Enlightenment of thematic knowledge Map Analysis of Human Resource Management practice to Engineering Management in China

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Abstract. Human resource is contained in the knowledge and ability of employees and employee relationship in the enterprise, and it is a competitive advantage that competitors cannot imitate. Effective human resources management practice can promote organizational innovation. This study uses the knowledge graph research method to analyze the journals of the practice theme of human resource management in China. Taking the periodicals included in the core journals from 1994 to 2018 as the research object, using citespace software to visually analyze the existing literature from the literature author, the key words and so on, by drawing the scientific knowledge graph, the present situation and research hotspots of the practice theme of human resource management in China are identified. And this paper puts forward some suggestions on the optimization of human resource management in engineering management.

1. Introduction
Engineering management is different from other management, its particularity lies in the periodicity of its management process, that is, engineering management is a closely related management activity in the whole project construction. Management is directing others to do it in the best and best way. Engineering management needs to integrate all kinds of resources, including human resources, technical resources, hardware resources and information resources. However, among all kinds of resources, only human resources are in the central position, because any activities in management activities should be carried out around people, and all policies should be implemented by people, so human resources are particularly important in engineering management. Human resource has become the strategic resource of an enterprise, and it is the most important resource of an enterprise or organization. Scholars at home and abroad have rich research results on human resources, human resources management and so on. In order to clearly present the existing research results, the scientific knowledge graph research method is used to analyze the retrieved documents and grasp the hot change and development of human resources management research. It provides reference and reference for the theoretical research and practice of human resource management. In order to optimize the human resource management in engineering management.

2. Data sources and research methods

2.1. Status of data acquisition
The Chinese literature adopts CNKI database as the basic data source, because the information of unrelated documents will affect the accuracy of citespace analysis, the type of resources is selected for periodicals, the theme is "Human Resource Management practice", and the core periodicals are selected for retrieval, and the information of non-related documents will affect the accuracy of citespace analysis. The time is not set, the final record is 1066, the time span is from 1994 to 2018.

2.2. Introduction to the software and principle of research and application
Knowledge graph is a visual analysis method for a certain research field by means of data mining, scientific measurement, information analysis and graph drawing [1]. It can not only reveal the static knowledge structure frame diagram, but also reveal the static knowledge structure frame diagram. Also can show the dynamic knowledge development process spectrum [2]. The literature is analyzed by using the Cite Space software developed by Dr. Chen Chaomai of the School of Information Science and Technology, Drexel University, USA, based on JAVA language. The software version used in this study is Citesea5.3. R4. Through mapping and data analysis, we can combine quantitative and qualitative analysis. Analysis, author cooperation network analysis, key words co-occurrence network analysis and so on. By analyzing the co-occurrence network of key words, the hot spots can be found, and the core scholars and their academic communication relationships can be found through the analysis of high-frequency authors and cooperative networks.

Fig 1. data acquisition and Analysis proc

3. Visualization and analysis of research focus and development trend

3.1. Analysis of the author's knowledge graph
Scientific research cooperation is the driving force of scientific development. By studying the mainstream academic group of the theme of human resource management practice, it is helpful to find out the development rule of the theme.

Table 1 shows that the author with the largest number of posts is Professor Zhao Shuming. Professor Peng Jianfeng, Professor Peng Jisheng, Professor Fang Hongjun and Professor Xing Zhouling have a Burst value of non-zero, which is the "prominent figure" of the theme that needs to be focused on [3]. Professor Liu Shanshi is the only author whose intermediary centrality is not zero, indicating that professor Liu has promoted the relationship between the same scholars. Professor Zhao Shuming is one of the earliest scholars who introduced the western human resource management theory into China and combined the western human resource theory with Chinese practice[11].

| Author            | Freq | Burst | Centrality | Author            | Freq | Burst | Centrality |
|-------------------|------|-------|------------|-------------------|------|-------|------------|
| Zhao Shuming      | 32   |       |            | Tang Guiyao       | 7    |       |            |
| Liu Shanshi       | 29   | 0.01  |            | Xing Zhouling     | 7    | 3.37  |            |
| Peng Jianfeng     | 9    | 3.96  |            | Wang Zhen         | 7    |       |            |
| Li Yanping        | 9    |       |            | Su Zhongxing      | 6    |       |            |
| Peng Jisheng      | 9    | 3.33  |            | Fan Yun           | 6    |       |            |
3.2. Knowledge graph analysis of research institutions

The cooperation knowledge map of the teaching and research organization of the human resource management practice subject in 1994-2018, and the annual round represents the issue history, the size of the node and the node label text is representative of the number of outgoing documents within 24 years, and the connection between the nodes represents the cooperation contact of the sending agency.

