Research on Enterprise Management Model Based on Leadership Quality Model

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Abstract. Leadership is one of the core competitiveness of all human organizations. In the face of the rapidly changing information age, it is an urgent and important task for enterprises to cultivate high-quality employees to adapt to career development and social needs. The quality model of leadership should be the basis of the development of enterprise leadership model. An effective leadership quality model can clearly define which leadership qualities are needed for the success of an enterprise. This article puts forward a leadership quality assessment model based on fuzzy C-clustering (FCM). It is verified by an example and the related results are discussed. The experimental results show that compared with ID3-based teaching assessment model, the prediction accuracy of this method is improved by 15.65% and the error is reduced by 20.17%. Through this model, the leadership of enterprise managers can be scientifically and reasonably evaluated, and the weak links in management services can be found, which can provide scientific basis for improving the overall management service level of enterprises.

Keywords: Leadership; Enterprise management; Competitiveness.

1. Introduction

Nowadays, China's economy has entered a period of rapid development. In order to meet the needs of social development, it is particularly important to improve social service capacity and strengthen the special construction of talent team, especially the selection and training of leading talents [1]. In the new era, the market environment is unpredictable, and enterprises are facing all kinds of challenges, each of which needs a special leader, so the success or failure of an organization often depends on the ability of the leader [2-3]. The study of leadership transcends academic fields such as management, economics and sociology, and is a comprehensive exploration of theoretical and practical circles. Based on the background of economic change, to develop leadership, we must start with factors such as coping with competition and strategic challenges, strategic and systematic planning, and the support of flexible systems and mechanisms [4].

Leadership assessment can help human resource management to complete the demand analysis of related development, and then study the types, personalities, characteristics, abilities, qualities, management skills, cognitive level, etc. of reserve talents, and locate the advantages and disadvantages of reserve talents [5-6]. The success or failure of today's enterprises depends largely on the leadership of enterprises, and the success or failure of enterprises is increasingly influenced by the level of leadership. Based on this, many enterprises began to pay more and more attention to leadership construction. Leadership assessment is an important part of leadership construction. Only through effective assessment can we really find problems and find improvement points. Leadership assessment is a prerequisite for leadership construction [7]. At present, more and more research and practice show that enterprises must attach great importance to human resources if they want to gain competitive advantage. As an important part of enterprise human resources, managers play a particularly important role because of their special position in enterprise management decision-making activities [8-9]. In traditional human resource management, the selection, training and assessment based on job analysis to determine the job requirements of managers can no longer meet the new requirements brought about by changes in production, technology and management environment [10]. This article puts forward a leadership quality model based on FCM, and verifies it through an example and discusses the related results.

2. Methodology

2.1 Elements and composition of dynamic quality model of leadership

The strength and components of leadership generally change with the nature of the enterprise, personnel structure and different stages of development. This determines the variability of the leadership model. In the construction of leadership, in the past, it was usually emphasized that the ability was outstanding, but at present it is focused on personal quality [11]. Because the ability can be obtained from many aspects, such as resource integration, teamwork, stakeholders and social provision. However, if it is quality or its own characteristics, only some of them can be obtained through training, while others are quite difficult to train. In some institutions, some leaders in order to attract and stimulate workers or personnel related to the interests of the unit under special circumstances to achieve the competitive advantage between teams, and then promote performance improvement.

Excellent enterprise managers are not only good at motivating themselves with passion, but also good at using passion to amplify the enthusiasm of employees and make them create impressive achievements [12]. Good determination is a necessary quality for an outstanding manager. In order to get the most authentic and effective assessment results, we should ask all the participants to give objective answers without being biased. Leadership assessment can't reflect the effectiveness alone, but also needs to build a whole process of construction system, so that leadership assessment can play its optimal function. Make a statistical survey of the existing talents in the unit, analyze the management skills, management styles and abilities of employees, and understand and master the advantages and disadvantages of the talents in various aspects. Then, according to the demand for the comprehensive ability of talents in the development of the unit, it is clear in which aspects the talents of the unit need to be developed.

