

A Survey on the Degree of Satisfaction of Undergraduates

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Abstract

In this paper, a satisfaction survey of graduates of A University has been investigated through a self-designed questionnaire. Through the combination of qualitative and quantitative methods, the degree of satisfaction of graduates of A University to undergraduate education and its characteristics are described. The research results show that the overall satisfaction of A University's graduate is relatively high, which reflects that the quality of undergraduate talent training has achieved the anticipated effect. In the meanwhile, the research also finds out the main factors that affect the satisfaction of the graduates, providing reference for the university to improve their education service.

Keywords

Colleges and universities; student satisfaction; college graduates; education quality.

1. INTRODUCTION

College students' satisfaction refers to the feeling of students formed by the comparison between their actual perceived quality to higher education service and the expectations to the university. College students show a great expectation for the higher education they received and form their perception and evaluation to the satisfaction through experience[1]. College students' satisfaction is a subjective evaluation index of college students' learning results. It is an important criterion to reflect the degree to which college teaching conforms to social needs and to measure the teaching quality of colleges and universities. Therefore, to accurately and comprehensively understand the needs and satisfaction of students and to find the gap between them becomes one of the important reference indexes for the evaluation and improvement of teaching service quality in colleges and universities[2]. Student satisfaction survey has become an indispensable aspect in the quality evaluation of higher education[3].

At present, with the development of quality assurance activities such as evaluation, certification and monitoring, the student-centered concept and the understanding of students' subjectivity have been strengthened. As a consequence, the satisfaction survey of student has been paid more and more attention, and the satisfaction of college graduates has become a focus of quality assurance in colleges and universities. Student satisfaction, as a new perspective of current talent training quality, urgently needs the universities to conduct in-depth research on the issues related to college students' learning satisfaction.

2. RESEARCH METHODS AND DESIGN

In this study, A University was taken as the object of investigation. A self-designed graduate satisfaction questionnaire was used for the survey. In the survey, paper questionnaires were issued, the original data were managed by Excel, and the data were statistically analyzed by SPSS software (tool). The specific implementation is divided into the design of questionnaire, the sampling of the target group, the measurement of the sample, the analysis of the

measurement results and other steps, which is a process of data collection and analysis based on statistics.

2.1. Design of Questionnaire

2.1.1. Preparation of Scale

Questions were designed by searching the interview records of former graduates and other relevant questionnaire materials based on the management and summary of domestic and foreign literature on the factors affecting college students' satisfaction, and in combination with the actual situation of the university. The initial questionnaire was designed with 46 questions (Q1-Q46), among which 6 multiple choice questions (Q1, Q2, Q30, Q33, Q35 and Q37) were used to collect relevant information of students, and the remaining 40 questions were used to understand the measurement item of student satisfaction. Likert scale with grade 5 was adopted to design the scale. Each question has five choices of "strongly agree", "agree", "basically agree", "disagree" and "strongly disagree", which are represented as 5, 4, 3, 2 and 1 respectively. Students can choose one of the five choices on the scale according to their attitudes.

2.1.2. Revision of Scale

By selecting a small sample of 50 people similar to the population for the trial test, Q20 and Q26 were deleted after the first trial test. A second trial test was conducted on a scale containing 38 questions for a small sample of 100 people. The results showed that the reliability ($\alpha = 0.952 > 0.9$) and validity (KMO=0.892>0.8) of the scale were good; In the discrimination analysis, the critical ratio value of each question -- CR value was calculated. The results showed that the CR value of Q21 did not reach the significance level of 0.05 (that is, the T-test $p < 0.05$), indicating that Q21 could not well distinguish the response degree of different subjects, so it needed to be revised. After revision, the scale was used directly for pilot test

2.1.3. Conduct of Pilot Test

180 questionnaires were issued for pilot test and 179 were effectively received. According to the Cronbach's Alpha of 179 questionnaires $\alpha = 0.937$, the reliability of each question was relatively high. In the validity analysis, the KMO value is 0.971>0.8, indicating that the measured results can effectively reflect the content to be investigated. In the analysis of the discrimination, the critical ratio (critical ratio) of 38 questions was all less than 0.05, indicating that each question could distinguish the response degree of different subjects.

