

## Postgraduate Education Service Quality and Student Satisfaction:

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### Abstract

This paper discusses the connotation and characteristics of postgraduate education service and postgraduate education service quality; considers postgraduates as the core stakeholder of postgraduate education and the main body of evaluation of postgraduate education service quality; analyzes the causality between postgraduate education service quality and student satisfaction. The revised SERVQUAL scale can be used to measure service quality and student satisfaction. A stratified sampling method was adopted to conduct a questionnaire survey among 222 postgraduates in HBAU, and the survey results were analyzed by SPSS. The analysis results show that postgraduates are generally dissatisfied with the service quality of HBAU. Variables such as gender,

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work experience, undergraduate graduation institution types, enrolment ways and school will affect postgraduates' satisfaction with the service quality of postgraduate education.

**Keywords:** postgraduate education service, service quality, student satisfaction

## 1. Introduction

Since the expansion of colleges and universities enrolment in China in 1999, postgraduate education has entered a stage of rapid development with the sharp increase in the enrolment scale of junior colleges and universities. The rapid expansion of the scale of postgraduates has not only brought good development opportunities to universities, but also an unprecedented series of development problems. For example, there are problems such as low teacher-student ratio, inadequate teaching equipment, and diversified postgraduate needs within colleges; the number of admissions colleges outside the school increases, and the autonomy and opportunities for postgraduates to choose schools increase. Under the new educational environment, the existence and condition of colleges and universities are not only related to the quality of teaching and personnel training, but also related to the social reputation of colleges and universities, and more importantly, related to the degree of satisfying students' needs. Therefore, many colleges and universities have changed school philosophy, began to pay attention to the various needs of

students. The study of education service quality and student satisfaction can not only grasp students' psychological and ideological dynamics in time, so as to carry out effective education for them and promote their growth and development. It can also help colleges and universities to recognize the shortcomings of education and teaching work, and adjust the focus of work and development strategy, so as to improve the quality of talent training and enhance competitiveness, which has become a new research topic in the field of higher education management.

## **2. Problem Background**

Education is an important part of the knowledge economy. The marketization of higher education institutions has led to their students being increasingly seen as customers. Higher education has become an integral part of global business, and universities must constantly explore the quality of higher education services. In addition, although universities have research and innovation achievements, they have no tangible products, and the services provided by institutions are competitive. Therefore, evaluating the quality of higher education services can help managers and staff continues to improve the quality of education.

Due to the increasing pressure of competition in the education service industry, higher education institutions pay more attention to student satisfaction. Educational institutions improve student satisfaction by providing

more complete services to students in order to gain a competitive advantage in today's fierce international education market. Arokiasa (2012) stated that in today's society, in order to maintain and increase competitiveness, organizations and companies should pay more attention to quality, just like those companies that have achieved major success in the industry. Zeithmal (1996) found that the organization's failure to meet customer expectations is one of the main reasons for employees' low efficiency. Therefore, unless they can correctly understand the expectations and requirements of their customers, they are doomed to failure. On the other hand, service quality in developing countries is generally concentrated in private colleges and universities. In addition, research literature on perceived service quality of students mostly comes from developed countries such as Britain, Australia, New Zealand and the United States. In developing countries, there is relatively little such literature.

### 3. Literature Review

#### Service Quality

Regarding the concept of service quality, Levitt (1972) believed that service quality means that the results caused by the service meet the standards proposed by the customer. Churchill et al. (1982) then refined it into the satisfaction of the person who paid for the service. Scholars such as Lewis (1983) believed that service quality was a benchmark to measure the gap between enterprise service levels and customer expectations. Cronin et al. (1992)

believed that service quality should be measured by service execution performance, not consumption the psychological expectations of the consumers were compared. Bateson et al. (2002) defined service quality as a result, which was the customer's feedback on the performance of the service provider, and an attitude formed by consumers after long-term evaluation. Through a comprehensive study on the definition of service quality, it can be considered that service quality is defined by comparison of service results and service expectations.

### **Higher Education Service**

For the study of higher education services, Aatin (1982) proposed five models for measuring the quality of higher education: nihilist, reputation, resource-based measurement, result-based measurement, and value-added measurement. Shank et al. (1995) analyzed the service quality in the environmental quality of higher education. They designed a questionnaire across three universities to examine the satisfaction with the service quality of higher education from two different perspectives: professors and students. It is found that students' expectation index for schools and their expectations for higher education services often depend on their schools. Leblanc et al. (1997) conducted a survey of nearly 400 university students and found that factors affecting the quality of university services include: reputation, administrators, teachers, curriculum setting, and responsiveness, ease of use of equipment and facilities, among which school reputation is the most important.

