Tuijin Jishu/Journal of Propulsion Technology
ISSN: 1001-4055
Vol. 45 No. 2 (2024)

# The Employability Diagnosis System Based On Smart Cloud Data and Diagnostic Support Can Provide Learning Support and Guidance for Improving the Employability Skill of College Students

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***Abstract:-*** The current job market is still fiercely competitive, with limited job opportunities, narrow employment concepts among students, weak proactive employment awareness,weak ability to collect and screen employment information, poor job application ability, and common problems of difficult employment, slow employment, and lack of employment. The research object of this article is third year graduates.Due to factors such as the national economic environment, social employment situation, market environment, school curriculum, and personal comprehensive quality, the employment ability of college students is generally not high, and there is a prominent problem of insufficient employment ability. Therefore, studying the employment problem of students has scientific significance and practical value. The research purpose of this article is to accurately identify the problems existing in students' employability and how to improve their employability, providing more scientific decision-making basis for school employment guidance work. Therefore, this article analyzes the factors that affect the success of student employment through the diagnostic thinking of employment ability, designs a college student employment ability guidance system based on electronic and diagnostic thinking, and uses diagnostic labels to classify student employment issues. The system has comprehensive, convenient, and efficient functions, and can provide scientific, clear, and accurate direction and basis for school employment guidance work. The experimental results of this article indicate that when analyzing the employment situation of students through traditional employment guidance teachers or career counselors, the accuracy rate of the problem of insufficient employment ability of students is 46.6%. However, when analyzing the employment situation of students through the system, it was found that the accuracy rate of the problem of insufficient employment ability of students was 95.6%. From this, it can be seen that the system provides a more accurate analysis of employability.

***Keywords****:* smart cloud data, diagnostic thinking, college student employment ability guidance system, employability skills, learning support.

## 1. Introduction

The college employment guidance teaching and work utilization employment ability guidance system can quickly collect and judge the employment ability performance of students, thereby improving work efficiency, reducing work intensity, and playing an important role. The database also accumulates a large amount of employment data. However, currently, most of the work carried out by employment guidance institutions in universities mainly involves obtaining, querying, statistics, and backup of basic employment information for students. A large amount of employment data has not been thoroughly analyzed, and the information and knowledge contained in this data have not been fully utilized to grasp the trend of student employment ability development, which cannot provide decision-making support for employment guidance work.

Data mining is the process of extracting hidden information and knowledge from a large amount of data. Significant achievements have been made in the development of data mining technology in fields such as retail, finance, and telecommunications. If data mining technology is applied to the development of employment ability analysis systems, corresponding algorithms can be used to analyze the massive, fuzzy, and random data information in student employment ability guidance records, discover hidden information, and help employment guidance teachers make more scientific and rapid judgments on student employment ability. Timely employment guidance and intervention can improve work efficiency and thus increase employment rates. Propose to establish an employment information platform and improve the employment service system (Wang, 2018). (Wang, 2018) proposed the construction of an employment ability training information system, the establishment of an employment information platform and sharing mechanism. For example, (Li et al., 2020; Zhang et al., 2020) proposed research on new media platforms for online simulated interviews, and (Chen & Zhang, 2020) proposed using a career simulation testing system to study students' employability; For example, (Bao,2021) and (Hu, 2021) advocate for research on the employability of college students in the era of all media and the context of artificial intelligence,and (Guo,2021)research on the path to enhance the employability of college students in the context of smart education; (Zhu,2021) proposed to build a virtual laboratory, develop a platform, and improve the employability of college students with the help of media based on the school enterprise cooperation model and the advantages of the Internet, which is also the place where follow-up research needs to be further improved. The above scholars believe that the construction of an employability guidance system is very necessary because it can analyze and provide feedback on the employment status of the subjects, so that people can more timely discover the problems of students' employability.

In the post pandemic era, the employment situation faced by college graduates is complex and severe, and employment competition is becoming more intense(Zhang &Chen,2021).The number of graduates is increasing year by year, and the number of unemployed people in various industries is constantly increasing. Overseas students have also formed a certain impact on the domestic employment market (Long & Yu, 2022). The "Employment Blue Book:2023 China Undergraduate Employment Report" released by the McKinsey Research Institute also points out that the uncertainty of economic development in recent years has strengthened the mentality of college students seeking employment stability. University administrators need to further pay attention to the career choices of students, guide and assist them in planning their studies and career development in a reasonable manner, in order to reduce the occurrence of college students evading the civil service or civil service exams. Therefore, in response to the common problem of insufficient employment ability among college students, timely diagnosis and analysis of their employment ability is a hot research topic to improve their initiative, enthusiasm, and pertinence in employment. The research proposed by Chen (2019)suggests that "EDP is an effective diagnostic tool that can help college students identify their own employment development needs." There is also a consistent research result proposed by (Xue et al.,2021)that "by proposing hypotheses,designing questionnaires, and establishing structural process models (SEM), the influencing factors of college student employment are explored to provide reference for better promoting college student employment in the post pandemic era."; And (Li et al.,2022)analyzed from the perspective of curriculum teaching, proposing that "in the diagnosis of the educational process, curriculum learning behavior, curriculum cognition, classroom teaching, and teacher feedback have a strong promoting effect on employability; In the diagnosis of the learning process, students' higher-order cognition and learning strategies have a significant impact on employability."Analyzing the employment ability of college students through smart cloud data and conducting precise interventions based on diagnostic results has become a hot topic of concern for scholars at home and abroad. The main content of this article is to use smart cloud data and diagnostic support to analyze the correlation between the factors that lead to the problem of low employment ability of students, as well as the main factors that affect the success of student employment.

