Evaluation of Performance of the Applied Science Centers of Iranian Red Crescent Society Concerning Crisis Management

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Original Article

Abstract

INTRODUCTION: The present study was conducted with the aim to evaluate the performance of the applied science centers of the Iranian Red Crescent Society (IRCS) in crisis management.

METHODS: In this descriptive-survey study, 167 out of 295 managers and experts of the applied science centers of the IRCS were selected on the basis of the Cochran formula. To examine the study variables, a questionnaire including 37 items and 2 parts evaluating performance and crisis management was employed. The financial, customer, internal processes, and growth and learning performances were measured in the performance assessment section, and the 6 dimensions of flexibility, inclusion, trust, risk perception, fairness, and consistency were measured in the crisis management part. The reliability, content validity, and construct validity of the questionnaires were confirmed by Cronbach's alpha coefficient, a group of university professors, and confirmatory factor analysis (CFA), respectively. Then, inferential statistical methods such as the Kolmogorov-Smirnov (K-S) test were used to ensure the normal distribution of data, and the structural equation model, Pearson correlation test, chi-square test, two-sample t-test, and one-sample t-test were used in the LISREL and SPSS software to test the hypotheses.

FINDINGS: The performance of the applied science centers of the IRCS in crisis management was higher than the average level based on the balanced scorecard (BSC) model. In addition, in terms of the 4 characteristics of financial performance, customer performance, internal process performance, and growth and learning performance, the crisis management performance of this organization was at a desirable level.

CONCLUSION: It seems that policymakers, while maintaining the current situation, should plan for the development of crisis management, as well as for providing the ground for continuous improvement and better performance in this area.

Keywords: Evaluation; Crisis Management; Balanced Scorecard; Applied Science Centers; Iranian Red Crescent Society

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Introduction

Continuous improvement of performance of an organization will not be realized without assessment of and knowledge on its progress, achievement of goals, identification of challenges ahead, gaining of feedback, knowledge on the extent to which policies are implemented, and identification of cases needing serious improvement (1). This is not possible without measurement and evaluation (2, 3).

Since performance evaluation leads to system intelligence and motivation of individuals to perform a desirable behavior, scholars and researchers consider it as a major issue in

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organizational analysis, and find it difficult to imagine an organization without performance measurement (4).

Each organization adopts different criteria for its performance evaluation, depending on the goals, strategies, and model used to measure its performance (1).

In this regard, awareness of performance in all aspects of the organization is crucial for the managers to make a decision, and in order to achieve this objective, organizational performances must be measured accurately and expressed perceivably. These measures should not only be regarding the mission and perspective of the organization, but should also cover all aspects of organizational performance. Through creating these measures, using measurement indicators, and assessing organizational performance, the balanced scorecard method leads to an enhancement in awareness of the level of progress in organizational performance improvement, in addition to providing the motivation and opportunity to enhance organizational performance (1).

The balanced scorecard indicates business unit strategies in the form of a set of causal relationships in the four dimensions of finance, customer, internal processes, and growth and learning. In this method, there are separate causal relationships between goals and indicators. The balanced scorecard is capable of improving both the current performance (finance, customer satisfaction, internal process outcomes) of an organization, and efforts for the modification process, staff training, and increasing information systems (5). Since the perception of customers and responding to their requirements are critical factors in quality management systems needed to improve processes and products, the expectations of customers are manifested in this way (6).

Using the balanced scorecard model provides managers with insight into employee experiences and specifies the growth and information learning measures necessary for employee satisfaction and their lack of relocation from the organization, leading to more productivity and profit (6). Moreover, it allows managers to easily monitor the performance of staff and investigate the results (5). As a management tool in strategy implementation, this technic presents a structured and semi-standard report with a focus on the overall view of the collection performance (7).

Balanced scorecard seems to be a suitable method for the evaluation of the performance of educational centers affiliated with executive agencies. The most important goal that encourages executive organizations to launch dedicated training centers is to enhance productivity and continuously improve the delivery of committed services through improving the level of knowledge and skills among employees and relevant individuals regarding the strategies specified, and ultimately to achieve organizational transcendental goals with low and beneficial cost with a long-term effect (8).

