



Research on the Application of Information Data Classification in Employment Guidance for Higher Vocational Students

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Abstract. In order to further explore and guide the employment of higher vocational students, the author makes extensive statistics on the decision-making factors of graduates' employment in recent years. Based on the classification of information data, this paper analyzes the impact of information data classification on the application of graduate employment guidance. The main significance of this study is to improve students' knowledge structure, improve their comprehensive quality and social competitiveness.

Keywords: Information data classification · Higher vocational students · Application research

1 Introduction

The school running idea of higher vocational colleges is “employment oriented”, and the employment rate has always been an important indicator to measure the level of higher vocational colleges [1]. At the same time, we have noticed that with the development of society, the high-level and low-level indicators to measure the employment quality of graduates are becoming more and more important. How to improve the employment quality of students under the premise of maintaining a high employment rate is a problem of great concern to decision makers in higher vocational colleges. It is of great significance for higher vocational colleges to improve employment guidance, increase employment rate and employment quality by using the employment data of students over the years to mine useful knowledge and provide it to decision makers. Data mining technology can transform some existing data into useful knowledge and mine valuable information.

2 C4.5 Algorithm

C4.5 algorithm is an improvement of ID3 algorithm. Different from the sub-3 algorithm, C45 algorithm selects the node attribute of each node in the decision tree based on the data gain rate. By default, the attribute with the highest data gain rate under the current

branch node is selected as the test attribute of the current node [2–4]. The C4.5 algorithm has this characteristic, which greatly reduces the amount of data needed to classify the samples in the data mining results, and can accurately reflect the minimum randomness or “impure” of the partition. This theoretical method minimizes the number of expected tests required for an object classification, thus designing a simplest decision tree. For the convenience of the research, the related terms in the algorithm are defined below [5].

Definition 1: let S be a set of s data samples, and the Category attribute can take M different values corresponding to m different categories. Suppose S_i is the number of samples in category C_i , and the amount of information required for classifying a given data object is called the entropy before S partition.

$$I(s_1, s_2, \dots, s_m) = - \sum_{i=1}^m P_i \log_2 P_i \quad (1)$$

Attribute A is used to divide the information needed for the current sample set, and the entropy after S partition is used, i.e.

$$E(A) = - \sum_{j=1}^v \frac{s_{1j} + \dots + s_{mj}}{s} I(s_{1j}, \dots, s_{mj}) \quad (2)$$

3 The Current Situation and Problems of Employment Guidance System in Higher Vocational Colleges

3.1 Current Situation Analysis

At present, the first mock exam system and employment guidance service system in higher vocational colleges include eight modules: employment policy and regulations, employment preparation and job hunting skills, employment process innovation and 1 industry education; application training for real life, simulation interview; changing roles to adapt to workplace safety education. Some secondary colleges add some innovation points according to their own characteristics, and set up resume production competition to improve students' application ability. But we can see that all the guidance is around the job before and in the job, lack of career guidance after the job.

3.2 Existing Problems

According to the 2014 “Jiangsu Province college graduates employer survey report”, employers are faced with outstanding problems in the recruitment process, such as graduates' lack of understanding of the applied units and positions, poor communication skills, and stereotyped resumes. This makes us think about whether the uniform employment guidance course can adapt to the diversified development of students' employment. The employment guidance system has many repetitive contents, lacks innovation, and does not really play the role of guiding students' employment.