## 2. Overall design of the student employability guidance system

Entering the 21st century,social competition intensifies, and the number of graduates is increasing year by year.Students are facing enormous employment pressure.Faced with increasingly severe employment pressure,students need to continuously enhance their employability in order to adapt to changes in various

recruitment forms, find employment as soon as possible, and achieve higher quality employment. (Cao &Yi ,2020)The study further expands the connotation of precision employment by elaborating on the concept, significance,and implementation path of precision employment, focusing on precise information and ability,and providing effective guidance for the employment of college students in the post pandemic era. Accurate and effective employment guidance is crucial for students,as it relates to personal development, every family, and the development of universities.Therefore,it is necessary for universities to develop a student employment ability guidance system to provide students with accurate employment advice and guidance (Long & Yu,2022).At present,Chinese universities have specialized employment information registration platforms or employment information upload systems. Although a large amount of employment data has been accumulated, these data are only surface level and fixed models, without further proposing more useful information and models, which hinders the full utilization of student employment ability archives. Therefore, this article uses smart cloud data to analyze employment data and elaborates on the design of an employment guidance system.

### 2.1 Overall System Design

In the Internet information age, the Internet is the basic data platform for integrating various information resources. In order to enable college students to make better use of Internet resources for employment guidance education and management, and to meet the needs of college students in the use of mobile phones and the Internet, it is necessary to build an employment guidance system based on smart cloud data (Lv & Chen ,2022).

The system needs to establish employment records for students and track their employment status in real-time and dynamically. It also needs to improve intervention mechanisms, provide timely and effective intervention, and take effective measures for students with employment difficulties(Zheng et al.,2023).On this basis, targeted employment guidance is provided to students based on their actual situation, and their employability is evaluated and analyzed.Promote the improvement of students' employability.By adopting various methods such as online learning, assessment,and employment consultation, students can comprehensively understand and master their employment status.Especially for students with employment barriers,they can achieve self-assessment and self-monitoring abilities through the employment ability guidance system. The system is shown in Figure 1.

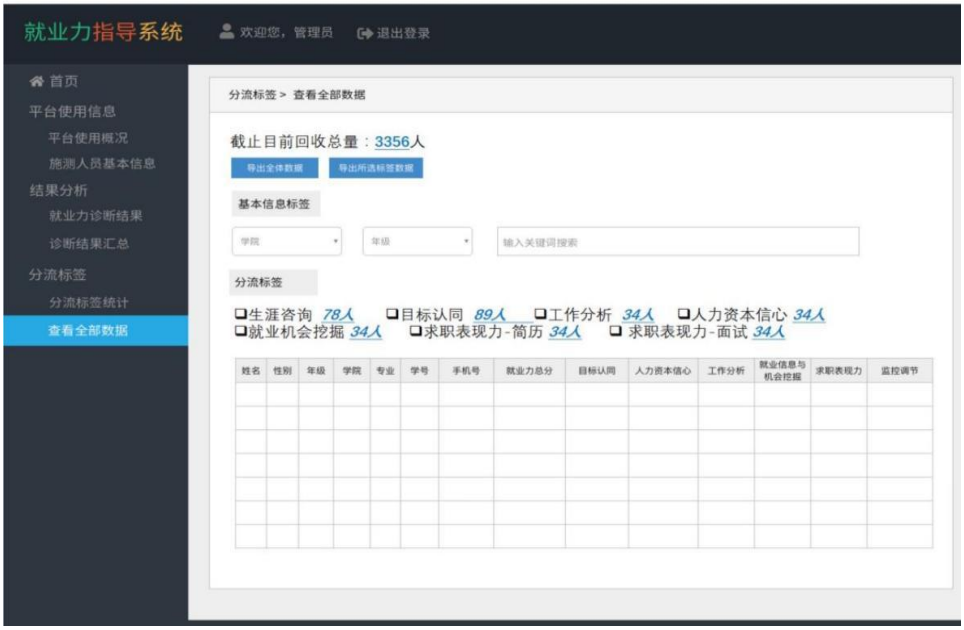


**Figure 1 Employment Ability Diagnosis System Interface**

As shown in Figure 1, the employability diagnosis system currently includes three major modules and six sub modules, including: employability testing (platform usage, basic information of testing personnel); Result analysis (diagnosis of employability, summary of diagnosis results); Shunt tags (Shunt tag statistics, viewing all data).User information can manage the personal information of consultants, including registration and login, password

modification, personal information modification, evaluation result statistics and queries,etc.The diagnostic result summary module can provide students with non face-to-face employment consultation and guidance through the internet,and save the user's employment consultation records. It can also provide users with an instant messaging platform.