Looking at the development of enterprises, no matter what industry, nature or environment they are in, managers with strong work passion, determination and execution are the fastest growing and most dynamic enterprises, especially some new private enterprises in the Yangtze River Delta and Pearl River Delta regions with active markets. Whether the executive power is in place can not only reflect the overall quality of the enterprise, but also reflect the role orientation of the manager. The key to execution lies in influencing employees' behavior through corporate culture. When people's work passion is exhausted, it is also necessary to strengthen the execution to maintain the stability and order of the team, so that the team can maintain efficient and continuous operation and play its functions perfectly. A quality model of leadership should be established, and the responsibilities, goals and values of the unit should be clearly put in place. And conduct face-to-face interviews with middle-level managers with training potential, analyze their qualities under the established background, and then compare them with the qualities of successful managers in the same field.

2.2 Assessment model of leadership quality

Generally, small enterprises mainly rely on the passion of several managers, hands-on implementation, and make decisions according to personal perception and experience. This is not very demanding for leadership. After the scale of the enterprise is bigger, the management mode needs to be adjusted accordingly, and more needs to be completed by organizations and teams, which requires effective leadership to ensure the operation. This requires a relatively large weight in execution, motivation, communication and influence. For a long time, the factors that describe leadership are mainly measured according to managers' personal characteristics and job responsibilities, which ignores the influence of environmental managers' leadership, so it is one-sided and uncertain. The assessment of leadership must examine two important constraint variables, job requirements and environment. The framework of leadership quality assessment based on FCM is shown in Figure 1.
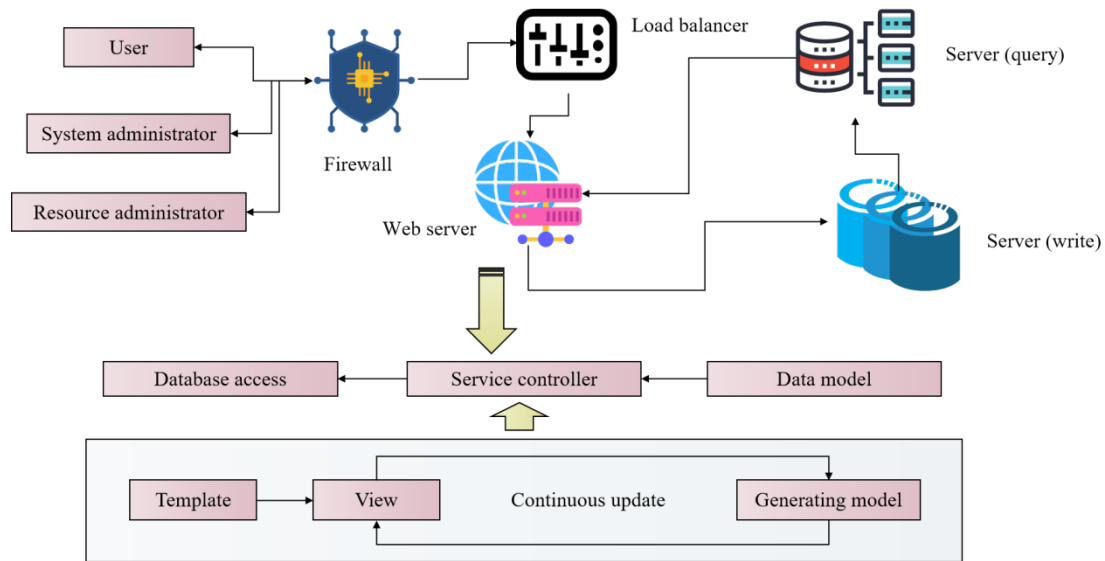
Figure 1 FCM-based leadership quality assessment framework

