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Developing Measurement Instruments for Public Universities Student Career Readiness in Xi'an, Shaanxi, China

Yingjie Liu*, Gary Tan

Malaysia University of Science and Technology (MUST), Block B, Encorp Strand Garden Office, No. 12, Jalan PJU 5/5, Kota Damansara, 47810 Petaling Jaya, Selangor, Malaysia

ABSTRACT
In the study of the career planning of the public university students in Xi'an,The analysis is carried out through literature research and data analysis.In the literature research method, through the collection of domestic and foreign research literature on career planning, career development and career status. Discusses the theoretical basis of this study, the main sources of information, Study museums, papers, etc. Through the database of knowledge and this monograph on career planning.In data analysis, it is similar to the form of questionnaire survey, but the data collected covers a wider range.This method is the core research method of this study.

KEYWORDS
Public Universities; Career Readiness; Developing; China

In addition, in order to ensure the better promotion of career planning for students of Xi'an Public University in Shaanxi Province,Make practical use of the current popular career planning system- "Beisen Career Assessment System".In current research on career planning, Kleinknecht and Herrerin (1982) determine that career planning is an evaluation and standard for oneself, and implement specific behavioral processes based on this standard. American scholar Hall (2004) used the "adaptability self-awareness" matrix to study and analyze, pointing out that self-awareness and adaptability are two "meta abilities" for career success, and the identification of personality traits, values, interpersonal relationships, and time concepts in career planning is correlated with self-awareness. Wu Linlin (2013) summarized the advanced experience of career planning education in Nordic countries and proposed useful insights that are in line with China's actual situation. Wang Huipeng (2019) explored the effectiveness of students' career planning from the perspective of innovation and entrepreneurship, and proposed some strategies to strengthen career planning; Xue Lei (2023) starts with the innovation of career planning education for local university students, points out the shortcomings of current universities in carrying out this work, and provides corresponding countermeasures and suggestions. For these studies, analyzing students' career planning from multiple perspectives. Complete the setting of the questions to be studied on the system, spread out in the lower grades, and let the students fill in the answers in the way of sampling in the higher grades. So as to understand the current situation of the university students' career planning and give the corresponding suggestions. The student data collected in this study mainly include two parts: personal background information and career planning and testing.

1 Setting of Vocational Assessment System

In the process of evaluating the career of public students in Xi'an, Gender, major, grade, living in towns or villages, whether they have been student cadres in school, whether they have part-time jobs or internships, Whether they have received career-related counseling and other variables are included in the framework of this study, and the specific setting structure is shown in Figure 1:

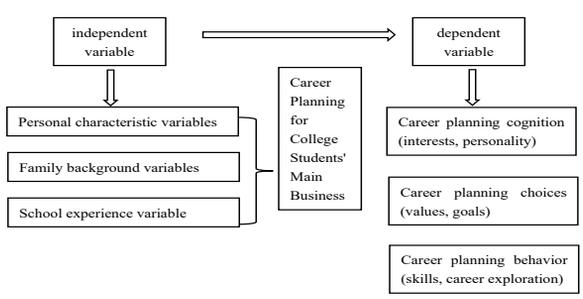

Figure 1 System Design Structure Diagram

2 Relevant Contents of Vocational Assessment System

From the perspective of the career assessment system, the test content consists of three parts: the first part is the personal background information of the students;The second part is a five-point symmetrical and isometric scale, and the third part is a career interest test.

(1) Personal background information

The personal background information section contains a number of independent variables required for this study. It mainly includes name, certificate number, graduation college, student type, educational level, enrollment time, graduation time, professional name, etc.Student number, political status, location of students, e-mail and telephone, etc.

(2) Five-point symmetrical and equidistant scale

The second part of this study adopts the form of the most typical five-point scale of the Likert-type scale. The corresponding scores for each option are: "1 = not at all", "2 = not quite", "3 =", "4 =" and "5 =Full compliance ",Students are tested in the current situation assessment test, the self-understanding test, the career exploration test, the decision-making action test, the interest test, the personality test,Values and personal skills will be applied to this scale.

(3) Career interest test

Interest is an important indicator of career choice, and interest is based on spiritual needs. In this study of career planning,If students have a clear understanding of their hobbies, interests, personality, temperament, ability and so on.It means that the individual's employment situation is better;The trend of the score at this level can also help the author to analyze the suitable occupation for the individual. So as to give reliable advice. In this paper, career interest is mainly divided into six categories, which are intuitively reflected by regular hexagonal graphics, as shown in Figure 2.

