



Survey Analysis of University Students' Satisfaction with Their Majors

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Abstract. The level of college students' professional satisfaction will have a very important impact on their future study and employment, while the student satisfaction survey has a unique reference value to view the teaching quality and service level of the school from the student's perspective. In this paper, we use factor analysis, Spearman correlation analysis independent sample t-test one-way ANOVA method and ordered logistic regression model to process and analyse the data and study the degree of professional satisfaction of college students from four dimensions. It is found that gender, grade, and the main factors of college students' choosing majors have a significant effect on college students' major satisfaction.

Keywords: professional satisfaction; university students; ordered logistic regression model; correlation analysis.

1 INTRODUCTION

With the rapid development of the contemporary economy, social industries flourish and prosper, and the demand for talent in today's society is gradually increasing. The choice of college students' majors, affects college students' career planning, contemporary college students' satisfaction with their majors, affecting college students' interest in learning, affecting their development^[1], and playing a guiding role in the direction of future employment.

The survey of college students' professional satisfaction, is conducive to students' reasonable choice of schools and professions, and also conducive to the self-improvement of various professions in colleges and universities, which can make colleges and universities give more consideration to the actual needs of the students, set up practical and applied professions, and be more relevant to the real situation in the teaching content, and help colleges and universities to effectively grasp the faculty of professions, theories and practices of teaching, etc^[4]. and the degree of conformity with the expectations of the students, and help the schools to It helps universities to effectively grasp the degree of conformity between the teaching staff, theoretical and practical teaching

and the students' expectations, which is conducive to the discovery of problems in the professional setting and better improvement of teaching quality^[3].

2 DATA PROCESSING

Firstly, the collected data were tested for missing values, outliers, and repetitive values to improve the scientific validity of the data. The result of the test is no missing values outliers, and repetitive values. To further understand the reliability and validity of the questionnaire, after pre-processing the data, the processed data were used to carry out the reliability test of the total table, the dimensions, and the total table, and the test result was that the questionnaire had better reliability, and the following data analysis could be carried out.

3 DESCRIPTIVE STATISTICS

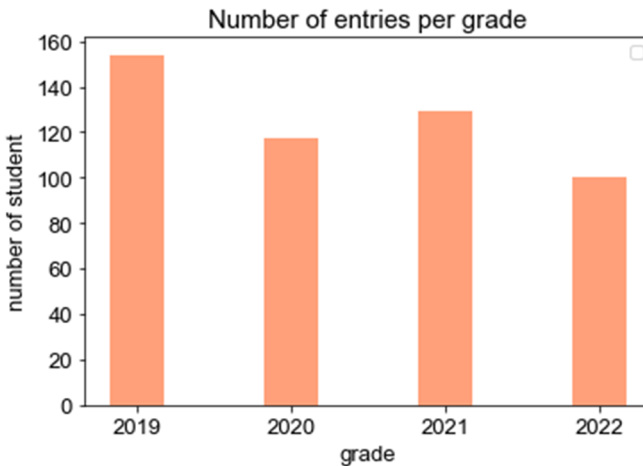


Fig. 1. Histogram of the number of people filled in by grade

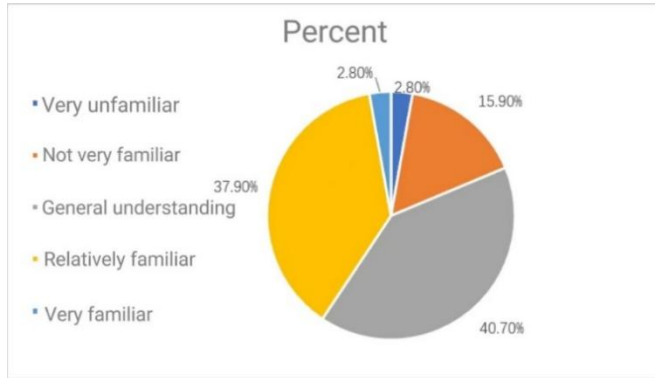


Fig. 2. Understand the degree of the people filled in by grade profession than the map

In Figure 1, the number of 2019 students is the largest, indicating that 2019 students are relatively more active in participating in this research. The length of college students' enrolment time may affect their own experience of the profession and the change of their proposal.

In Figure 2, most of the students knew their majors in general or relatively well before entering the school, and very few of them knew very little or very well, which can be concluded that most of the students knew more or less about their chosen majors, only that they did not know them well enough.