- (1) The connotation and importance of the employment guidance system are not well understood in Colleges and universities. According to the characteristics of college students and the needs of social employers, the employment guidance for college students should correctly teach them to find a job that can give full play to their potential. In reality, the understanding of the employment guidance in Colleges and universities mostly lies in that the employment guidance is enough to provide some employment information choices for students, so that students can find jobs, and the employment consultation system in Colleges and universities is equal to the employment guidance of the export part of school education. In the preparation of the entrance end of college work, such as enrollment plan, major setting, curriculum arrangement and so on, it is ignored that the improvement of College Students' employability is a growth and long-term process, rather than a short-term education can get growth.
- (2) The curriculum system of employment guidance is lack of timeliness and pertinence [6, 7]. At present, the curriculum system of employment guidance in higher vocational colleges is outdated in design, lack of innovation, lack of pertinence in teaching content, relatively single teaching method, difficult to quantify and scientific in teaching syllabus and teaching plan, difficult to realize scientific guidance, lack of perfect educational content and comprehensive teaching method, which is lack of flexibility, consistency and professionalism, There is a huge difference between the desire of college students and enterprises, which has little effect on the graduates to participate in the fierce employment competition. In view of the lack of substantive counseling content in the current employment form of entrepreneurship and further education, the psychological counseling course is only superficial, and there is no specific guidance in the aspects of cultivation, professional ethics education and employment psychology.
- (3) The function of the employment guidance department has some deviation. Now all colleges have set up employment consulting agencies, but its function is more emphasis on administration, and the function of serving employment and education employment is missing. In addition, some schools blindly pursue the employment rate, ignore the construction of the employment guidance system, lack of research and Research on the employment curriculum system, and need to change the employment guidance department from passive communication to active exploration of the construction of employment guidance.

4 Changing the Employment Guidance System and Promoting Students' High Quality Employment

4.1 The Concept of Employment Guidance

At present, the employment guidance of Chinese style is mostly seasonal guidance, that is, the employment guidance course is only opened half a year or one year before graduation. We should realize that the employment guidance system is a dynamic and changing process. Move forward the employment guidance and run through the employment guidance before and after job hunting, forming a dynamic guidance system. Schools should

change from “helping students get employment” to “teaching students to get employment”, reset the concept of employment service, build a dynamic system to enhance students’ successful employment ability, so that students can not only get employment, but also have high quality.

4.2 The Curriculum System of Employment Guidance Changes to the Trend of Diversification

- (1) Diversified teaching forms, schools will change from offline courses to online courses, using MOOCS and other forms to enrich the mode of employment guidance courses and enhance students’ interest. The employment guidance system for college students should be more in line with the reality, follow the rules and needs of the modern market, and build a more professional and humanized employment guidance curriculum system with new technical means.
- (2) Diversification of psychological education at present, the phenomenon of delayed employment among graduates of higher vocational colleges is mostly due to the psychological reasons of students. In the traditional employment guidance course, psychological guidance is only used as a module to explain the theory, without realizing that students’ employment psychological problems are a gradual process [8–10]. Schools should integrate employment psychological counseling into ordinary daily psychological counseling, and transform classroom teaching into targeted face-to-face counseling mode. In addition, more psychological counseling should be given to students with employment difficulties and disabilities.
- (3) In recent years, the state has vigorously developed innovation and entrepreneurship education, and schools comply with the national requirements to increase entrepreneurship education in the employment curriculum system. However, as far as the current situation is concerned, no matter teachers, textbooks or teaching methods are lack of a scientific planning, more is the propaganda of entrepreneurship policy, theory is more than practice.

4.3 Transformation of Teachers and Functional Departments to Specialization

The “knowledge structure, professional ideas, cultural cultivation and working methods” of the employment guidance staff are very important to the construction of the employment guidance system. Higher vocational colleges should pay more attention to it, improve the construction of career guidance teachers, and improve the human resource training system of employment guidance. Professional teachers should be drawn into the team of career guidance teachers to meet the requirements of students’ professional knowledge. Career guidance teachers need to improve their professional ability, actively participate in the training of career guidance and entrepreneurship guidance, and enrich their knowledge. To improve the ability to serve students, the functional departments should change their identities and coordinate the employment work of the whole college [11]. The employment work not only needs the policy service or the statistics of the employment rate of graduates, but also appears in the whole learning process of college students, so as to establish a long-term system centered on cultivating the employment

ability of college students. The employment guidance department needs to give full play to the collaborative ability, strengthen the cooperation with other functional departments, and transform the employment work to the whole process, full staff, specialization and informatization. At the same time, we need to make full use of network media, such as microblog, wechat and mobile phone client to push employment information in time to serve students' employment [12]. To sum up, higher vocational colleges must actively adapt to the actual needs of society and market economy, supplement and improve the employment guidance system for college students, so as to better adapt to the diversified development trend of employment. In terms of professional communication ability, team cooperation and formal professional etiquette, it helps college students to establish the awareness of professional people and realize the zero distance connection between school and society, learning and employment.