The Iranian Red Crescent Society (IRCS) is a public institution that serves as a government trustee in rescue and public education and in addition to helping people injured in natural and man-made disasters, provides humanitarian services to vulnerable people in the society. Therefore, in order to upgrade the provision of its committed services, the IRCS has established higher education centers for applied science. Since achieving the goals of the society relies on its organizational performance, it directly depends on the ability, expertise, and skill of the staff in providing services (8).

Accordingly, the performance of educational centers in training and enhancing the ability of learners can be considered as a sign of the performance of organizational services (9). Thus, the evaluation of performance of the IRCS applied science centers can indicate assessment of performance of the society in its service provision. This society is currently active with 34 higher education centers, 4480 trainers, and 32500 graduates in disaster relief and the field of rescue in associate and graduate courses in the country. Given the wide range of training activities, the evaluation of the performance of IRCS higher education centers for applied science in the country using the balanced scorecard method was chosen as the objective of the present study.

In this study, the performance of the IRCS higher education centers for applied science in crisis management was examined based on the balanced scorecard model in the four areas of financial performance, customer performance, internal processes performance, and growth and learning performance considering demographic variables.

Methods

The present investigation was a descriptive-survey and an applied study.

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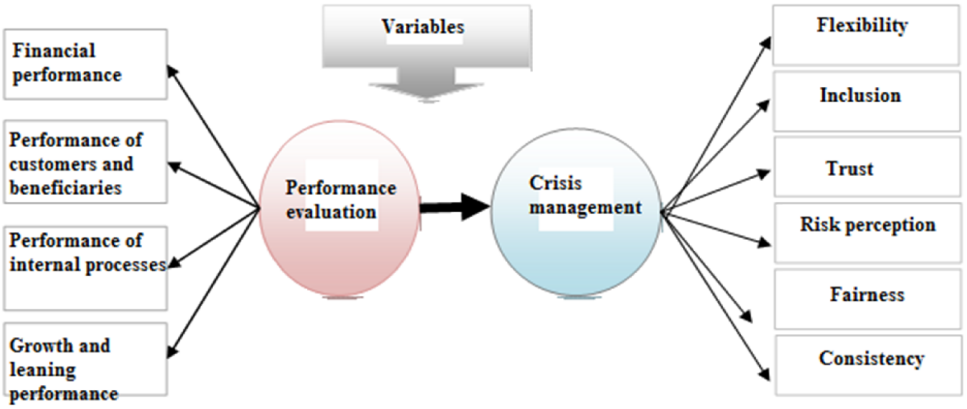

Figure 1. Conceptual model of the study

Part of the study data in the first stage was collected through a library validity study from databases such as Scopus, Google Scholar, PubMed, and Science Direct, international information systems, reports on performance of the applied science education system in the countries studied, and with an emphasis on the keywords of evaluation (crisis management, balanced scorecard, applied science centers, and IRCS). Moreover, part of the data was obtained through field evaluation of the IRCS applied science centers around the country. The documentary data collection method was utilized in the library stage and a questionnaire was adopted for the field survey. The conceptual model of the study is demonstrated in figure 1.

The study areas in the three thematic, spatial, and temporal domains included issues associated with performance evaluation and crisis management in the applied science centers of the IRCS in 2017. The two main variables of the study were "crisis management" and "performance evaluation". Crisis management was evaluated using the crisis management standard questionnaire with 6 dimensions and 17 items in the areas of flexibility, inclusion, trust, risk perception, fairness, and consistency. Performance evaluation was assessed using the Standard Balanced Scorecard (BSC) questionnaire proposed by Robert Kaplan and David Norton with 4 dimensions and 20 items. The indicators of each of the four main factors of performance were measured in the areas of growth and learning (human resources, intangible capital of the organization, and information systems), organizational internal processes, customers and beneficiaries, and finance, and the transfer and perception of mission, vision, strategies, and functional expectations regarding all internal and external beneficiaries of the organization were investigated.

The questionnaires consisted of three sections, including an explanation of how to complete the questionnaire, a demographic characteristics form, and the two questionnaires. Regarding the modifications made in the questionnaire to match the TRCS applied science centers, the validity and reliability of the above tool were measured again. For formal validity, a poll was held among the experts on each item and the poll purpose evaluation was conducted, which was confirmed by minor modifications.