Through this system, students can conduct tests,learn online,consult online or leave messages, and see employment ability diagnostic reports.After logging into the system,employment guidance teachers can reply to students' employment consultation requests,query or modify their employment records,and carry out employment testing management.After logging in, the administrator can manage the data.

(1) Design of Employment Ability Diagnosis Management Module

Diagnosis is equivalent to collecting data from various aspects to form a virtual "data center" that truly reflects "we understand students";

Firstly, the employment consultant prepares a set of employability testing questionnaires and adds them to the system for testing.On this basis,students log in and answer questions.The database automatically selects the questions for students to test, and students submit the test questions.Systematically analyze and process the collected data to obtain employment ability diagnostic test results.Finally,the employment guidance counselor sends the results of the employment ability diagnostic test to students who have employment counseling needs based on the test results.The functionality of this module helps students to understand their actual employment situation in real time and identify potential problems in a timely manner. Employment counselors can also better grasp the improvement of students' employability and solve problems in a timely manner.

(2) Design of Employment Ability Diversion Management Module

Diversion is equivalent to triage, guiding students with different needs to targeted resources. Because students - (1) are largely unaware of their potential problems; (2) Students do not know how to better utilize school resources.

Mainly record the diagnostic results of students' employability and classify them based on corresponding big data algorithms. Students choose corresponding employment guidance based on the corresponding labels, and counselors provide targeted employment guidance to students according to the classification of labels, improving the accuracy of employment guidance work.

(3) Design of Employment Ability Intervention Management Module

Intervention is equivalent to seeking medical treatment, providing targeted employment guidance for students based on their employment ability issues.

The employment consultation module mainly includes online consultation, online appointment, and message consultation. Students can directly provide online consultation or seek help from employment guidance counselors through online appointments, SMS consultations, and other means. Online consultation is the main module of the employment consultation module, and students voluntarily choose online counselors to communicate and consult with them. This system fully utilizes the advantages of virtual and shared networks, making communication between students and employment counselors more convenient. When the student's preferred counselor is not online, students can communicate with the counselor in a timely manner at the agreed time, thereby improving the quality of user service and enhancing the overall efficiency of the system.

**2.2 Functions of Employment Ability Diagnosis System**

Employment ability diagnostic system. Employability diagnosis is the analysis of factors that affect employment success, combined with an inventory of job seeking behavior. Based on the previous literature analysis and combined with the process of employment guidance and consultation, the eight factors that affect the employment of college students are summarized as follows: employment intention, goal identification,job analysis, human capital confidence, opportunity exploration, job performance, monitoring and regulation, and job search efficacy. The employability diagnostic system has two main characteristics:1)The employability diagnostic system mainly evaluates based on eight factors that affect employment success, and conducts employability evaluation tests

based on the employability diagnostic model theory; 2) Employability diagnosis takes the job search process as a clue, starting from a series of processes such as clarifying job intentions, job analysis, resumes, interviews, etc., to inventory students' job search behavior. The employability diagnostic system mainly has ten functions: 1) testing 2) report downloading 3) online learning 4) assessment monitoring 5) assessment personnel information 6) overall employability viewing 7) summary of diagnostic results 8) export by class (download report) 9) diversion label statistics 10) view diversion labels.

The employment force diagnosis system based on smart cloud data can provide each student with a test and a personal diagnostic report. Teachers can view the student evaluation status in the background, view the student's employment force situation, employment force diagnosis diversion labels, and download student reports. Students can use the employability diagnosis system to understand their own problems, gaps, strengths, and weaknesses. Teachers use employment assessment reports to design targeted teaching methods, improve teaching efficiency, enhance teaching effectiveness, and accurately guide students in improving their employability.

**2.3 Naive Bayesian algorithm for classifying employability diagnostic data**

Naive Bayes is a classic method in big data. This article explores the commonly used algorithms of Naive Bayes algorithm and applies Naive Bayes technology to the classification of student employment ability diagnostic results data, analyzing and mining the factors that affect student employment ability. Naive Bayes is used to analyze the correlation between factors such as employment intention, goal identification, job analysis, human capital confidence, job performance, monitoring and regulation, job efficacy, and the improvement of employment ability. New samples can be introduced into the model for classification.

Bayesian theorem:

$$P(B \mid A) = \frac{P(B)P(A \mid B)}{P(A)}$$

The probability of B occurring under the premise of A is equal to the probability of A occurring under the premise of B multiplied by their independent Bayesian theorem to achieve better results.