### **Higher Education Service Quality**

The research on the service quality of higher education in China mainly applies the SERVQUAL model. Ma (2009) established an evaluation model and believed that the process of students receiving education is essentially a process of education consumption. Hu (2006) found an evaluation model of higher education service quality in research. In combination with the current market economy, the term higher education service quality should be gradually used to replace the authoritative higher education in people's minds, and the market economy should be used. The concept of customer differentiated interest appeals in science is used as an important benchmark for judging the quality of today's higher education services.

### **Satisfaction**

Cardozo (1965) put forward the concept of customer satisfaction for the first time. He believed that improving customer satisfaction can promote the customer's impulse to spend again, which was obtained from experience; Oliver (1997) formally proposed The definition of the concept of customer satisfaction believes that customer satisfaction is a psychological response to the satisfaction of customer needs. To judge the degree of satisfaction of their needs, customers must compare the actual presentation effects of products and services with the expected results in the customer's mind.; Tax et al. (1998)

found in the process of customer survey that if the customer satisfaction was low, it would directly lead to customer loss.

### **Student Satisfaction**

From the perspective of the big market, the degree of student satisfaction with the quality of higher education services also belongs to customer satisfaction. The United States began to conduct a national college student satisfaction survey in 1994, using five different versions of the scale to conduct surveys for different educational institutions. Chinese scholars also use empirical investigation methods to study student satisfaction. Li et al. (2012) found that gender and age variables have an impact on overall satisfaction. Gender and grade variables have significant differences in satisfaction experience, while there is no significant difference in overall satisfaction for the students from different regions. For the definition of student satisfaction, Chen et al. (2017) conducted a questionnaire survey on teaching quality satisfaction among 400 students from 3 higher vocational colleges in Nanchang by adopting a random sampling method. The results showed that: college, grade, major categories, autonomy in major selection, and enthusiasm in class have a significant impact on student satisfaction with teaching quality, while gender and student origin have no significant impacts; teaching facilities, teaching management, and self- development have significant effects on student satisfaction with teaching quality, while majors and the impact of curriculum, theoretical teaching, and practical teaching is not significant. Tian et al. (2007)

believed that the degree of student satisfaction is simply the subjective view of students in various aspects of school life. Yang et al. (2011) conducted a survey and research on eight universities in Nanjing and found that the factors affecting overall student satisfaction are as large as the degree of influence. The descending order is: professional courses, campus culture, faculty, practical innovation, post-service, and teaching auxiliary facilities.

### **Higher Education Service Quality and Student Satisfaction**

When studying the relationship between service quality and satisfaction, foreign scholars usually come to the conclusion that the main reason affecting satisfaction is service quality. Adeel Athiyaman (1997), in the process of studying the relationship between the service quality of higher education and student satisfaction, believed that the difference between students' expectation for higher education and their actual feeling would ultimately determine students' rating of higher education services. Carrie Leugenia Ham (2003) introduced customer behavioural tendency from market economics into education, and believed that the service quality of higher education directly affected student satisfaction, thus indirectly affecting customer behavioural tendency. Generally speaking, most foreign scholars believe that the service quality of higher education should meet the desire and demand of customers, and students' overall perception of the service quality of higher education as basic customers plays an important role in the evaluation of service quality.



Chinese scholars have also studied the relationship between the two from different perspectives. Li (2016) believed that education was not the unilateral teaching of schools, but more important was students' learning, and students' satisfaction and learning effect were the core factors in the evaluation of educational services. In the research, it was found that when college students were regarded as the key in the higher service quality evaluation system, it was more beneficial for colleges and universities to improve their competitiveness. At the same time, the author also put forward that it was not only right to satisfy all the wishes of students, but to base the service quality on the status and teaching characteristics of colleges and universities. On this basis, we can better understand the needs of students and improve the service quality of colleges and universities.

#### **4. Research Objectives**

1) To investigate the relationships between the postgraduates' demographic profiles and satisfactory in using postgraduate education service in HBAU.

2) To explore student satisfaction with the postgraduate education service quality in HBAU.