The indicators of questionnaire quality testing mainly include reliability, validity and discrimination. Through the calculation of the questionnaire quality test indicators, $\alpha = 0.959$ KMO=0.972 was obtained and CR values were all less than the significance level of 0.05, that is, the T test was significant (sig.<0.05), indicating that the collected sample data were suitable for data analysis. The CR values of the selected questions (38 questions in total) were all less than the significance level of 0.05, indicating that each question could distinguish the response degree of different subjects.

2.2. Research Object

In this paper, the 2017 graduates of A University were taken as the survey objects. Firstly, the stratified sampling at same proportion was adopted for each major, and then the students of each major were selected by systematic sampling according to their student numbers.

2.2.1. Determination of the Number of Samples

The total number of undergraduates that year was nearly 4,000, so the total number of samples was set as $N = 4000$. The sample size of this survey was determined by formula

$$n_p = \frac{Nt^2P(1-P)}{N\Delta_p^2 + t^2P(1-P)}$$
, among which the total number is $N = 4000$; the limit error is $\Delta p = 0.03$;

the overall percentage is $P = 0.5$; $t = 1.96$ (the probability is guaranteed to be 95%), and thus

$n_p = 842$. Considering the questionnaire recovery rate, effective rate and other factors, the sample size was determined as 1,000 persons.

2.2.2. Determination of the Sampling Proportion of Each Major

The sampling proportion of each major was determined as $\frac{842}{4000} = 0.2105$ by systematic sampling. Considering the questionnaire recovery rate, effective rate and other factors, the student number was used for sampling based on 25% of the major population. 1000 paper questionnaires were issued, 981 of them were received, in which 938 were valid, with the effective rate of 95.6%.

2.3. Data Processing and Analysis

Excel and SPSS22.0 software were adopted for statistical analysis of survey data, including: questionnaire quality testing, measurement results statistical description etc.

2.3.1. Questionnaire Quality Testing

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2.3.2. Factor Analysis

Exploratory factor analysis was carried out on the samples, with KMO value of 0.972, and the Bartlett's sphericity test value of 13362.064, $P=0.000 (< 0.001)$, indicating that it was very suitable for factor analysis. The principal factor was extracted by principal component analysis (PCA), and the rotated component matrix was obtained by orthogonal matrix rotated by varimax. Five common factors were extracted, with the cumulative contribution rate of 52.43%, indicating that the variance interpretation rate was good. See Table 1 for details.

Name each factor according to the rotated component matrix. Factor 1 has a large factor loading on 10 questions of Q17-Q19, Q22-Q24 and Q25-Q28, that is, factor 1 mainly reflects the information of these 10 questions. Combining with the actual meaning of each question, factor 1 was named as "Support from the school".

Factor 2 has a large factor loading on 11 questions of Q4-Q10, Q12-Q15, that is, factor 2 mainly reflects the information of these 11 questions. Combining with the actual meaning of each question, factor 2 was named as "Undergraduate teaching and student work".

Factor 3 has a large factor loading on 6 questions of Q40-Q43, Q45 and Q46, that is, factor 3 mainly reflects the information of these 6 questions. Combining with the actual meaning of each question, factor 3 was named as "Career guidance service".

Factor 4 has a large factor loading on 6 questions of Q3, Q18, Q31, Q32, Q34 and Q38, that is, factor 4 mainly reflects the information of these 6 questions. Combining with the actual meaning of each question, factor 4 was named as "Campus cultural activities".

Factor 5 has a large factor loading on 5 questions of Q11, Q21, Q36, Q38 and Q44, that is, factor 5 mainly reflects the information of these 5 questions. Combining with the actual meaning of each question, factor 5 was named as "Interpersonal relationships and environment".