Using conditional probability for classification

$$P(C \mid \mathbf{X}) = \frac{P(C)P(X \mid C)}{P(X)}$$

>The probability that sample X belongs to category C should be expressed as follows

>Learn the prior probability P (C) and likelihood P (X | C) from training data

>For the unknown sample X, the class Ci that maximizes the conditional probability P (Ci | X) is the classification of X

Bayesian classifier

>Sample X is an n-dimensional feature vector, and c is the label of the i-th category

>The probability that X belongs to category ci

$$P(c_i \mid X) = \frac{P(X|c_i)P(c_i)}{P(X)}$$

>The denominator P (X) is the same for each class c and can be ignored Conditional Probability of Multiple Discretizer Properties

>Hypothesis of conditional independence: The different attributes of the X vector are conditionally independent samples to be classified

Calculate the conditional probability P (X1 | Cj) using the relative frequency of X1 in the training set of Cj class for each x1 and each category Cj

$$X = (x_1, x_2, \ldots, x_n)$$

For each class, perform the following two steps:

(1) Estimate the relative frequency of this class appearing in the training set, P ()

$$P(X \mid c_j) = \prod_{i=1}^{n} P(x_i \mid c_j)$$

(2) Using the naive assumption of independent attributes to design and calculate conditional probabilities

(3)Choose to make $P(c_j)P(X \mid c_j)$ Class Cj with the highest value as the output label

For the convenience of research, this study only conducted Bayesian classification on the employment ability diagnosis status of the survey subjects, and calculated the information acquisition rate of each label attribute in the training sample set: Naive Bayes is an extremely effective and simple model, which is conducive to short-term training and subsequent maintenance and management. Simple and stable, fast training and prediction speed, easy to understand, effective on high-dimensional sparse data, and can provide the best classification accuracy when probability information is complete.

## 3. The effectiveness of the employment ability guidance system based on smart cloud data

The Naive Bayes algorithm is used to construct data classification for employment ability diagnosis results, and generate diversion labels based on the obtained rules. Any employment guidance based on the diversion labels is used to analyze certain relationships between employment factors and student basic information. The obtained naive Bayesian model will be used to classify new data, providing scientific and objective decision-making basis for employment guidance workers.

### 3.1 Smart Cloud Data Collection Process

#### (1) Zhihui Cloud Data Preparation - Identifying Collection Objects

This article analyzes the employment ability of 300 students from a certain university in a certain province in 2023. They used a five level self-assessment scale for testing. Among them, 250 students have varying degrees of employment problems, and these 150 students with varying degrees of employment problems come from different majors. This article only conducted a survey and analysis on these 250 students. Using the Naive Bayes algorithm in classification analysis, this study explores the potential relationship between the self-assessment scale of employability and student basic information, and analyzes and explains the results obtained.

#### (2) Zhihuiyun data preprocessing

The dataset used in this article includes basic information of students (gender, student ID, school, college, major, grade, etc.), as well as employment evaluation data for each student. All types of evaluation data are extensions of students as the main objects in different dimensions. Therefore, before conducting data mining on these data, it is necessary to link and integrate them in order to better conduct data mining. High quality decision-making relies on high-quality data, and data preprocessing is a crucial step in the data mining process. In order to improve the accuracy, effectiveness, and scalability of mining, it is necessary to extract and clean the data used before mining, and finally preprocess the employment ability diagnostic data of the survey subjects.

### 3.2 Factors affecting the employability of college students

#### (1) Employment willingness

Measure employment intention and attitude towards job seeking, whether one will find employment or pursue further education after graduation, whether job seeking is important to oneself, and whether one is willing to

actively seek employment. (Including the degree of employment motivation and qualitative descriptive indicators such as emotions)

**Table 1. The degree of impact of employment willingness on employability**

| Degree of impact | Number of students | Percentage (%) |
|---|---|---|
| Very influential | 126 | 52.5% |
| Comparative influence | 87 | 36.25% |
| In general | 27 | 11.25% |
| Low affect | 10 | 4.% |
| Do not affect | 0 | 0 |

As shown in Table 1, 126 students (52.5% of the survey respondents) believe that employment willingness has a significant impact on their employability. No student believes that their willingness to work will not affect their employability.

Employment intention includes students' basic employment attitudes, emotions, and motivations. Through understanding students' employment intention, it is possible to quickly understand their real employment status and specific employment intentions, guide them to strengthen their proactive job seeking motivation, and shape a good employment mentality. Therefore, employment willingness has a significant impact on students' employability.

**(2) Goal identification**

Measure whether one has clear and stable career goals, which are based on self-awareness and career understanding, and are acceptable/recognized and not easily changed.

**Table 2 The degree of impact of goal identification on employability**

| Degree of impact | Number of students | Percentage (%) |
|---|---|---|
| Very influential | 131 | 52.4% |
| Comparative influence | 83 | 33.2% |
| In general | 28 | 11.2% |
| Low affect | 8 | 3.2% |
| Do not affect | 0 | 0 |

As shown in Table 2, 131 students (52.4% of the survey respondents) believe that target identification has a significant impact on their employability. No student believes that goal identification will not affect their employability.

Whether students have clear, stable, and information-based job search goals determines the direction of employment. Students can articulate or write specific job search goals, and information is the foundation of decision-making. Therefore, goal identification also affects students' employability.