From the perspective of staffing in human resource management, managers engaged in different businesses in different positions have different requirements for their abilities. In the case of limited time and energy of managers, to maximize their effectiveness, we must use their strengths and be targeted. Assuming that the object to be evaluated (enterprise manager) is s_1, s_2, L , s_k, the decision index (assessment value) is y_1, y_2, L , y_n, and the whitening quantity of the i-th decision-making index is $d_{ij}(i=1,2,L , j=1,2,L ,n)$, the standard function of the i-th decision-making index is:

$$f_i(i=1,2,L ,n) \tag{1}$$

The sample matrix D is constructed according to the statistical data d_{ij}, and the standard function f_i and the decision sample coefficient are determined. The grey statistic of the assessment of the i-th object belonging to the j-th class is:

$$\delta_{ij} = \sum_{k=1}^{n} f_j(y_k)d_{ik} \tag{2}$$

The gray weight of the i-th object belonging to the j-th class is:

$$r_{ij} = \frac{\delta_{ij}}{\sum_{k=1}^{n} y_{ik}} \tag{3}$$

Construct the decision vector $r_i = (r_{i1}, r_{i2}, L , r_{im})$, and finally make a decision. Find in the decision vector r_i:

$$r_{ik} = \max_{1 \le k \le m} r_{ik} \tag{4}$$

The assessment result is that the i-th object belongs to y_k. The prediction after data processing is mainly based on the huge data support, and the continuous value function of the data model is created according to the modeling equation, so that a prediction and analysis can be obtained according to the fluctuation and trend of the next data of these functions. In this function model, a lot of other data can be inferred divergently from the data.

Grass-roots managers, middle-level managers and senior managers of enterprises have different job responsibilities, authorities and requirements, which determines that managers at different levels have different weights for various elements of leadership. Although modern leadership scholars have abandoned the theory of pure idiosyncrasy, the idiosyncrasy of managers is still a recognized source

of leadership. In the initial stage of an enterprise, leaders should pay more attention to family management and cultivate the work passion of every employee. In terms of determination and execution, it depends more on its own strength, and other factors are generally not considered too much. Different from the general psychological assessment report, the leadership assessment report should be expressed in the language of the enterprise, and both the advantages and disadvantages of the evaluated person should be described in the context of the enterprise. Only in this way can it provide valuable reference for the personnel decision-making of the enterprise.

Different enterprises and the same enterprise at different stages of development not only have differences in the elements of the outer ring layer of the model, but also have different requirements for the weight of each element in the model. Set the factor set U and the assessment grade set V of leadership quality assessment object s:

$$U = \{u_1, u_2, \ldots, u_m\} \tag{5}$$
$$V = \{v_1, v_2, \ldots, v_m\} \tag{6}$$

Fuzzy assessment is carried out on each factor in U according to the grade index in the assessment set, and the assessment matrix is obtained:

$$R = (r_{ij})_{n \times m} \tag{7}$$

In which r_{ij} represents u_i's membership degree with respect to v_i. After determining the importance index of each factor, record it as:

$$A = \{a_1, a_2, \ldots, a_m\}, \quad \sum_{i=1}^{n} a_i = 1 \tag{8}$$

After normalization, the following results are obtained:

$$B = \{b_1, b_2, \ldots, b_m\} \qquad \qquad === \tag{9}$$

The determination of each element of the model is carried out according to the degree of importance, and each element contains many small support points. The feedback of assessment results should not only clarify the advantages and disadvantages of the evaluated person, but also open the assessment person. It is an opening for them to help the assessed clarify their blind spots and let them accept the facts. This kind of opening requires a very superb art of conversation, and requires the appraiser to have a very profound understanding and understanding of human nature and life.