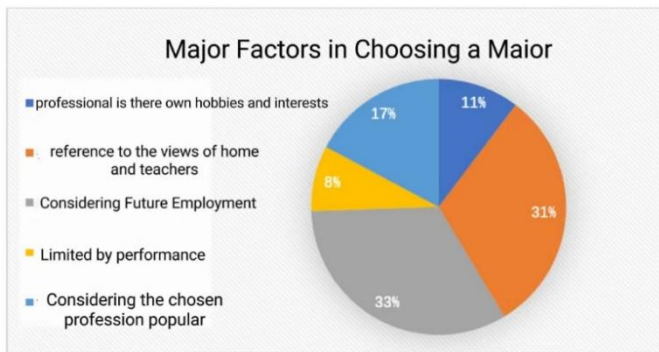


Fig. 3. Major Factors in Choosing a Professional

From Figure 3, the number of students who referred to parents' and teachers' opinions and considered future employment is higher, which can be seen that students consider future employment and parents' and teachers' opinions more, which is a more realistic reflection of the factors that students consider before choosing their majors.

4 ANALYSIS RELATED TO COLLEGE STUDENTS' PROFESSIONAL SATISFACTION

4.1 To Examine The Correlation Between the Four Dimensions of Professional Satisfaction, Using Spearman Correlation Analysis

Table 1. Correlation coefficient table

	Employment confidence	Student perception	Professional software and hardware	Curriculum
Employment confidence	1(0.000***)	0.478(0.000***)	0.579(0.000***)	0.559(0.000***)
Student perception	0.478(0.000***)	1(0.000***)	0.761(0.000***)	0.788(0.000***)
Professional software and hardware	0.579(0.000***)	0.761(0.000***)	1(0.000***)	0.877(0.000***)
Curriculum	0.559(0.000***)	0.788(0.000***)	0.877(0.000***)	1(0.000***)

Note: ***, **, * represent 1 percent, 5 percent and 10 percent significance levels

As shown in Table 1 above, it can be concluded from the correlation coefficient that the correlation coefficient between the curriculum and professional hardware and software reaches 0.883, There is a strong correlation between the two, and combined with the actual professional curriculum, college students' satisfaction with the professional curriculum and professional hardware and software is positively correlated.

The correlation coefficients between students' perception and curriculum, professional hardware, and software are 0.779 and 0.76 respectively, which can be analyzed to show that students can feel the importance and professional strength of the school to the profession through the curriculum, professional hardware, and software of the profession.

4.2 Is there any Significant Difference in Professional Satisfaction by Gender

The two groups, boys and girls, are independent of each other and are not affected by each other, so the t-test for independent samples can be used, the purpose of which is to test the difference between the means of two independent parent groups, This is shown in Figure 4 below.