**(3) Job analysis**

Assess students' understanding of the professional world based on their personal job search goals. Job analysis is the process of separating oneself from others during the job search process.

The foundation that stands out.

**Table 3 The degree of impact of job analysis on employability**

| Degree of impact | Number of students | Percentage (%) |
|---|---|---|
| Very influential | 133 | 53.2% |
| Comparative influence | 90 | 36.% |
| In general | 20 | 8% |
| Low affect | 7 | 2.8% |
| Do not affect | 0 | 0 |

As shown in Table 3, 133 students (53.2% of the survey respondents) believe that job analysis has a significant impact on their employability. No student believes that job analysis will not affect their employment situation.

Job analysis is a necessary step in targeted job seeking, as well as a key factor in winning resumes and interviews. Mastering the specific content of job analysis is a goal that can be quickly achieved in a short period of time, and this task is also the key to enhancing competitiveness. Therefore, job analysis ability also affects students' employability.

**(4) Human capital confidence**

Based on one's current learning and practical experience, assess whether one has sufficient competitiveness in the job market and future workplace.

**Table 4 The degree of impact of human capital information on employability**

| Degree of impact | Number of students | Percentage (%) |
|---|---|---|
| Very influential | 127 | 50.8% |
| Comparative influence | 88 | 35.2% |
| In general | 28 | 11.2% |
| Low affect | 7 | 2.8% |
| Do not affect | 0 | 0 |

As shown in Table 4, 127 students (50.8% of the survey respondents) believe that human capital confidence has a significant impact on their employability. No student believes that confidence in human capital will not affect their employability.

Human capital confidence refers to whether one has the courage to overcome other competitors in terms of ability. The confidence of students in human capital is mainly reflected in their reserve of practical experience, knowledge, and skills. Therefore, human capital confidence also affects students' employability.

**(5) Job opportunity mining**

Including knowing how to explore employment opportunities, being able to actively utilize various channels and resources to obtain desired employment information, and organizing and evaluating the obtained information.

**Table 5 The degree of impact of opportunity mining on employability skill**

| Degree of impact | Number of students | Percentage (%) |
|---|---|---|
| Very influential | 129 | 51.6% |
| Comparative influence | 86 | 34.4% |
| In general | 25 | 10.% |
| Low affectt | 10 | 4.% |
| Do not affect | 0 | 0 |

As shown in Table 5, 129 students (51.6% of the survey respondents) believe that their ability to explore job opportunities has a significant impact on their employability. No student believes that their job search skills will not affect their employability.

Job opportunity exploration includes: ability to collect employment/internship information, current business/internship information collection behavior. Students with strong ability to collect and analyze employment information are directly related to the effectiveness of improving employment ability.

**(6) Job search performance**

Measure self marketing ability, that is, whether one can effectively express oneself in resumes and interviews, in order to successfully obtain the expected position.

**Table 6: The degree of impact of job performance on employability skill**

| Degree of impact | Number of students | Percentage (%) |
|---|---|---|
| Very influential | 131 | 52.4% |
| Comparative influence | 87 | 34.8% |
| In general | 27 | 10.8% |
| Low affect | 5 | 2% |
| Do not affect | 0 | 0 |

As shown in Table 6, 131 students (52.4% of the survey respondents) believe that job performance has a significant impact on their employability. No student believes that job performance will not affect their employability.

Job search performance represents students' ability to self market during the job search process; The foundation of self marketing ability is to understand the needs of employers in order to carry out targeted job seeking behavior. Therefore, job seeking behavior also affects the improvement of students' employability.

**(7) Monitoring and adjustment**

Can you develop a job search plan, track and evaluate your job search progress, effectiveness of job search activities, emotional state, etc., reflect and summarize your experience, adjust strategies to obtain the expected position.

**Table 7: The degree of impact of monitoring and regulation on employability**

| Degree of impact | Number of students | Percentage (%) |
|---|---|---|
| Very influential | 125 | 50% |
| Comparative influence | 85 | 34% |
| In general | 29 | 11.6% |
| Low affect | 11 | 4.4% |
| Do not affect | 0 | 0 |

As shown in Table 7, 125 students (50% of the survey respondents) believe that monitoring and regulation have a significant impact on their employability. No student believes that monitoring and regulation will not affect their employability.

Monitoring and regulation represent the ability of students to manage their personal job search process, including planning, emotions, reflection, seeking help, etc., that is, the ability to mobilize their own and external resources to achieve goals. Therefore, the ability to monitor and regulate also affects students' employability.

**(8) Job search efficacy**

The confidence in one's ability to find the job they want, that is, whether one believes that they can perform well in a series of job search processes such as resumes and interviews, and have the ability to solve difficulties encountered during the job search process.

**Table 8: The degree of impact of job search efficacy on employability**

| Degree of impact | Number of students | Percentage (%) |
|---|---|---|
| Very influential | 135 | 54% |
| Comparative influence | 88 | 35.2% |
| In general | 24 | 9.6% |
| Low affect | 3 | 1.2% |
| Do not affect | 0 | 0 |

As shown in Table 8, 135 students (54% of the survey respondents) believe that job search efficacy has a significant impact on their employability. No student believes that job search efficacy will not affect their employability.

