}{K_{C21}} = \frac{(1,1,1)}{(1.22,1.25,1.286)} = (0.778,0.8,0.82)$

Equation 8: $W_{C21} = \frac{q_j}{\sum q_j} = \frac{q_{C21}}{\sum q_j} = \frac{(0.778,0.8,0.82)}{(3.116,3.587,4.103)} = (0.19,0.223,0.263)$

Also, to calculate non-fuzzy W based on equation 4, we have:

Equation 9: $fuzzy = \frac{(w_j^m - w_j) + (w_j^n - w_j)}{3} + w_j = \frac{(0.223 - 0.19) + (0.263 - 0.19)}{3} + 0.19 = 0.01063$

The final weight of the criteria

For other research experts, fuzzy calculations are also done. To calculate the final weights, it is enough to take an average of the weights of the criteria compared to the experts' opinions (Table 4). These weights are shown as the output of fuzzy SWARA software in Figure 1.

Ranking of factors affecting the improvement of human resources in the RCS of Yazd province:

To answer this question, research factors were weighted and prioritized. Therefore, 21 identified criteria were provided to 15 experts and they were asked to rank the indicators from 1 to 21. The results of data analysis and prioritization with fuzzy SWARA are as described in Table 5.

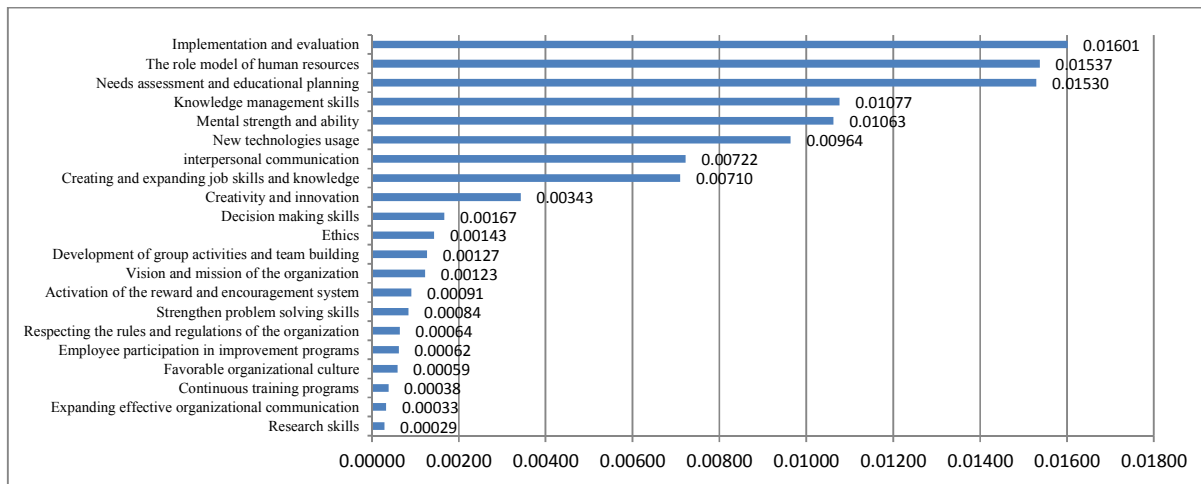


Figure 1. Weights of factors affecting the improvement of human resources based on the output of fuzzy SWARA software

Table 5. Prioritization of factors affecting the improvement of human resources

Priority	Criteria for the improvement of human resources
1	Implementation and evaluation
2	The role model of human resources
3	Needs assessment and educational planning
4	Knowledge management skills
5	Mental power and ability
6	New technologies usage
7	Interpersonal communication
8	Developing and expanding job skills and knowledge
9	Creativity and innovation
10	Decision-making skills
11	Ethics
12	Development of group activities and team building
13	The organization's vision and mission
14	Activation of the incentive and reward system
15	Strengthen problem solving skills
16	Respecting the rules and regulations of the organization
17	Employee participation in improvement programs
18	Favorable organizational culture
19	Continuous educational programs
20	Expanding effective organizational communication
21	Research competencies

Discussion and Conclusion

The present study aimed to identify and rank the effective factors in the improvement of human resources in the RCS of Yazd province. The obtained results are analyzed as follows. To identify the factors affecting the improvement of human resources in the RCS of Yazd province after reviewing relevant research backgrounds, the factors affecting the improvement of human resources in project-oriented organizations were identified as described in Table 2. These factors are effective in the improvement of human resources in the RCS of Yazd province. To rank the factors affecting the improvement of human resources of the RCS of Yazd province, the research factors were weighted and prioritized. To achieve these goals, 21 identified criteria were provided to 15 experts who were willing to cooperate and they were asked to rank the indicators from 1 to 21. After analyzing the data in fuzzy SWARA software, the results of their prioritization are described in Table 5.

Improved human resources are one of the most significant and stable organizational resources. In all comprehensive models of organizational excellence, great attention is paid

to knowledge enhancement, training, and improvement of employees as a vital and effective enabler of the performance and excellence of employees and organizations. Most of the leading organizations make extensive investments to enhance knowledge and improve human resources due to the importance, contribution, and role of knowledge, attitude, and capability of human resources in the performance of people and organizations.

Environmental changes and challenges suggest that success in the area of competition, especially global competition, is largely affected by the role of knowledgeable, skilled, and capable human resources. In other words, improving human resources in organizations is a type of mutual commitment between individuals and organizations. Within the framework of this mutual obligation, people have certain rights such as benefiting from the opportunity of continuous development and improvement by performing the assigned tasks.

Some organizations face difficulties in attracting long-term volunteers and improving them, especially in the difficult conditions of natural and unnatural disasters despite the importance and value of improving human

resources in the success of organizations and societies. In such a situation, human resources on a national and international scale are deprived of the appropriate capacities to show their capabilities and talents, or the RCS fails to attract them. In this study, 21 factors affecting the improvement of human resources in the RCS of Yazd province were identified. Then, these factors were prioritized using the hierarchical technique. The highest weight or the most important factor was the implementation and evaluation system in these organizations, followed by the role model of human resources, which was placed in the second priority.

The results of Kanokorn et al. (2016) revealed that the effective model of the professional development of managers includes dimensions such as implementation and evaluation, knowledge management skills, and mental power and ability are the most important factors. Their results are consistent with those of the present study.

Reston (2018) showed that the professional development program is the most important professional standard for the improvement of experts. The mentioned study results are consistent with those of the present study.

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Conflict of Interests

The authors have no conflict of interest.

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