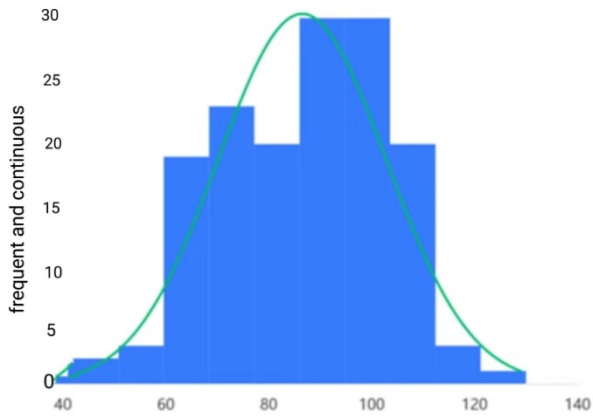


Fig. 4. Histogram of normality test

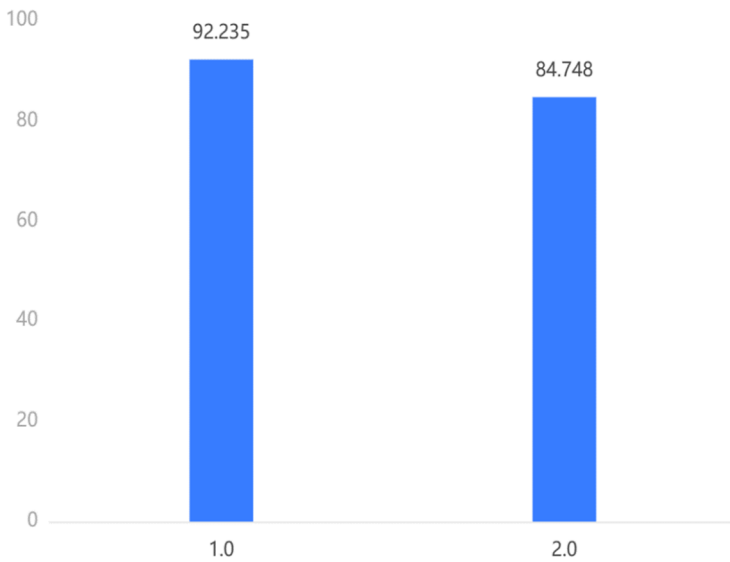


Fig. 5. Comparison of independent samples t-test means

Table 2. Independent sample T test analysis results table

variable name	variable value	sample size	average value	(statistics) standard deviation	t	P	mean difference	Cohen's d-value
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Overall satisfaction	1.0	117	92.235	16.102	2.378	0.019**	7.487	0.466
	2.0	383	84.748	16.05				
	(grand total)	500	86.503	16.319				

Note: ***, **, * represent 1 percent, 5 percent and 10 percent significance levels

From the above Figure 5 and Table 2 1.0 (male), and 2.0 (female) in the overall satisfaction of the mean value of: 92.235, 84.748; the significance of the results of the P-value of 0.019 **, so the statistical results are significant, indicating that there are significant differences between men, women in the overall satisfaction; after the t-test of the independent samples, analyzed the sex of the professional satisfaction of the significant differences, but the magnitude of the difference is small. This can also be explained, because have been surveys showing that the character of boys and girls, the learning of professions, ability, interest, and confidence in employment is different, for example, for the study of science and technology majors, generally, boys will be better, so the boys in the overall satisfaction with the profession will be slightly higher than the girls, and conversely, for the study of liberal arts majors, the girls will be generally On the contrary, for girls generally have an advantage, and their satisfaction with the overall learning knowledge and employment of the majors will be slightly higher than that of boys.

4.3 Differences in Satisfaction with their Profession by Grade, using one-Way Analysis of Variance

Table 3. ANOVA results

variable name	variable value	sample size	average value	Standard deviation	F	P
Overall satisfaction	2019.0	154	83.956	19.218	2.976	0.034**
	2020.0	117	91.973	12.258		
	2021.0	129	88.027	15.9		
	2022.0	100	80.962	14.57		
	(grand) total	500	86.503	16.319		

Note: ***, **, * represent 1 percent, 5 percent, and 10 percent significance levels, respectively.

From the above Table 3, it can be shown that there is a significant difference in the overall satisfaction of different grades, the first year students have just stepped into the university campus, they are not too adaptive to the university study and life, and they do not have enough understanding of their chosen majors, which includes the study courses, the way of classes, the difficulty of the examination, the employment prospects, etc., so the satisfaction of the majors in the first year will not be particularly high, but as As the grade rises, after continuous learning, participating in a series of practical activities organized by the major, deepening the understanding of the major, its cognitive level is also slowly improving, professional satisfaction will also slowly

improve, while the fourth-year students' satisfaction with the major compared to the larger three slightly decreased, because the fourth-year students will soon face the pressure of post-graduation employment, whether they can find a suitable job after the study of their majors will produce worry and anxiety, which will, to a certain extent, affect the students' satisfaction with their majors. This will affect the satisfaction of majors to a certain extent^[8].

4.4 The Association Between the Main Factors of Choosing Majors and the Satisfaction of Majors

Table 4. Frequency analysis results table

name (of a thing)	options (as in computer software settings)	frequency	Percentage (%)	Cumulative percentage (%)
The main factors in choosing a specialty	Considering future employment	166	33.103	33.103
	Referred to home and teachers	155	31.034	64.138
	Thinking that your chosen profession is popular	86	17.241	81.379
	Speciality is your hobby and interest	52	10.345	91.724
	Constrained by grades	41	8.276	100
add up the total		500	100.000	100.000