3. Result Analysis and Discussion

In the process of cultivating talents by using various educational resources, excellent teaching and management teams will provide a strong guarantee for good teaching. Economics believes that the best combination of factors can maximize profits. How to give full play to the leadership of middle managers and make the management team co-ordinate the limited financial and material resources with an efficient management model to maximize their effectiveness is a realistic problem faced by middle managers in enterprises and an important factor affecting their leadership. The innovation and development of enterprise management can not be separated from the application of leadership assessment method to a great extent. In this regard, we must adhere to the cultural perspective, pay attention to the implementation of anonymous assessment, and improve the work in the whole process of assessment, so as to promote the quality and efficiency of enterprise management. The test samples are respectively input into two assessment models for testing, and the scatter diagram of using ID3 algorithm to test the test samples is shown in Figure 2. The scatter diagram of the test using FCM assessment model is shown in Figure 3. The points on the graph represent the ratio of the predicted value to the actual value.
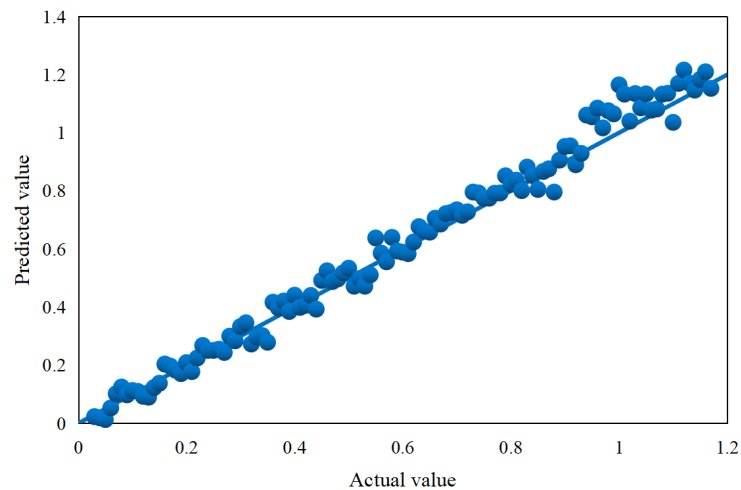
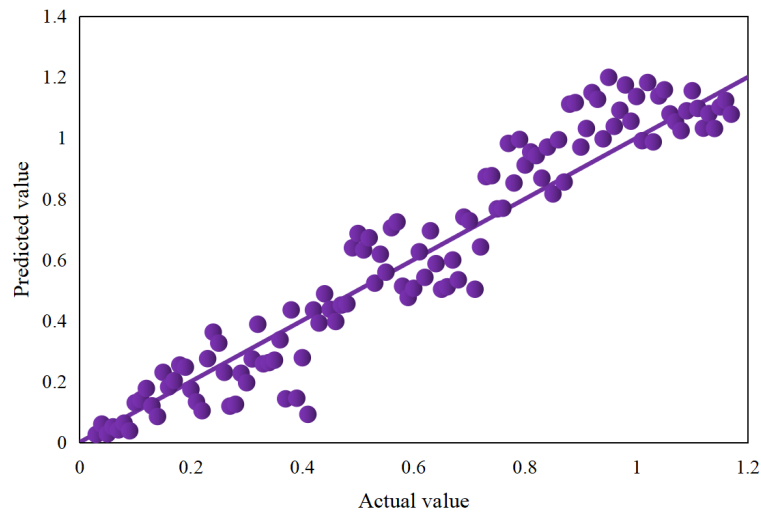Figure 2 Scatter diagram of ID3 algorithm

Figure 3 Scatter diagram of FCM algorithm

The analysis results of leadership quality assessment data obtained by applying big data should fully reflect the personality characteristics of trainers, and the analysis results should have both personality characteristics and common characteristics.