Job search efficacy represents "I have confidence in obtaining the offer I want", and job search efficacy directly affects students' job search performance. Therefore, job search efficacy also has a significant impact on students' employability.

Universities should innovate employment guidance education, innovate traditional employment guidance models, and use modern educational technology to ensure that employment should be based on "precise information, precise problems, and precise abilities.". We should strengthen the practical training ability of career guidance for counselors, innovate the thinking mode of career guidance, use the "diagnosis diversion intervention" model, use the employment ability diagnosis system to diagnose employment ability, accurately locate students' employment ability problems and current situation, classify according to the diagnosis results, and carry out precise intervention according to classification labels to fundamentally improve students' employment ability. At the same time, counselors should actively play their educational role in employment work, from ability education to employment education, guiding students to establish a correct employment concept and actively engage in employment.

### 3.3 System testing

**(1) System operating environment**

From the perspective of technical convenience in system implementation, the currently popular three architecture technologies have been selected in the software. MyEclipse is used as a development tool and SQL Server 2008 database to store data. 250 students were randomly divided into two groups. Each group consists of 125 students. The first group used 10 employment guidance teachers for analysis, while the second group used the system designed in this article for analysis. At the same time, employment guidance teachers are allowed to use the system and make them feel the benefits of the system.

**(2) Test usability and clear interface**

Next, it is necessary to test the usability and interface clarity of the system. The ease of use and interface clarity of the system for students and counselors are shown in Figure 2.

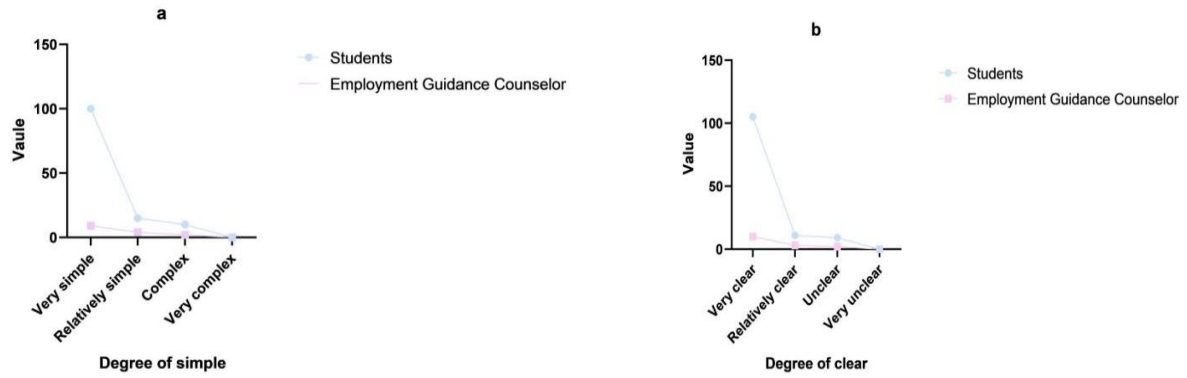


**Figure 2 Students and counselors' views on system simplicity and interface clarity**

**Figure 2 (a): System usability**

**Figure 2(b): System interface clarity**

As shown in Figure 3: Figure 2(a) shows that out of 125 students who used the system,94 students thought it was very easy to use, accounting for 75.2%. 31 students believe that the system is relatively easy to use, accounting for 24.8%. No student thinks that using this system is very complex.

Figure 2 (b) shows that in the system interface clarity survey,105 students (84.%) indicated that the system interface was very clear. Most students believe that the system interface is very clear, indicating that the system designed in this article has achieved the goal of clear system interface.

**(3) Functional testing**

When users perform login operations,they first need to determine whether there is a registered user in the system, and then determine whether the login information entered by the user matches the user's registration information in the system. If it meets the requirements, redirect to the feature page after successful login. If it does not meet the requirements, provide corresponding prompt information to the user. The integrity of system functionality also represents the success or failure of the system. Therefore, this article investigated the functional integrity level of the systems considered in Group 2, as shown in Table 2.

**Table 2 Functional Integrity of the System**

| Degree of completeness | Number of students | Percentage (%) |
|---|---|---|
| Very complete | 83 | 66.4% |
| Relatively complete | 35 | 28% |
| Generally complete | 4 | 3.2% |
| Incomplete | 2 | 1.6% |
| Very incomplete | 0 | 0% |

As shown in Table 9, 83 students reported that the system was very complete, accounting for 66.4% of the total. Only 2 students reported that the system's functionality was incomplete, accounting for 1.6% of the total.

Traditional manual statistical operations, such as employment data, can easily lead to negligence. Due to its correct storage of large amounts of data, fast data statistics, and strict data validation capabilities, this system can avoid errors and save a lot of manpower and time. This system transforms traditional and tedious work methods into a completely new way, thereby saving a lot of manpower and material resources. The functional modules of employment ability diagnosis, diversion, and intervention can provide better employment consultation and guidance services for students, effectively enhancing their employment ability.