5. Conceptual Framework

Independent Variables

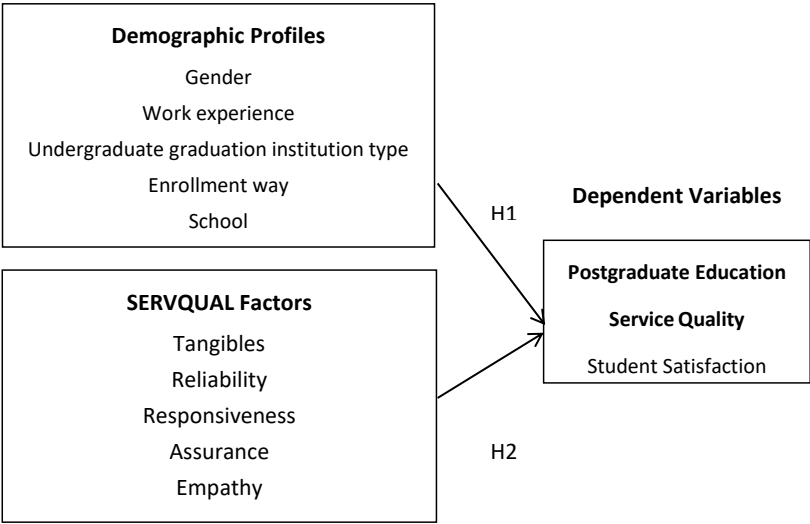


Figure 1 Research Conceptual Framework

6. Research Hypothesis

**H1** Postgraduates’ demographic profiles have significant differences in the student satisfaction with postgraduate education service quality.

**SubH1a** There is a significant difference in student satisfaction with postgraduate education service quality between different genders.

**SubH1b** There is a significant difference in student satisfaction with postgraduate education service quality between students with or without working experience.

**SubH1c** There is a significant difference in student satisfaction with postgraduate education service quality between different undergraduate graduation institution types.

**SubH1d** There is a significant difference in student satisfaction with postgraduate education service quality between different enrolment ways.

**SubH1e** There is a significant difference in student satisfaction with postgraduate education service quality between different schools.

**H2** The postgraduates of HBAU are satisfied with the service quality of postgraduate education.

## 7. Research Methodology

This paper adopts quantitative research method to discuss the evaluation of postgraduate education service quality, and takes HBAU as an example to measure postgraduates' satisfaction.

Due to the characteristics of services, the measurement of service quality is very difficult. As a kind of service, postgraduate education services also have such problems. For the education industry, judging from current research, there are four main methods for evaluating the quality of education services: SERVQUAL model, Importance-Performance model, SERVPERF model and CSI.

Among them, the SERVQUAL model is the most widely used. Investigating the reason, the research of Kai et al. proved that the model has strong practicability and sensitivity in collecting and analyzing students' perception information of educational services (Yu, 2009). This study combines the characteristics of postgraduate education services to revise the SERVQUAL model to measure the quality of postgraduate education services.

In this study, the cross-sectional survey questionnaire and quantitative research are the main empirical study methods used to test the conceptual framework and hypotheses. The survey use stratified sampling method to collect the data from full-time postgraduate students who are currently studying in HBAU.

In the previous interviews, it was found that due to differences in gender, undergraduate graduation institution type, work experience and enrolment way, postgraduate satisfaction with the quality of postgraduate education service in HBAU would be different. In order to test whether the personal characteristics of postgraduate students in this study affect their satisfaction with the quality of educational services, and whether the influence is statistically significant, the following statistical analysis will be carried out on the personal characteristics of postgraduates. According to the nature of each individual characteristic, these characteristics are divided into different categories; different statistical methods will be used. Gender, school, and work experience are divided into two categories, which are dichotomous variables.

Independent sample T test is used. There are three or more types of undergraduate graduation institution type and enrolment way, so one-way ANOVA is adopted.

8. Hypotheses Testing and Research Findings

A total of 300 questionnaires were distributed in the survey and 245 questionnaires were returned, with a recovery rate of 81.7%. After removing 23 unanswered and invalid questionnaires, 222 valid questionnaires were obtained, with an effective rate of 90.6%.

Table1

*The demographic profiles of the respondents*

Variables	Items	N	%
Gender	Male	150	67.6%
	Female	72	32.4%
Work experience	Yes	66	24.3%
	No	168	75.7%
Undergraduate graduation institution type	Project 211	36	16.3%
	Project 985	78	35.1%
	Others	108	48.6%
Enrolment way	Graduate entrance examination	78	35.1%
	Adjustment for postgraduates	48	21.6%
	Recommend graduate	96	43.2%
School	Sscience	108	48.6%
	Liberal arts	102	45.9%

Hypothesis 1 tests postgraduates' demographic profiles have significant differences

Hypothesis 1 tests postgraduates' demographic profiles have significant differences in the student satisfaction with postgraduate education service quality.

According to the nature of each individual characteristic, these characteristics are divided into different categories, different categories, different statistical methods will be used. Gender, school, and work experience are divided into two categories, which are dichotomous variables. Independent sample T-test is used. There are three or more types of colleges and universities for undergraduate graduation institution type and enrolment way, so one-way ANOVA is adopted. Perform the analysis of the homogeneity of variance first, when the result is that the variance is homogeneous and the difference is significant, the Scheffe method is used for multiple comparisons; when the result does not meet the assumed homogeneity of the variance and the difference is significant, Tamhane's is used to performs multiple comparisons.