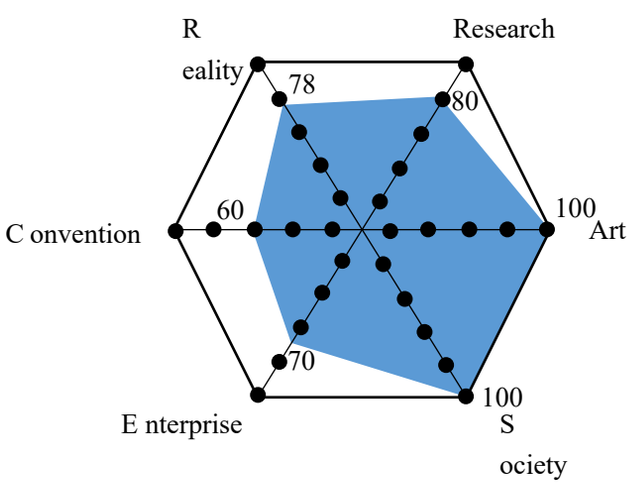

Figure 2 Personality classification

Social type (S): sociable, friendly and eloquent. Typical occupation: teacher, consultant, public relations.

Enterprising (): Leadership, ambition, risk-taking. Typical occupations: manager, sales, government official, CEO, lawyer.

conventional type (C): stick to stereotypes, careful. Typical occupation: secretary, clerk, accountant, cashier.

Practical type (R): good operability and strong hands-on ability. Typical occupations: carpenters, cooks, skilled workers.

Research (I): Abstract thinking ability, strong curiosity, willing to think, quick thinking. Typical occupation: scientist, programmer, doctor.

Artistic type (A): Love to show oneself, be active and innovative. Typical occupations: actor, artist, photographer, designer.

In the assessment system used by students, the Holland code is obtained by generating a reading chart report according to the answer results of students. The Holland code usually consists of two codes, SI or IS, and in some cases three codes, and the third code may have I or R.The lowest code in general is C.Students can see their Dutch code through the test results, which can theoretically help students understand themselves better. Understand interests, hobbies, personality and so on, so as to help students find suitable professional development.

Career personality test

In the process of systematic testing, a total of 16 reports can be summarized.Specific personality test reports are given from the four dimensions of different tendencies and the clarity of the tendencies. It can also be summed up as four dimensions and eight tendencies.

Values test

The value of the system used here is divided into six dimensions, which is based on the O * Net system.Specifically, the

six dimensions are: pursuit of success, focus on relationships, respect for independence, support for satisfaction, praise, and working conditions.

Vocational skills

In this system, the meaning of professional skills is what you can do. The system breaks down occupational skills as follows:

Basic skills: 10

Complex problem-solving skills: 1

Resource management skills: 4

Social skills: 6

System skills: 3

Technical skills: 11

According to the test results submitted by the students, the best five skills and the worst three skills are sorted out. As well as the current hot skills and other ways to explore skills.

3 Data processing method

In the process of career planning for students in Xi'an Public University in Shaanxi Province, By preprocess that data exported from the Beisen occupation evaluation system and manually fil the actual part, SPSS software and R software are used for the tool, and the details are as follows:

(1) Descriptive statistical analysis

It is divided into three aspects: (1) frequency distribution table analysis; (2) statistical descriptive analysis; (3) average analysis process. The real data collected in this study were imported into SPSS software, and then the conventional indicators such as frequency, central tendency and dispersion degree were calculated. This paper uses numerical valid to analyze the four major aspects of college students'current situation assessment, self-understanding, career exploration and decision-making action.Physical condition.

(2) Correlation analysis

The data collected in this study are all continuous variables. Pearson's simple correlation coefficient was used to measure the relationship among the four aspects mentioned above: current situation assessment, self-understanding, career exploration and decision-making actionAnd whether there is a correlation between them and the overall career planning of college students, in order to test the reliability and validity of this study.

(3) Difference analysis

The analysis method of difference is to determine whether there is a significant difference between each subgroup by t test or variance test.Here is the main need to analyze: different family locations, with or without the experience of student cadres, different internships or part-time, experience.Different career counseling and so on, the differences in the level of career planning among these groups.

(4) Factor analysis

There should be an internal relationship between the dependent variables of career planning level, which needs to be proved by research. Observe the basic structure of the data, and generate several "abstract" variables to represent the basic data results.This is the concrete evaluation and abstract factor analysis method. Because factor analysis is not always applicable to the entire study, Therefore, the author only uses the factor analysis method to analyze the data in the prediction stage.

(5) Regression analysis

Regression analysis is an independent category of statistical methods, which has a wide range of uses. It is usually a statistical method used to test the relationship between two or more quantitative data. The influence of personal characteristics variables, family situation variables and school life variables on the career planning level of college students will be examined below.It will effectively use the method of regression analysis to analyze.Hope to find out the various factors that can affect the career planning of college students.