Diagnosis is equivalent to collecting data from various aspects to form a virtual "data center" that truly reflects "we understand students"; Shunting is equivalent to triage table

Guide students with different needs to targeted resources.

Because students—

(1) To a large extent, they are unaware of their potential problems;

(2) Students do not know how to better utilize school resources.

3.4 Effectiveness of Employment Guidance System Analysis

(1) Reduce the blindness of employment guidance

Traditional employment guidance is mainly carried out through course teaching, daily employment work of counselors and teachers, and other forms. The course teaching time is limited, coupled with a large number of classes, it is difficult to refine and personalize theoretical knowledge explanations, and there is a lack of practical training for employment. Students do not identify their own problems in employment from the root, and their current employment ability is not clear which aspect of employment guidance they should seek. As a result, students do not have a clear intention to seek employment, do not have strong job seeking motivation, and do not accumulate good job seeking performance. The overall participation enthusiasm is not high, leading to a lack of understanding how to fully utilize the employment resources provided by schools and teachers, and thus unable to achieve true employment guidance effects.

The usefulness of employment counseling in Group 1 of Table 3

**Table 3 shows the perceived usefulness of employment counseling in reducing the blindness of employment guidance in Group 1.**

| Degree of usefulness | Number of students | Percentage (%) |
|---|---|---|
| Very useful | 17 | 14.2% |
| More useful | 12 | 10% |
| In general | 51 | 42.5% |
| Low use | 40 | 33.3% |
| No use | 0 | 0% |

As shown in Table 3: In Group 1, there are 17 students, accounting for 14.2%, who believe that career counselors are very useful in reducing their blindness in the counseling process. 12 students believe they are more useful, accounting for 10%. The proportion of students who consider it useless is 33.3%.

**Table 4. Perception of the usefulness of employment counseling in Group 2**

| Degree of usefulness | Number of students | Percentage (%) |
|---|---|---|
| Very useful | 60 | 50% |
| More useful | 36 | 30% |
| In general | 19 | 15.8% |
| No use | 5 | 4.2% |
| Low use | 0 | 0 |

Table 4 shows the usefulness of employment counseling in reducing the blindness of employment guidance perceived by the second group during the employment counseling process.

As shown in Table 4, in the second group, 60 students, accounting for 50% of the total, expressed that reducing their anxiety and confusion about employment through the system was very useful. 36 students expressed that it is more useful, accounting for 30%. 5 students said it was useless, accounting for 4.2%. It can be found that the method of the second group is more suitable for alleviating students' confusion and anxiety during the employment process.

In system based employment counseling, counselors can effectively avoid blind guidance and improve the effectiveness of employment guidance. Therefore, systematic employment guidance and consultation can greatly reduce students' negative attitudes towards employment.

(2) Diagnostic accuracy

With the increasing attention to student employment issues, various universities are actively carrying out various employment guidance and education work. At present, various universities in China have established student employment guidance institutions such as employment guidance centers and counseling centers, aiming to closely monitor and guide students in their employment issues, scientifically diagnose their employment problems, and enhance their employability. The analysis accuracy of different methods is shown in Table 5.

**Table 5 Analysis accuracy of different methods**

| Mental health status | Employment consultant | System |
|---|---|---|
| Severe | 67.7% | 96.8% |
| Moderate | 65.3% | 96.2% |
| Mild | 62.9% | 98.5% |
| Low | 66.4% | 97.9% |
| No | 0 | 0 |

As shown in Table 5, the accuracy of the analysis of employment guidance teachers for students with serious employment problems is 67.7%, the accuracy of the analysis for students with moderate employment ability problems is 65.3%, and the accuracy of the analysis for students with mild employment ability problems is 62.9%. The diagnostic accuracy of the system for students with severe employability problems is 96.8%, for students with moderate employability problems it is 96.2%, and for students with mild employability problems it is 98.5%.

In recent years, most of the eye-catching events in universities have been caused by the employment problems of students, which also indicates that the employment situation of college students has not been well resolved. The employment ability guidance system can provide better services for employment guidance teachers, helping them better understand themselves and accept reality.

**(3) Satisfaction**

This system is specifically designed for college students, including online testing, a personal diagnostic report, online course learning, and a group employability analysis report; Teacher: Check the evaluation and learning situation; View the employment situation of students, view the employment ability diagnosis and classification labels, and download student reports. The system has systematic, convenient, and dynamic operating characteristics, comprehensive functions, scientific module settings, and electronic learning elements. 1) Learning Management System. 2) Evaluation3) Communication,Learning (Online Micro Course),Evaluation (Assessment), Interaction (Online Expert Consultation), Feedback (Report Interpretation).