Table 5. Cross-tabulation of main factors for choosing a specialization* Satisfaction with specialization

name (of a thing)	The main factors in choosing a specialty					(grand total)
	Referred to home and teachers	Considering future employment	Speciality is your hobby and interest	Constrained by grades	Thinking that your chosen profession is popular	
unsatisfactory	4 (22.200 per cent)	8 (44.400 per cent)	1 (5.600 per cent)	3 (16.700 per cent)	2 (11.100 per cent)	62
usual	16 (34.800 per cent)	12 (26.100 per cent)	3 (6.500 per cent)	2 (4.300 per cent)	13 (28.300 per cent)	159
dissatisfied	24 (34.300 per cent)	22 (31.400 per cent)	7 (10.000 per cent)	7 (10.000 per cent)	10 (14.300 per cent)	241
very happy	1 (9.100 per cent)	6 (54.500 per cent)	4 (36.400 per cent)	0 (0.000 per cent)	0 (0.000 per cent)	38
(grand) total	155	166	52	41	86	500

From Table 4,5, it can be concluded that among the main factors of college students in choosing majors, more students will take into account future employment, refer to the opinions of teachers and parents, and majors are popular and go to choose majors, so these three factors have a greater degree of influence on college student's choice of majors. In addition, as shown in Table 3, the percentage of students who are dissatisfied

and satisfied is higher than that of those who are not satisfied, while the percentage of those who are very satisfied with their majors due to their hobbies and interests is 36.4%, and the percentage of those who are satisfied with their majors due to their parents' and teachers' opinions is higher than that of those who are satisfied with their overall satisfaction with their majors. The results of the analysis are in line with reality, as the overall satisfaction of college students considering their future employment also focuses on average satisfaction. Therefore, the main factors of college students in choosing their majors have a significant influence on their satisfaction with their majors.

4.5 Research on the impact of the conformity of professional training objectives and specifications with social needs, on- and off-campus internship bases, and professional innovation and entrepreneurship education on the employment prospects of the profession, using an ordered logistic model

Table 6. Likelihood ratio chi-square test

likelihood ratio chi-square (math.)	P	AIC	BIC
57.428	0.000***	311.35	332.187

Note: ***, **, * represent 1 percent, 5 percent, and 10 percent significance levels, respectively.

According to the results of the likelihood ratio chi-square test of the model, the significance p-value of 0.000*** presents significance at the level, thus the model is valid.

Table 7. Ordered logistic regression results

term (in a mathematical formula)	regression coefficient	standard error	z	P	OR	OR95 percent confidence interval	
						limit	lower limit
1. Alignment of professional training objectives and specifications with social needs	0.777	0.262	2.968	0.003***	2.176	1.302	3.636
7. Professional innovation and entrepreneurship education	0.44	0.205	2.146	0.032**	1.552	1.039	2.319
21. On- and off-campus internships	0.64	0.202	3.16	0.002***	1.896	1.275	2.82

Note: ***, **, * represent 1 percent, 5 percent, and 10 percent significance levels, respectively.

From Table 6, Table 7, it can be concluded that based on the variable professional training objectives and specifications in line with social needs, the significance p-value is 0.003***, which is significant at the level of significance, and the OR value of 2.176, which means that every increase in the professional training objectives. Based on the variable professional innovation and entrepreneurship education, the significance p-value is 0.032**, which shows significance at the level. Based on the variable on-campus and off-campus internship base, the significance p-value is 0.002***, which shows

significance at the level. It shows that the satisfaction of college students with three factors, namely, the conformity of professional training objectives and specifications with social needs, innovation, and entrepreneurship education, and on- and off-campus internship bases, will have a significant positive influence on the relationship of satisfaction with the employment prospects of majors.

5 REACH A CONCLUSION

(1) We explored the correlations between the four dimensions of professional satisfaction. There is a high positive correlation between curriculum and professional hardware and software, and vivid teaching cannot be achieved without excellent teachers and hardware facilities. In addition, students' perceptions are also closely related to the curriculum and professional hardware and software. The curriculum should be scientific and reasonable, and a humane school management mode, creating a positive, healthy, and personalized education and teaching environment, can make students feel more identified with the profession^[9].

(2) In terms of gender, there is a difference between male and female students' satisfaction with their majors, with male students' satisfaction with their majors being slightly higher than that of female students. This is due, on the one hand, to differences in the personalities of men and women, such as their sensitivity to the arts and sciences, and on the other hand, to the fact that the employment situation of men is generally better than that of women and that the problem of gender discrimination in employment encountered by female university students in the labor market is even more pronounced, which leads to a lower level of satisfaction with the professions of female students.

(3) There are significant differences in satisfaction with majors by grade level. Freshman to junior college students' satisfaction with their major is increasing, while it slightly decreases in their senior year.