5 Changing the Employment Guidance System and Promoting Students' High Quality Employment

5.1 Changing the Concept of Employment Guidance

At present, higher vocational colleges have more employment guidance skills, less puzzles, more information, less ideas, more jobs and less dedication. This leads to the poor effect of employment guidance in higher vocational colleges. The employment guidance system is not fully competent for the function of employment guidance. It is necessary to change the concept of employment guidance and provide students with professional, market-oriented, personalized, information-based and diversified guidance mode.

5.2 Higher Vocational Schools Should Actively Take Various Measures to Promote the Smooth Employment of Graduates

And other vocational schools should actively implement relevant employment reform policies for graduates, increase investment in human, material and financial resources, and take various measures to bridge the gap between graduates and enterprises and institutions. (1) Set up or adjust major and related courses according to market research. (2) It is necessary to set up management and service institutions for graduates' employment, implement the system of top leader responsibility for graduates' employment, and invest certain human, material and financial resources to implement it. (3) We should fully implement the spirit of the central ministries and commissions on setting up vocational guidance courses, and provide students with comprehensive, scientific and systematic vocational guidance. (4) Actively build a production and learning platform to achieve in-depth cooperation between schools and enterprises. Schools can jointly run schools with enterprises to achieve order based training, provide talent reserves for enterprises, and adjust teaching plans and syllabus according to the needs of enterprises, so as to solve the contradiction between supply and demand between enterprises and schools. (5) All departments of the University cooperate closely to establish a pre employment mechanism that combines internship with recommended employment. If the graduates are arranged to work directly in the production post of the enterprise and practice according

to the requirements of the enterprise employees, it can not only make the graduates apply what they have learned, but also make them develop a high sense of professional responsibility, the spirit of hard work and the consciousness of abiding by the professional ethics.

5.3 The Employers Should Change the Concept of Employment, and the Parents of the Graduates Should Change Their Own Concept

(1) Some employers will put forward some unreasonable requirements when recruiting graduates from higher vocational schools. On the one hand, it needs the relevant government departments to investigate and punish this phenomenon and order them to correct it. On the other hand, it also needs the employing units to change their concept of employment and create all kinds of opportunities for these graduates in a fair, open and just way in recruitment to help them grow up. (2) Some parents of higher vocational school graduates want their children to work stably and have a rich income. They also have the idea of looking after their face and unwilling to let their children stay away from themselves and work in other places, which also affects the smooth employment of graduates. Parents should give good advice on the employment of their children, encourage their children to start their own businesses, and support their children to go out to hard areas and jobs.

6 Data Acquisition

Using C4.5 algorithm for data mining and analysis needs to establish specific and verifiable research objects, so we should systematically and carefully collect and sort out the predictable potential factors that may affect students' employment before establishing the algorithm analysis template [13–15]. The accuracy of data acquisition samples directly affects the reference value of algorithm analysis results.

According to the needs of research and analysis, this paper mainly collects students' basic information from the "basic information service" interface in the student status management system of Nanjing vocational and Technical College of information, and derives the "student performance information" of 2016 graduates from the "Learning Center - score query service" interface. Colleagues from the employment guidance center under the Student Work Committee of Nanjing Institute of information technology provided us with the "employment status information" of relevant graduates in 2016. As shown in Fig. 1. The author uses random sampling method to intercept 600 relevant records from nearly 5000 data records as the object of this study and analysis. 400 pieces of data are arranged to form the training data set from the 600 pieces of information of graduates intercepted, and the remaining 200 pieces of data are allocated to the test data set.

From the “basic information service” interface of student status management system of Nanjing vocational and Technical College of information, the “basic information of students” is collected, which mainly includes the following contents: Department, major, class, name, student number, gender, ability, specialty, political health, reward and punishment, training experience, social practice activities, etc. In addition, the interface also shows factors such as ethnic origin [16–20]. ID number, etc., which are not related to graduates’ employment choice or are subject to anti discrimination and anti local protection policies, which have little influence on Graduates’ employment.