As shown in Table 2, a total of 76 institutions issued the core journal of the subject. The most important issue was the Nanjing University Business School, which sent 72 papers. The second is the Renmin Institute of Labor and Personnel of the People's University of China. It has issued 54 papers, and the third is the School of Business Administration of the South China University of Technology. The Chinese People's University Business School and the central intermediary of the School of Management of Shandong University is not zero, and it is proved that the academic and other institutions of the institution have academic cooperation and communication.

| Institution | Freq | Centrality |
|-------------|------|------------|
| Nanjing University Business School | 72 | 0 |
| Faculty of Labor and personnel, Renmin University of China | 54 | 0 |
| Institute of Business Administration of South China University of Technology | 45 | 0 |
| Business School of Renmin University of China | 17 | 0.01 |
| School of Management, Shandong University | 14 | 0.01 |
| School of Management, Zhejiang University | 13 | 0 |
| School of Management, Xi'an Jiaotong University | 11 | 0 |

3.3. Key words co-occurrence knowledge graph analysis

| Keyword | Freq | Centrality |
|---------|------|------------|
| HRM | 311 | 0.7 |
| HRM practice | 118 | 0.4 |
| Human resource | 77 | 0.31 |
| Strategic HRM | 87 | 0.21 |
| Organizational performance | 57 | 0.17 |
| Enterprise performance | 51 | 0.13 |
| High performance work system | 31 | 0.09 |
| The People's Republic of China | 17 | 0.09 |
| Enterprise | 44 | 0.08 |
| Business administration | 34 | 0.08 |
| Strategic HRM | 25 | 0.06 |
| High performance human resource practice | 8 | 0.06 |
| Human resource management model | 6 | 0.06 |
| Organizational support sense | 6 | 0.06 |
| Human resource practice | 18 | 0.05 |
| HRM system | 18 | 0.05 |
| Enterprise HRM | 16 | 0.04 |
| Human capital | 16 | 0.03 |
| HRM major | 12 | 0.03 |
| Case study | 6 | 0.03 |
| HRM intensity | 5 | 0.02 |
Through the data of keyword frequency, centrality and so on obtained by software, table3 is obtained. Word frequency analysis is a method of using keywords or subject words in a certain research field. The frequency of occurrence, to study the development of the field and research hot literature metrology method, the centrality of the keyword in the graph of "intermediary" role, different groups of nodes are around the field of research issues. Table3 shows keywords greater than or equal to 5 times in 1994-2018.

Table 4 is obtained by analyzing and combing the frequency of key words. Combing and summarizing the high-frequency keywords, the main research hotspots under the theme of human resources management practice in China are as follows, first, macro-research; second, micro-research; third, performance; fourth, research methods; Fifth, research perspective, sixth, function. Through the analysis, we can know that human resource management has changed from macro-research to micro-research, and the period of special attention to performance management has passed. Scholars have changed from research method to research perspective with the change of social background. Nowadays, scholars pay more attention to some characteristics in the field of human resource management practice, and what kind of influence this characteristic has on enterprise staff, enterprise management, enterprise culture and so on, and what is the influence degree of this characteristic on the enterprise staff, enterprise management, enterprise culture and so on.It can be seen that the existing scholars' research on the practical application of theoretical support is a hot spot at present, and the practice of human resources management is of great guiding significance to the human resources management of enterprises[6].

| Tab 4. Key words topic classification table |
|--------------------------------------------|
| Theme                                   | Key words (frequency)           |
| Macrography                              | Human resources management (311); |
|                                          | Strategic HRM (87)              |
|                                          | Strategic human resources management (25) |
|                                          | Human resources management model (6) |
|                                          | Sense of organizational support (6) |
| Microcosmic                              | human capital (16);            |
|                                          | intensity of human resources management (5) |
|                                          | Organizational performance (57); |
| Performance                              | Enterprise performance (51)     |
|                                          | High performance work system (31) |
|                                          | High performance human resources management (8) |
| Method                                   | Case studies (6)               |
|                                          | People's Republic of China (17) |
|                                          | Enterprises (44)               |
| Angle of view                            | Business Management (34)        |
|                                          | Professional in Human Resources Management (12) |
|                                          | Human resources management practices (118) |
| Function                                 | High performance human resources management practices (8) |
|                                          | Human resources practice (18)   |

3.4. Key words co-occurrence knowledge graph analysis
In this study, 1066 literatures from 2014 to 2018 were integrated by using the time zone analysis imaging method of citespace software to form a knowledge graph characterized by the development and evolution of key words. “Enterprise Management”, "Enterprise Human Resource Management", "Human Resource Management practice", "Strategic Human Resource Management", "Human Resources Model", "Human Resource practice", "Human Resource Management Mode", "Human Resource Management intensity", "big data", "organizational Psychological ownership" Evolution map.
4. Conclusion
Based on the visual analysis of the research data from 1994 to 2018 in CNKI core journal database, this paper discusses the domestic authoritative authors who have great influence on human resource management research in recent 25 years. The publishing organization, and to the human resources management practice research hot spot. Through the research, this paper clarifies the research vein of HRM practice, grasps the development of theory and practice, and provides support for the innovation of human resource management research at this stage. In the management of engineering, it is necessary to pay attention to the human resource allocation, to pay attention to the team construction of human resources, and to emphasize the high efficiency of management. In the construction of the project, it is necessary to pay attention to the following four principles: the first, the efficiency principle, the guarantee personnel to optimize the configuration, and realize the maximization of the team benefit and the personal benefit. Second, the principle of post-job matching ensures that the quality of the personnel in the project meets the post requirements. Third, in cooperation with the principle of complementarity, consider the co-operation of the personnel of the project team to achieve the optimal combination. Fourth, dynamic regulation principle, according to the particularity of project management, temporary adjustment personnel allocation And timely replace the personnel, absorb the new personnel and improve the efficiency of the engineering project.

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