Research on Demand Characteristics and Training of Human Resource Management Professionals Based on Python Technology

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Abstract

In order to understand the real needs of enterprises for human resource management talents, and provide suggestions for talent training in Colleges and universities and the improvement of the ability of relevant personnel. Based on 3486 recruitment information of human resources posts on 51job.com, this paper analyzes the location, industry type and salary of human resources management posts through Excel; Then, Python is used to segment the qualifications, extract TF-IDF keywords, analyze LDA topics, and analyze the requirements of ability and quality in detail. The results show that there are far more jobs in southern cities than in northern cities, and there is a large demand for human resource management talents in small and medium-sized enterprises and private enterprises. Key skills can be roughly divided into basic knowledge, executive ability, personal quality, computer operation ability and management level corresponding ability.

Keywords

Recruitment information; LDA topic model; Human resource management; Personnel training.

1. Introduction

With the intensification of competition among enterprises, talent competition has become an important form of enterprise competition. The cultivation of enterprise core competitiveness is also mainly reflected in the cultivation of core personnel within the enterprise. In order to motivate, attract and retain talents, professional human resource managers are needed to manage the employees of the enterprise. However, at present, the training of human resource management professionals in Colleges and universities does not fully match the actual employment needs of enterprises. Human resource management practitioners lack the understanding of job requirements, and their advantages and competitiveness are obviously insufficient. Therefore, it is an urgent problem to connect enterprises and employees through recruitment information, tap the talent demand characteristics of human resources management posts, and adjust the training objectives and curriculum system of resource management specialty from the actual needs of the employment market.

At present, domestic research on the characteristics of talent demand is mainly carried out by analyzing recruitment information for different industries, different positions or a specific region, such as the characteristics of logistics and supply chain finance positions [1]; Ningbo cross border e-commerce talents [2]; Skilled talents in China's manufacturing industry [3]. However, the research on analyzing the talent demand characteristics of a professional direction through Python technology is lack of representativeness.

Relevant scholars have also studied the cultivation of human resource management talents. Zhao Fuqiang and others analyzed the current situation and problems of international talent

training of human resource management in Colleges and universities in China, and put forward countermeasures and suggestions to improve relevant talent training [4]. Based on the relevant data of courses offered by human resource management majors in 9 colleges and universities, Zhu Hailin proposed an application-oriented undergraduate talent training scheme based on the idea of free education [5]. By commenting on relevant books, Tian Yingli proposed that schools should think about students' quality and reform the curriculum [6]. Tao Huiping discussed the application of experiential teaching mode in the teaching of human resource management specialty in combination with the problems in practical teaching, and put forward relevant suggestions [7]. Although relevant scholars have carried out some research on the cultivation of human resources management talents, these studies mainly use the methods of literature research, questionnaire survey and content analysis to widely explore the problems and Countermeasures of the cultivation of human resources management talents. With strong subjectivity and limited survey samples, it is difficult to grasp the objective situation of the social needs of human resources management.

Online recruitment is the most important way of modern recruitment. The information released by enterprises on the online recruitment platform is the most intuitive embodiment of the specific needs of enterprises for professionals in terms of knowledge, skills and ability [8]. Therefore, through online recruitment information, this paper excavates the job needs of enterprises, and deeply analyzes the needs of enterprises for the skills and abilities of human resource management professionals through data visualization. It is expected to provide personalized skills and ability training for human resource management professionals, and provide reference for the opening of relevant courses in Colleges and universities.

2. Research Methods and Data Collection

2.1. Research Methods and Ideas

The research idea of this paper mainly includes the following four steps: first, collect data, use octopus to retrieve job recruitment information related to human resource management on 51job and crawl data; Secondly, the obtained data set is processed, including data screening, text de duplication and preliminary analysis of post related information in recruitment information by using Excel; Use the Jieba word splitter in Python to segment the qualifications of human resources management posts in Chinese; TF-IDF algorithm is used to extract high-frequency keywords from job qualifications, and LDA model is used for topic clustering; Thirdly, describe the demand characteristics of human resource management talents through descriptive statistical analysis and visualization; Finally, according to the above conclusions, the corresponding suggestions and enlightenment are given to the cultivation of human resource management talents in Colleges and universities and the cultivation of human resource managers' own ability.