Table 1. Total variance explanation variance

Component	Initial eigenvalue			Sum of squares of extracted load			Sum of squares of rotated load		
	Total	Variance percent	Accumulation %	Total	Variance percent	Accumulation %	Total	Variance percent	Accumulation %
1	15.072	39.663	39.663	15.072	39.663	39.663	4.846	12.753	12.753
2	1.461	3.844	43.507	1.461	3.844	43.507	4.786	12.595	25.348
3	1.332	3.506	47.013	1.332	3.506	47.013	3.656	9.622	34.970
4	1.093	2.876	49.889	1.093	2.876	49.889	3.610	9.499	44.469
5	.964	2.537	52.425	.964	2.537	52.425	3.023	7.956	52.425

Extraction method: principal component analysis.

3. RESULTS ANALYSIS

3.1. Overall Satisfaction Characteristic Analysis

3.1.1. Graduates Reported Higher Overall Satisfaction

The overall satisfaction was 81.51% by the percentage of agreement, which refers to the proportion of the number of “strongly agree” and “agree” options to the sum of all five options. The overall disagreement percentage of graduates was 2.93%, which refers to the proportion of the number of “strongly disagree” and “disagree” options to the sum of all five options.

3.1.2. Factor Analysis

The satisfaction comparison of each question shows that the agreement percentage of Q11 is the highest, which is 90%; Q34 has the lowest agreement percentage at 71.54%. The top 5 questions of the satisfaction ranking from high to low are Q11, Q36, Q31, Q16 and Q12, while the last 5 questions of the dissatisfaction ranking from high to low are Q38, Q6, Q18, Q7 and Q19 (Figure 1).

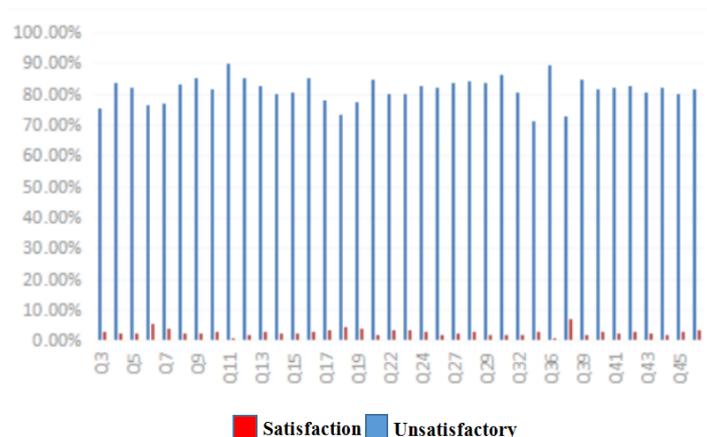


Figure 1. Satisfaction comparison diagram of each question

3.2. Analysis of Differences in Student Satisfaction

3.2.1. Difference in Colleges

The one-way analysis of variance was conducted by taking the average score of each question as the dependent variable and the college of the graduate as a factor. As the variance of students’ satisfaction degree varies from college to college ($Levene=5,731, p=0.000$), the mean robustness test was conducted ($BrownForsy = 245.468, p = 0.000$), and showed that there is a significant difference in satisfaction degree among graduates of each college. Tamhane method was used to further conduct pairwise analysis and comparison, and the results showed that the student satisfaction of C9 college is significantly higher than that of other colleges. The satisfaction of graduates of C3 and C9 colleges is relatively high, while the satisfaction of graduates of C1, C2, C4, C6 and C10 colleges is at a medium level. The degree of satisfaction of graduates of other

colleges is relatively low. The distribution of the mean satisfaction of each college is shown in Figure 2.