(4) After analyzing, it is found that the advice of parents and elders and future employment occupies considerable importance in the choice of majors. Satisfaction is higher when choosing a major because the major is one's hobby, as a hobby is conducive to enhancing students' enthusiasm and initiative in the process of major study. The majors chosen by the limitation of grades and the pursuit of popularity are often unsatisfactory, so the satisfaction of majors is lower^[10].

(5) The satisfaction of college students with three factors, namely, the conformity of professional training objectives and specifications with social needs, innovation, entrepreneurship education, and on- and off-campus internship bases, has a positive relationship with the satisfaction of professional employment prospects. Cultivating objectives according to social needs improves students' practical application level and enhances employment prospects^[6]. Secondly, opening innovation and entrepreneurship education and giving certain help to young people will lead to more new jobs. On and off-campus internship bases enhance the employment competitiveness and work adaptation ability of college students through training, making college students' employment less difficult.

6 GIVE SOME ADVICE

(1) Optimise the curriculum and improve professional hardware and software

Colleges and universities should optimize the curriculum from the perspective of social needs and cultivate useful talents needed by society. At the same time, certain entrepreneurship guidance courses are offered to cultivate the entrepreneurial consciousness of hard work and improve their entrepreneurial ability. Improve the professional hardware and software to drive students' learning enthusiasm, and improve students' learning efficiency, to improve college students' satisfaction with the profession^[2].

(2) Enhanced guidance on choice of profession

The choice of specialty should be based on interest, combined with personal character and strengths, the realities of society and the prospects for the development of each occupation, and the views of teachers and parents. High school schools should strengthen their guidance to high school graduates in choosing a profession so that they can analyze these factors in depth when filling out their volunteers, and overcome the adverse effects of the excessive influence of factors such as "going to university" and "taking the score line into account".

(1) Actively organizing lectures on employment for university students

Lectures are actively held to analyze the employment situation and, through the introduction of typical cases of successful employment, guide them to face reality and build up confidence^[7]. As well as enabling students to learn to channel their employment pressure and adjust their employment mentality.

(2) Enhancement of School-Enterprise Linkages

There are plans and purposes to cultivate students' practical abilities so that they can adapt to the needs of society as soon as possible in the course of practice^[5]. Schools should be student-oriented, and through teaching and learning activities, students' comprehensive quality and ability should be upgraded.

REFERENCES:

1. Dou Shuohua. Empirical Study on Professional Satisfaction of Students in Foreign Language Departments of Jiangsu Universities - Based on an Examination of 27 Public Universities. *Journal of Changchun Normal University*, December 20, 2022.
2. Bie Dunrong. The educational philosophy and construction path of applied universities [J]. *China Higher Education Research*, 2022 (4): 1-8.
3. Ling Zhong; zhenpei Shan; shulan Guo; Yujie Ouyang. A Study on the Relationship between "Five Education" Inputs and Employment Satisfaction of College Students Based on SEM Model Relationship with Employment Satisfaction. *Adult and Higher Education*, 2023.5.11.
4. ZHANG Junyan YU Min. Research on Influencing Factors of Standard Essential Patent Value Based on Ordered Logistic Regression [J]. *Journal of University of Electronic Science and Technology (Social Science Edition)*, 2018, 20(1): 15-19.
5. Xiao Huazhu, et al. Research and Practice on the "Pan Practical Teaching" System in Local Undergraduate Colleges [J]. *University (Theoretical Edition)*, 2022 (8) 62-65:

6. FENG Qinxue, YUE Changjun. A study on the impact of professional interest match on employment satisfaction of undergraduate graduates[J]. Fudan Education Forum, 2023, 21(03):57-66.
7. Zhong Qiuming, Liu Keli. An empirical study on the influence of employment quality on the employment outlook of college graduates[J]. College Exploration.2015(3):107-113.
8. Y Wanqing. Research on the influencing factors of MTCSOL major choice in China[D].Qingdao University, 2023. DOI:10.27262/d.cnki.gqdau.2023.001169.
9. Lian Jingyan. An empirical study on the influencing factors of college students' learning and employability[D].Henan University of Economics and Law, 2021. DOI:10.27113/d.cnki.ghncc.2021.000528.
10. Yang Lu." Modern Educational Science, 2021, (06):134-140. DOI:10.13980/j.cnki.xdjyxx.2021.06.023.

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