2.2. Data Sources

The recruitment information on 51job provides a data source for this study. This study uses "human resources" as the search term to search the job recruitment information related to human resources; Then use octopus to crawl the relevant data of recruitment information in March 2022. Use Excel to simply clean the data, and finally get 3486 complete job recruitment information. Each recruitment information collected includes basic position information, industry and scale of the company, job requirements, etc. [8].

2.3. Dictionary Construction

This paper uses the Jieba word segmentation tool to divide the post information into words, and then uses the dictionary word segmentation method to manually screen words. Delete

irrelevant words such as "employee", "post" and "human", add words according to relevant knowledge of human resources, and improve the recruitment dictionary.

3. Data Analysis

3.1. Analysis of Basic Situation of Posts

3.1.1. Location and Industry Distribution of Enterprises with Human Resources Management Positions

The results show that in the recruitment information collected, nearly 60% of the posts are distributed in first tier cities such as Shanghai, Shenzhen and Guangzhou. Shanghai, Guangzhou and Shenzhen have superior geographical advantages and strong economic strength, and have a large demand for relevant talents. However, Beijing has less demand for talents in human resource management. New first tier cities such as Wuhan, Hangzhou and Chengdu also provide more job opportunities for human resource management talents.

Based on the relevant data of recruitment information, the distribution of the top 10 industries of enterprises in the demand for human resources management posts is counted (the industry division standard comes from 51job) [8]. Internet / e-commerce, electronic technology / semiconductor / integrated circuit and computer software are industries with high demand for human resource management talents. The emerging information industry has a strong demand for human resource management professionals. However, the demand for human resource management talents in other industries is also very high, indicating that the employment of human resource management professionals is very wide and is not limited to some industries.

3.1.2. Enterprise Type and Scale Distribution of Human Resource Management Post

According to the results of the National Bureau of statistics in 2019, private enterprises account for 79.4% of the total number of enterprises. The research results show that the demand of private enterprises for human resources management talents accounts for about 66% of the total demand, which is roughly the same as the trend of the overall level of enterprises [9]. Followed by listed companies, joint ventures and foreign capital, while institutions, start-ups and non-profit institutions account for very little. At the level of enterprise scale, the demand of small and medium-sized enterprises with 50 ~ 500 people for human resource management talents accounts for about 50% of the total sample, which is the main force in the demand for human resource management talents. Enterprises with more than 5000 people have less demand for human resource management talents, which may be due to the small number of such enterprises.

3.2. Skill Requirements for Human Resource Management Positions

3.2.1. Keyword Extraction

In this paper, TF-IDF algorithm is used to extract the keywords from the data of job qualification, and the keywords ranked at the top are extracted. The results show that enterprises attach great importance to "Recruitment", "responsibility", "training", "organization", "experience" and "management", which are mentioned many times in the job qualification [10]. At the same time, enterprises also attach great importance to the ability of human resource managers to "communicate", "team", "implement" and "assist".

3.2.2. Classification

In order to further reveal the overall situation of skill demand, this paper makes a semantic analysis of the recruitment information, extracts the characteristic words related to skill demand, classifies a large number of skill characteristic words in the text by using the topic model, and summarizes the categories of talent skill demand of the post.

According to previous studies, LDA topic model is widely used in recruitment text analysis. By establishing a text dictionary, the TF-IDF algorithm is used to extract the words with large weight in the recruitment information, and the fitting optimization is carried out to obtain the correlation degree between the number of topics and topics, and the correlation degree between the two is established by calculating the frequency of generating topic document words [10]. According to the specific content of job demand, this study uses LDA model to extract five categories of topics. As shown in Table 1, the five major topics are related to basic knowledge, executive ability, personal quality, computer operation ability and corresponding ability of management level.

Table 1. Skill keyword table

Skill Category	Keywords					Proportion
Basic knowledge	emolument	train	management	organization	achievements	0.541
Executive ability	Assistance	handle	maintain	dimission	Attendance managament	0.194
Personal quality	optimistic	responsibility	pragmatic	dedicated	patience	0.065
Computer operation ability	data	analysis	software	statement	office	0.058
Corresponding ability of management	Executive recruiter	experience	skill	commissioner	assistant	0.142

(1) Basic knowledge

Basic knowledge is the most basic knowledge requirement for human resources practitioners. 54.1% of the recruitment information requires candidates to have relevant basic knowledge. Basic knowledge mainly includes salary, training, performance and other contents, which requires candidates to have a deep understanding of the six modules of human resource management.