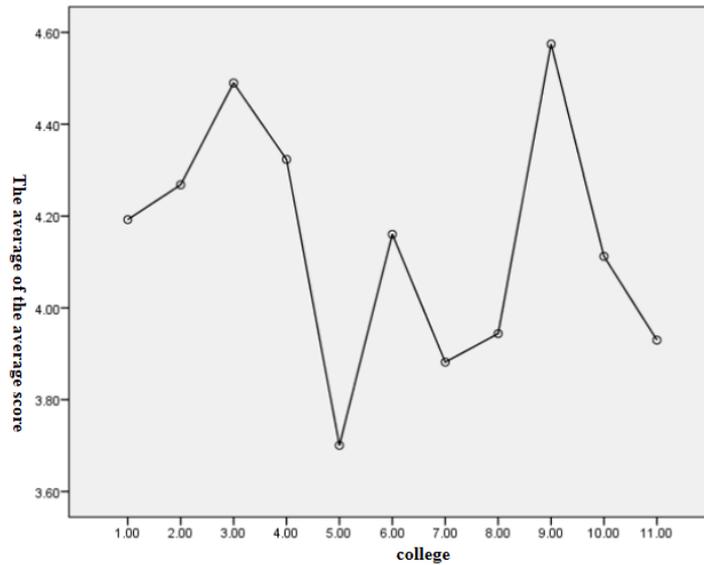


Figure 2. Distribution of mean satisfaction of each college

3.2.2. Gender Difference

The independent sample T test was conducted by gender, and the results showed that there were significant differences in gender in 4 questions among the 38 questions, and no significant differences in the rest. Specific data are shown in Table2-Table4. The gender difference shows in Q3, and the satisfaction of male students is higher than that of female students; In terms of Q11, Q17 and Q28, male students' satisfaction is significantly lower than female students'. The comparison of mean satisfaction of different genders is shown in Figure 3.

Table 2. Test table of homogeneity of variances

Question	Levene statistics	Degree of freedom 1	Degree of freedom 2	Significance
Q3	1.204	1	914	.273
Q11	16.804	1	921	.000
Q17	1.065	1	921	.302
Q28	.046	1	919	.830

Table 3. One-way analysis of variance (ANOVA) table

Question		Sum of squares	Degree of freedom	Mean square	F	Significance
Q3	Interblock	4.458	1	4.458	5.913	.015
	Interclass	689.082	914	.754		
	Total	693.540	915			
Q17	Interblock	4.045	1	4.045	5.562	.019
	Interclass	669.875	921	.727		
	Total	673.920	922			
Q28	Interblock	10.760	1	10.760	4.727	.030
	Interclass	2091.859	919	2.276		
	Total	2102.619	920			

Table 4. Mean value equality robustness test table

Question	Statisticsa	Degree of freedom 1	Degree of freedom 2	Significance
Q11	Brown-Forsy	5.876	1	.016

a. Asymptotic F distribution.