In the whole process of calculating the value range, if there are many calculation operations but not the most important attribute information entropy, the empirical knowledge parameter will be introduced once to keep some attribute values with less values, thus improving the efficiency and accuracy of decision-making. The performance of the algorithm evaluated in this article is compared with ID3 algorithm, and the results are shown in Figure 4 and Figure 5.
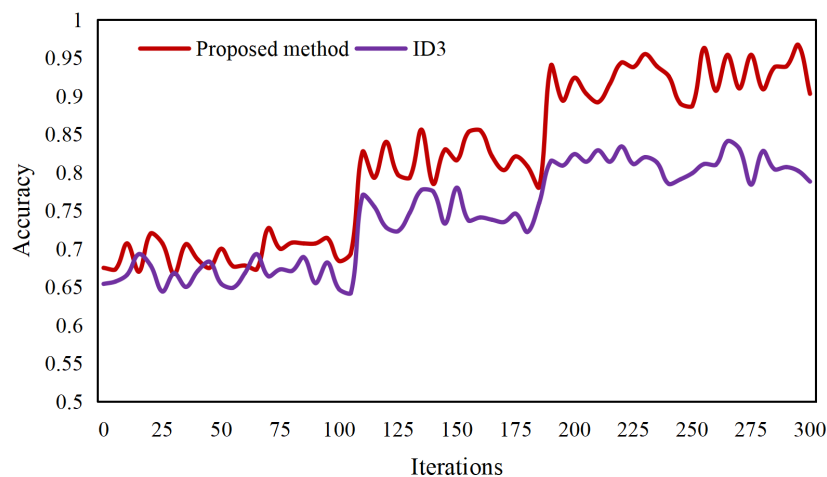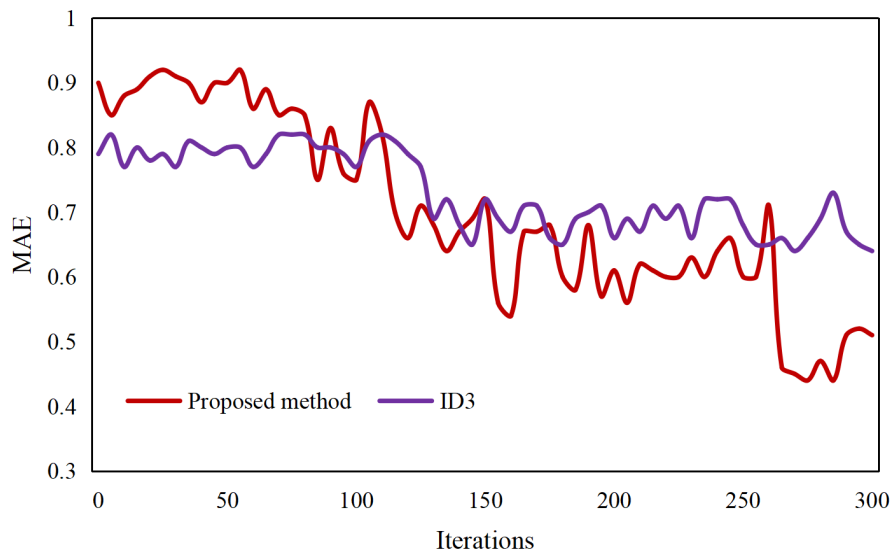
Figure 4 Comparison of assessment accuracy

Figure 5 Assessment of MAE comparison

The results show that compared with the teaching assessment model based on ID3, the prediction accuracy of this method is improved by 15.65% and the error is reduced by 20.17%. The application of this model helps entrepreneurs to find out their own lack of ability, and with the joint efforts of the company and themselves, they can design improvement schemes and enhance their leadership through unremitting efforts.

4. Conclusions

The success or failure of today's enterprises depends largely on the leadership of enterprises, and the success or failure of enterprises is increasingly influenced by the level of leadership. The leadership model is certain and relatively stable in a certain period and stage, but its essence is often dynamic. This article puts forward a leadership quality model based on FCM, and verifies it through an example and discusses the related results. The results show that compared with the teaching assessment model based on ID3, the prediction accuracy of this method is improved by 15.65% and the error is reduced by 20.17%. The application of this model helps entrepreneurs to find out their own lack of ability, and with the joint efforts of the company and themselves, they can design improvement schemes and enhance their leadership through unremitting efforts. In practice, the assessment indicators of leadership are determined by enterprises according to their own strategies, cultures and other factors, and different enterprises will have different assessment indicators. This method does not take into account the scientific problems of assessing indicators of leadership, and can be used as another topic to continue research in the future.

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