In the design process, intelligent cloud data and naive Bayesian classification thinking were used to ensure the accuracy of information, so as to fully utilize the diagnostic test data of employment ability, improve the employment guidance level of counselors, and gradually achieve the goal of convenient use, strong practicality, and scientific accuracy. The satisfaction levels of students and counselors from different groups are shown in Figure 3.

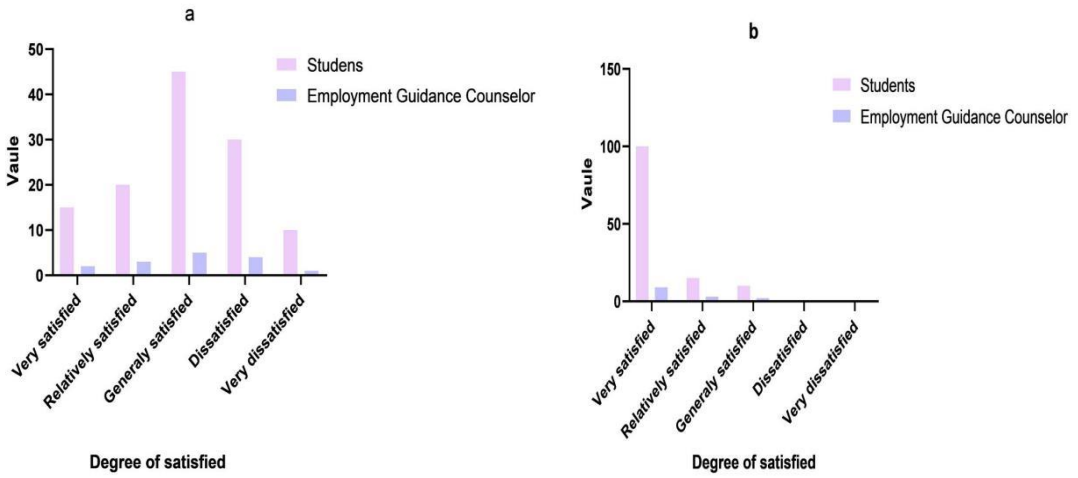


**Figure 3 Satisfaction of Different Groups of Students and Psychologists**

**Figure 3 (a): Satisfaction of Group 1 students and counselors**

**Figure 3(b): Satisfaction of Group 2 students and counselors**

As shown in Figure 5: Figure 3 (a) shows that only 11 students in the first group were very satisfied, accounting for only 9.2% of the total. However, 57 students were very dissatisfied, accounting for 47.5% of the total.

Figure 3 (b) shows that in the second group, 62 students were very satisfied, accounting for 51.7%, while only 2 students were very dissatisfied, accounting for only 1.7%.

## 4. Discussion

The use of an employment diagnosis system based on electronic learning can provide each student with a test and a personal diagnostic report. Teachers can view the student's evaluation status in the background, view the student's employment situation, employment diagnosis diversion labels, and download student reports. Students can use the employability diagnosis system to understand their own problems, gaps, strengths, and weaknesses. Teachers use employment assessment reports to design targeted teaching methods, improve teaching efficiency, enhance teaching effectiveness, and accurately guide students in improving their employability.

This is consistent with Long Pham et al. (2019) emphasizing that "the quality of e-learning systems is the most important aspect of overall e-learning service quality, and overall e-learning service quality is positively correlated with e-learning student satisfaction, which in turn has a positive impact on e-learning student loyalty." In terms of evaluation, this is consistent with the increasing trend of using discussion forums in learning management systems (LMSs) and conducting online discussions and peer evaluations in formal learning environments proposed by Siu Cheung Kong (2021). The entire model is technically appropriate, which is consistent with the view proposed by Abinev Ali Ayele&Worku Kelemework Birhanie(2018)that "e-learning enhances the teaching process and allows students to learn at their own pace and convenient time.". At the same time, it is consistent with Joel B. Johnson et al. (2021) who proposed that "e-learning has no speed and time limitations. Students can access content and learning at their own speed and time, promote active learning, and expose students to the use of multifunctional educational tools.". The medium of the model is also very appropriate, which is consistent with Siu Cheung Kong's (2021) proposal that "learners in the electronic learning process usually need to use digital communication methods to interact and collaborate with peers to complete learning tasks and share learning results."

## 5. Conclusion

With the enhancement of social competitiveness and efficient operation, some special groups of students are facing increasing pressure in various aspects, and events triggered by employment problems are emerging one after another. Although career counselors have made certain contributions to teaching students employment

knowledge and improving their employability, many psychological knowledge and mental health management cannot effectively manage and improve students' psychology.

Therefore, this article first analyzes the employment issues of students and uses cloud intelligence data analysis methods to explore the relationships and favorable information among various factors that lead to student psychological problems. This can reveal the hidden patterns behind a large amount of employment data, provide more effective and scientific basis for schools to carry out employment guidance planning and decision-making, and make employment consulting work more targeted. Finally, the system was tested accordingly. This analysis system not only has high operational efficiency, but also has high accuracy in analyzing mental health conditions, reducing the workload of employment counselors and improving the accuracy, timeliness, and completeness of employment guidance data.

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