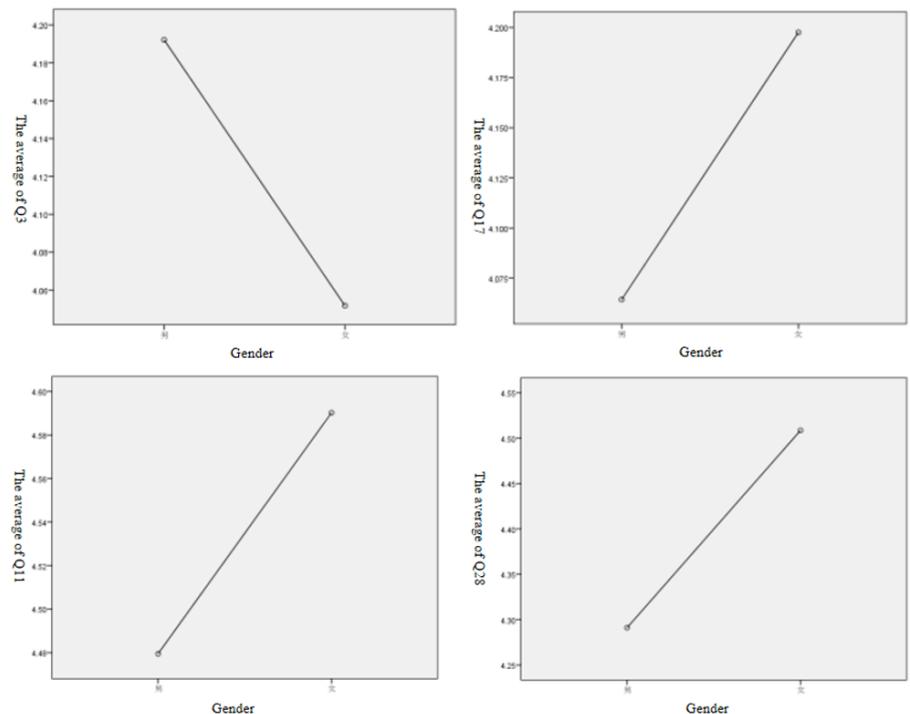


Figure 3. Mean satisfaction of different genders

3.3. Analysis of Factors Affecting Students' Satisfaction

Through factor analysis, it is found that the main factors affecting the satisfaction of graduates of our university include "Support from the school", "Undergraduate teaching and student work", "Career guidance service", "Campus cultural activities" and "Interpersonal relationships and environment", in which "Support from the school" (Q17-Q19, Q22-Q24 and Q25-Q28) and "Undergraduate teaching and student work" (Q4-Q10 and Q12-Q15) have significant influence in the student overall satisfaction evaluation. These two factors focus on the conditions of running a school and undergraduate teaching level, which are the two tasks that need to be improved in the local undergraduate colleges and universities, and also the two aspects that the colleges and universities pay attention to in terms of current quality assurance activities.

4. CONCLUSION AND SUGGESTION

Based on the qualitative and quantitative analysis of the survey data of A University graduates, the following conclusions and suggestions are given:

Student satisfaction can be measured with scientific methods and tools. The scale for graduate satisfaction used in this paper has good reliability, validity and discrimination, which is an ideal tool to measure graduates' satisfaction. The research data collected through the scale accurately reflect the actual feelings of the graduates of A University, and reflect the overall and emotional thoughts and opinions of the graduates on all aspects of their four-year university life and study.

As an indicator of the quality of university education and the learning outcomes of university students, the satisfaction of graduates in A University is relatively high and it reflects that the quality of university talent training has reached the expectation from a new perspective. Graduates' satisfaction with the school's teaching work, student work, employment work, books and network, logistics services and other aspects are also close to each other, which indicates that the school's career development in all aspects is relatively balanced, without obvious weakness.

The main factors affecting the satisfaction of graduates can be divided into two categories: one is the key factor, and the other is the condition factor. The key factors are mainly embodied in the undergraduate teaching courses, experiments and internships, which are the embodiment of the school's teaching strength and teaching quality. Strengthening the construction of discipline and faculty, and improving the quality of undergraduate teaching are the fundamental factors to increase student satisfaction. The condition factors are mainly embodied in the apartment, canteen and other logistic aspects, which are the embodiment of the educational resources investment and facilities conditions of the school. The key to prevent the decline of student satisfaction is to improve the institutional support and service system.

There is a significant difference in graduate satisfaction between colleges, which is generally reflected in the fact that the satisfaction of graduates in dominant disciplines is higher than that of general majors. This shows that the rising comprehensive strength of the college has a positive effect on the satisfaction of graduates, which is a reflection of the key factors to improve student satisfaction.

The key and importance of learning satisfaction lies in the fact that it is the subjective expression of college students' learning. The university should establish a long-term evaluation system for college students' satisfaction, carry out regular surveys on college students' satisfaction, strengthen the "student-centered" concept, and constantly improve the quality of educational service based on the needs of students. A variety of ways should be adopted to improve the overall satisfaction of students.

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