Cronbach's alpha test was employed to measure the reliability of the tool, obtaining values of more than 0.7 for both variables, and thus, indicating the reliability of the questionnaire. The items were scored based on a 5-point Likert scale ranging from 1 to 5 with options of very low, low, moderate, high, and very high. Finally, a questionnaire with 37 closed questions (20 and 17 questions, respectively, for assessing the variables of performance evaluation and crisis management in 4 and 6 dimensions) was obtained.

The most important inclusion criteria for entering the respondents into the study was being a manager or expert in the applied science centers of the IRCS with at least 2 years of work experience.

The study population accounted for 295 managers (n=34) and experts (n=261) in the applied science centers of the IRCS. The lowest sample size was determined to be 167 individuals using the Cochran formula.

$$n = \frac{(295)\left(\frac{1}{96}\right)^2\left(\frac{0}{5}\right)\left(1-\frac{0}{5}\right)}{(295-1)\left(\frac{0}{05}\right)^2+\left(\frac{1}{96}\right)^2\left(\frac{0}{5}\right)\left(1-\frac{0}{5}\right)} \approx 167$$

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Table 1. Demographic characteristics of participants

Characteristics of respondents		Frequency	Percentage
Sex	Male	112	0.67
	Female	55	0.33
Age (year)	≤ 30	11	0.70
	31-40	80	0.48
	41-50	69	0.41
	≥ 50	7	0.40
Marital status	Married	149	0.89
	Single	18	0.11
Education	PhD. degree	9	0.60
	Master's degree	109	0.65
	Bachelor's degree and lower	49	0.29

Taking into account the homogeneity of the study society, including two groups of managers and experts with unequal numbers, proportionate stratified random sampling method was used. The subjects were randomly selected from the study population consisting of managers (n=19) and experts (n = 148).

In the next stage, of the questionnaires distributed, 167 completed questionnaires were used in the analysis. The return rate of the questionnaires was 75% on average. To analyze the descriptive data, the frequency tables and graphs were first set, and then, the central and dispersion indices were calculated. To investigate the normal distribution of the study data, the Kolmogorov-Smirnov (K-S) test was used in the SPSS software (version 19.0, SPSS Inc., Chicago, IL, USA). Confirmatory factor analysis (CFA) was used to examine all the indicators of the questionnaire. In addition, the structural equations model was used to check (confirm or reject) the study hypotheses in the LISREL software (version 8, Scientific Software International Inc., Lincolnwood, IL, USA).

Findings

The study participants were 167 individuals, including 19 managers and 148 experts. The demographic characteristics are presented in Table 1. Based on the results presented in Table 2, the average of all variables is higher than the theoretical average (3), indicating the appropriate status of the study variables. In addition, given the results of the K-S test for determining the normal distribution of the data and findings related to the CFA of the questionnaire structure, all variables exhibited a significance level of greater than 5%, thus confirming the significance level of the assumption of the normal distribution of the study variables.

CFA findings on the questionnaires in the standard form showed that the standard path coefficient of the relationships was more than 0.3, indicating that the questions were of good power of explanation. Moreover, the significance level of the standard path coefficient of relationships was higher than 1.96. Therefore, it can be declared that all factor loads and path coefficients of the model were significant. Furthermore, all of the general criteria of fitting of the CFA indicated the total fitting of the proposed model with the data and the appropriate fitting of the measurement model.

Performance of the IRCS applied science centers in crisis management based on the balanced scorecard model: According to the results presented in Table 3, since the significance level of the data was less than 5%, the obtained mean values (4.27 and 4.18) were significantly higher than the fixed mean values (3).

Based on the Pearson correlation test, the relationship between the performance of the applied science centers and crisis management system showed a correlation coefficient of 0.804.

Table 2. Descriptive statistics of the study variables and the results of the Kolmogorov-Smirnov test

Variable	Mean	SD	Z	P
Financial performance	4.35	0.497	2.04	0.080
Customer performance	4.28	0.571	1.78	0.134
Internal processes performance	4.13	0.590	1.57	0.145
Growth and learning performance	4.32	0.507	0.687	0.555
Performance	4.38	0.456	0.976	0.297
Crisis management	4.18	0.535	1.84	0.091

SD: Standard deviation

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Table 3. One-sample t-test results of the evaluation of the performance of the applied science centers of the Iranian Red Crescent Society in crisis management based on the balanced scorecard model