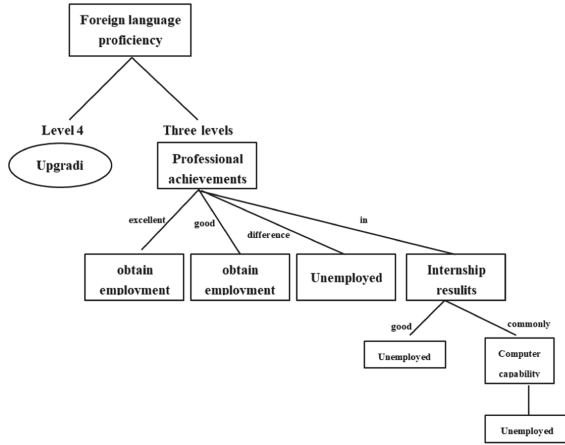


Fig. 1. Decision tree analysis chart.

7 Simulation for Generating Classification Rules

The process from root node to each leaf node in the decision tree with excellent practical ability can be seen from the above classification principles that graduates with rich social practice experience and high English application ability account for the vast majority of better enterprise employment samples, while graduates with relatively weak social practice experience who have won awards above provincial and municipal level, Basically, they can be employed in poor state-owned enterprises, general foreign enterprises and better private enterprises; graduates with general social practice ability and without high-level rewards can only mix with poor enterprises(see Fig. 2 and Fig. 3).

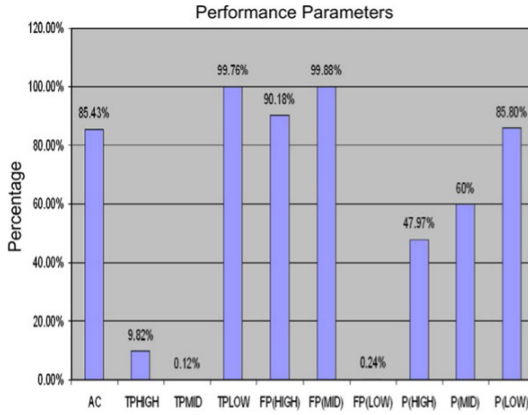


Fig. 2. Performance parameters for Data

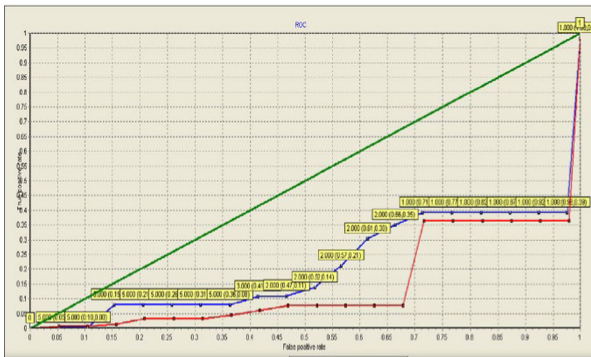


Fig. 3. ROC Curve for Class

8 Conclusion

According to the discrete characteristics of the potential data attributes that may affect the employment of university graduates, this paper uses the C4.5 algorithm of decision tree to mine and analyze the target data, constructs the analysis model of the influencing factors of College Students' employment, and establishes the classification rules, Data mining analysis has high reference value and practical significance. The classification rules of influencing factors of graduates' employment analyzed by C4.5 algorithm model has a guiding role in improving the comprehensive quality of college students, and can also provide ideas for the transformation of employment guidance work in Colleges and universities. Data mining technology has been successfully applied in other business fields, but it is still a new attempt in the field of education. In this paper, the decision tree method of data mining technology is introduced into the employment data analysis of higher vocational colleges. The analysis results will help to improve the pertinence of talent training programs and improve the employment quality of school students. Of course, in the actual analysis operation, select a small data training sample to get the

analysis result persuasive is limited, at this time we will face thousands of data, data attributes will reach 10 or more. Therefore, we can not simply use manual calculation, we need to seek the help of computer software [21–24]. Sasanswer tree is two kinds of decision tree analysis software which are widely used.

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