(2) Executive ability

The key words of executive ability are assistance, handling, maintenance, resignation, attendance and evaluation. 19.4% of the positions require candidates to have efficient execution ability. Enterprises require human resource management talents to have the ability to assist their superiors and partners in completing tasks, handling business, performance attendance and evaluation of work results.

(3) Personal quality

Although only 6.5% of jobs have requirements for personal quality, it is an essential ability for human resource management talents to complete their work tasks efficiently. Having high personal quality requires employees to have a sense of responsibility, a pragmatic spirit, love and dedication, and the ability to work under pressure. To have team spirit, human resource management often has a series of processes that can not be completed by individuals. At the same time, good communication skills should be possessed in team work, which is also a basic personal quality.

(4) Computer operation ability

The key words involved in computer operation ability include data, analysis, software, report, office, etc. The essential skills of human resource management talents are office series. They should write reports in word, make data statistics in Excel and report in PPT. At the same time, some posts also have relevant requirements for the mastery of SPSS and some enterprise management software.

(5) Corresponding ability of management level

The corresponding ability of management level is the embodiment of the overall ability requirements of positions at different management levels in the job qualification. The key words of management level corresponding ability include HR supervisor, experience, skills, assistant, etc. Putting the right person in the right position requires candidates to have the ability required by the management level of their application.

4. Enlightenment of Human Resource Management Talent Training Based on Recruitment Demandclusion

4.1. Combination of "Function" and "Business"

Nearly 20% of the recruitment information crawled in this paper is related to hrbp. Compared with traditional HR, HRBP needs to communicate with business departments more often, understand the industry, relevant products and various information of customers, and adjust the behavior of human resource management according to its own business prediction to meet the needs of business development. In practice and research, enterprises and scholars have found that only by combining the functionality of human resources with the business of enterprises can they give full play to their maximum effectiveness [11].

Therefore, colleges and universities need to carry out the "function + business" mode in talent training. First of all, colleges and universities can strengthen the relationship with enterprises, organize students to visit relevant enterprises from time to time, or invite enterprise managers to the school to introduce enterprise business knowledge. Secondly, when recruiting teachers, the school can give priority to teachers with work experience or working in enterprises to teach some practical courses, such as recruitment and configuration.

4.2. A New Talent Training Mode Integrating Management and Technology

With the development of big data, some enterprises require human resource managers to have a certain understanding of databases and common human resource management systems. Therefore, when colleges and universities set up relevant courses, in addition to the courses of theoretical knowledge of the six modules of human resource management, they also need to set up relevant computer courses. The school can cooperate with some management software enterprises and invite relevant personnel to the school to teach students how to use the human resource management system.

4.3. Strengthen the Cultivation of Students' "Soft Power"

At present, enterprises pay more and more attention to the soft power of human resource managers. When applying for a job, many enterprises will conduct personnel quality evaluation or some unstructured interviews on the subjects, which are to evaluate the "soft power" of the subjects. For example, the ability of organizing activities, communication and teamwork are mentioned many times in the qualification. Therefore, college teachers can join curriculum practice links when teaching relevant courses, such as "one yuan challenge"; Simulated leaderless group, etc. Colleges and universities can also support students to participate in innovation and entrepreneurship competitions to improve their innovation ability.

4.4. Enlightenment on the Cultivation of Human Resource Management Professional Ability

Students majoring in human resource management and practitioners of human resource management can improve themselves according to the research results of this paper. First of all, students majoring in human resource management should not only ask themselves as a liberal arts student, but also purposefully learn computer related skills while seriously learning the basic knowledge of human resource management. You can also take the initiative to cultivate your sense of responsibility, patience and pressure resistance by participating in the

teacher's topic or taking the initiative to take the position in the class, and you can also improve your executive ability. Secondly, for human resource management practitioners, they can also cultivate their relevant abilities at work. For their target positions, they can recognize their shortcomings from their qualifications and improve themselves in a direction.

Acknowledgments

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