Group	Obtained mean	Fixed mean	Degree of freedom	T statistic	P
Performance	4.27	3	166	121.178	0.001
Crisis management	4.18	3	166	101.188	0.001

In addition, its correlation coefficient with flexibility, inclusion, trust, risk perception, fairness, and consistency was 0.704, 0.673, 0.710, 0.663, 0.764, and 0.520, respectively ($P < 0.001$ for all cases). Moreover, the mean values for financial, customer, internal processes, and growth and learning performances of the applied science centers of the IRCS in crisis management were higher than the fixed mean (3) (Table 1). Furthermore, the 6 components of crisis management including fairness, flexibility, inclusion, risk perception, trust, and consistency were respectively higher than the fixed mean.

Given the tests conducted, sex and marital status had no significant effect on performance. However, age and education had a significant effect on the performance variable (Table 4).

In this regard, there was no significant difference in the mean values of crisis management performance between men (4.30) and women (4.25) ($P = 0.540$), as well as between married (4.29) and single individuals (4.22) ($P = 0.666$). In terms of educational degree, there was no significant difference in the mean crisis management performance among individuals with a Ph.D., master's degree, and bachelor's degree with values of 4.33, 4.31, and 4.19, respectively ($P = 0.060$). However, the mean performance of individuals in the age ranges of 31-40 years (4.30) and 41-50 years (4.29) were significantly higher compared to the subjects under the age of 30 years (4.25) and above 50 years of age (3.92) ($P = 0.021$).

Conclusion

According to the findings of the current study, the performance of the IRCS applied science centers in crisis management, based on the BCS model, was higher than the average and at the desired level. In addition, there was a significant relationship between the performance of these centers and crisis management in these centers with a high correlation coefficient (0.804).

In examining the effect of demographic variables (gender, marriage, age, and education) on the performance of the applied science centers of the IRCS in crisis management, the results revealed that the age and education variables did not have an effect on the performance variable. However, there was a significant difference between the mean levels of age and education, indicating their effect on the performance variable. Moreover, the average performance in the two age ranges of 31-40 and 41-50 years had higher values with the highest effect on performance.

Based on the present study, the mean financial performance (4.35), customer performance (4.28), internal processes performance (4.13), and growth and learning performance (4.24) of the applied science centers of the IRCS in crisis management were higher than the average levels, illustrating the effect of these performances on crisis management.

In such circumstances, in order to preserve and maintain the status quo and to continuously improve the performance of the centers in the area of crisis management, the following fundamental and effective steps are recommended:

– Purposefulness of the research budget of the centers in line with the goals and missions of the IRCS;

– Scientific and skill-based empowerment of staff, managers, and students based on needs assessment and short-term training courses;

– Establishing support programs to create motivation, strengthen self-confidence, and reduce psychological damage caused by crises in individuals;

Table 4. Chi-square test results to examine the effect of the demographic variables on performance

Variable	Chi-square	Degree of freedom	Significance	Result
Gender	30.40	44	0.941	Rejected
Marital status	30.84	44	0.933	Rejected
Age	135.96	132	0.039	Confirmed
Education	67.17	88	0.025	Confirmed

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– Improving the level of instructors and students based on a review of setting the conditions for selection, such as expertise, experience and skill, and motivation;

– Providing incentive programs to achieve research-scientific achievements, innovations, and inventions in line with programs to diminish the vulnerability of the community to hazards, and establish a communication bridge to the world's superior universities in the crisis field;

– Revision of educational processes for flexibility and updating in accordance with global changes in applied training;

– Planning to encourage the whole attitude toward hazards in crisis management;

– Realistic and periodic assessment of the performance of educational centers to maintain activities in line with the goals and strategies of the IRCS in crisis management.

The most important limitations in this study included the lack of unanimous comprehension of the questionnaire items by the members, the lack of access of the researchers to the level of accuracy, lack of interest and motivation of the subjects in answering the questions, the relatively weak cooperation of some of the managers and employees, particularly the senior executives, the unwillingness of some of the rescue managers to cooperate due to their large volume of work in office hours, unwillingness and lack of attention of some respondents to research work, managers' underestimation of the capability of application of the study findings, especially among some crisis employees and managers. It is recommended that these limitations be considered in future studies.

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Conflict of Interests

Authors have no conflict of interests.

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