(6) Cluster analysis

In the study, the function of clustering method is similar to classification, both of which are expected to make the individual interval of the same characteristics as small as possible. The distance between individuals with different characteristics is as large as possible, so as to separate the objects. It is of practical significance to apply this kind of method to this paper.It can help colleges and universities to adopt different teachers and methods according to different types of students when carrying out career counseling work.Improve the efficiency of career counseling. Theoretically, the definition is as follows:

$C = \{C_1, \ C_2, \ldots, C_k\}$, where is a subset of X, $C_i\{i = 1,2,\cdots,k\}$

$$C_1 U C_2 U \cdots U C_K = X$$
$$C_i \cap C_j = \Phi, i \neq j$$

Where C1, C2.. Ck and other K objects are called classes, and each class has its own characteristics.

(7) K-means algorithm

The processing flow of the k-means algorithm is as follows: firstly, the objects with the number of K are randomly selected,And these K objects are initially represented as the mean or center of the cluster. It is defined as follows:

$$E = \sum_{i=1}^{k} \sum_{p=C_i} \left(p - m_i \right)^2$$

Where mi is the mean of the cluster Ci (both P and mi are multidimensional).

(8) PAM algorithm

PAM algorithm is one of the earliest k-medoids algorithms, also known as the center point algorithm. It tries to randomly generate K points as centers first, and then find another better center point after repeated attempts. For example, an object Oj is the initial center point, which is then replaced by an object Oj 'that minimizes the error squared value.

The set of better objects generated over and over again in the course of repeated iterations will eventually form an optimal set, To be the center of the next iteration. When the above two methods are used, generally speaking, when dealing with "noisy" data, The k-medoids method is better than k-means algorithm, This is because the center point method is generally less likely to produce extreme data results.

4 Formation of Test System

After roughly drawing up several sections that need to be tested, the author sought the opinions of the leaders and contacted three educators, the psychology teacher tested and modified it, and then selected ten students to test the system internally.

And collect and listen to the students' opinions and problems, and make relevant adjustments. Finally, a relatively perfect career planning statistical survey and evaluation system has been formed to be used by the Institute.An overview of the specific evaluation system is shown in Table 1:

Table 1 Overview of the Assessment System

	Dimension		Quantity of questions
Career planning	Status assessment	Take control of your current situation	8 minutes 17 minutes
	Self-understanding	Interests, character, values, skills	20 minutes 94 minutes
	Career exploration	Job search and job recommendation	10 minutes 20 minutes
	Decision-making action	Decision-making process, action plan	None (Decision Balance Sheet)

Due to the large number of questions, this study selects some screenshots of the student answer test system as shown in Table 2:

Table 2 Student Answering System

1. I can say what I value (e.g., fame, achievement, income, or security)	1 is very inconsistent	2 doesn't quite fit.	3 is somewhat consistent	4 fits very well
2. I can name a few activities and things that interest me.	√	√	√	√
3. I know what I'm good at and what I'm not.	√	√	√	√
4. I know what I learn the fastest.	√	√	√	√
5. I can name some of my most outstanding personality traits.	√	√	√	√
6. I know the details of my favorite career.	√	√	√	√
7. I have collected relevant information and suggestions about my favorite career.	√	√	√	√
8. I have investigated the occupations I am interested in, and I am familiar with their specific work content, remuneration, working conditions, etc.	√	√	√	√
9. I have examined certain career fields and learned about some of the fastest growing careers with the best opportunities for growth.	√	√	√	√
10. I use newspapers, the Internet and other channels to search for career information that I am interested in.	√	√	√	√

Generally speaking, through the analysis and exploration of the career evaluation system of public students in Xi'an, Shaanxi Province,It can make a sufficient analysis of all kinds of elements in students' career, which is important for the overall planning and construction of students' career.It has important reference significance.

About the Author

*Corresponding Author, Yingjie Liu, Email: liu.yingjie@phd.must.edu.my;Gary Tan, Email: gptan227@gmail.com

References

[1] Klein knecht, M. K, Hefferin, E. A. Assisting growth: Anurses towards professional career development model [f] . Journal of Nursing Administration ,1982.12(5):30-36.

[2] Hall, Douglas T. The protean career: A quarter- century journey. Jour-nal of Vocational Behavior, 2004.

[3] Wu Linlin, Liu Lei Experience and Inspiration of Career Planning Education in Nordic Countries [J] Journal of Jilin Provincial Institute of Education: Late, 2013, 29 (5): 2. DOI: CNKI: SUN: JJKK. 0.2013-05-010

[4] Wang Huipeng Exploring the effectiveness of career planning education for vocational college students in the context of innovation and entrepreneurship [J] Journal of Heilongjiang University of Education, 2019, 38 (2): 3. DOI: 10.3969/j.issn.1001-7836.2019.02.022

[5] Xue Lei Cultivation of Entrepreneurship, Employment, and Innovation Awareness among College Students: A Review of "Career Planning and Employment Entrepreneurship Guidance" [J] Technology Management Research, 2023, 43 (3): I0016