Table 2  
*Independent sample T-test and one-way ANOVA results of postgraduates' demographic profiles*

	Measurement dimensions and items	Gender	School	Work	Undergraduate	Enrolment way
		difference	difference	experience difference	graduation institution type difference	difference
T a n	1.School social reputation	**	***	X	X	*
	2.Teaching Equipment	X	X	X	*	*
	3.Offer courses	X	***	X	*	*
	4.Research conditions	X	***	X	*	X
	5.Image of faculty	X	X	X	X	X
	6.Library collection	X	***	**	X	*
	7.Logistics support (dormitory, canteen, etc)	X	*	X	X	*
	8.Beautiful campus environment	***	X	X	X	X
	9.The school's commitment to postgraduate students can be completed in time	***	X	*	X	X
	10.The school will try to help solve major difficulties encountered in the life and study of postgraduate students	X	***	*	X	X
R e l	11.The school has an orderly management of teaching and scientific research	X	**	X	X	X

Measurement dimensions and items	Gender difference	School difference	Work experience difference	Undergraduate graduation institution type difference	Enrolment way difference
12.Tutors accurately evaluate the study and scientific research of postgraduates	X	***	***	*	*
R 13.All departments of the school provide services in a prompt and timely manner	*	***	***	X	X
14.The tutor answers questions in postgraduate study in time	X	**	X	*	*
15.Tutors provide opportunities for postgraduates to participate in research projects	***	***	X	*	*
16.The school values the questions and suggestions raised by postgraduates and responds in a timely manner	X	*	X	*	X
A 17.Tutor is trustworthy	X	X	X	*	*
s 18.Staff in all departments of the school are trustworthy	X	***	*	*	*
19.The school provides a safe campus environment	*	***	***	*	*
20.The staff in all departments of the school are polite and friendly	X	***	X	*	*
21.The tutor has sufficient knowledge and ability to solve postgraduates' problems	X	***	X	X	X
E 22.Teach students in accordance with their aptitude and develop a training plan that meets the characteristics of postgraduates	X	***	X	X	X
23.The school understands the needs of postgraduates	X	***	X	X	X
24.The service hours of various departments of the school are convenient for students	X	***	***	X	*

Note X, not significant; \*,  $p < .05$ , significant; \*\*,  $p < .01$ , relatively significant; \*\*\*,  $p < .005$ , most significant.



According to statistical analysis, the degree of satisfaction of postgraduates with HBAU's postgraduate education service quality is different due to differences in personal circumstances such as gender, school, work experience, undergraduate graduation institution type and enrolment way. Not all of the twenty- four measurement items have statistically significant differences, but many of them have significant differences.

Therefore, the results accepted Hypothesis 1 which states that postgraduates' demographic profiles have significant differences in the student satisfaction with postgraduate education service quality.

Hypothesis 2 tests the postgraduates of HBAU are satisfied with the service quality of postgraduate education.

There is a causal relationship between the service quality of postgraduate education and student satisfaction. With high service quality, student satisfaction is also high. On the contrary, student satisfaction is low.

Table 3

*Postgraduates' satisfaction evaluation of postgraduate education service quality in HBAU*

	Measurement dimensions and items	Expected Service Mean	Perceived Service Mean	Gap
T a n	1.School social reputation	4.59	3.65	-0.95
	2.Teaching Equipment	4.41	3.08	-1.32
	3.Offer courses	4.57	3.11	-1.46
	4.Research conditions	4.73	3.00	-1.73
	5.Image of faculty	4.35	3.24	-1.11
	6.Library collection	4.76	3.19	-1.57
	7.Logistics support (dormitory, canteen, etc.)	4.41	2.59	-1.81
	8.Beautiful campus environment	4.38	3.30	-1.08
	Mean	4.53	3.15	-1.38
R e I	9.The school's commitment to postgraduates can be completed in time	4.57	3.11	-1.46
	10.The school will try to help solve major difficulties encountered in the life and study of postgraduates	4.38	3.03	-1.35
	11.The school has an orderly management of teaching and scientific research	4.68	3.11	-1.57
	12.Tutors accurately evaluate the study and scientific research of postgraduates	4.65	3.30	-1.35
	Mean	4.57	3.14	-1.43
R e s	13.All departments of the school provide services in a prompt and timely manner	4.43	2.84	-1.59
	14.The tutor answers questions in postgraduate study in time	4.65	3.30	-1.35
	15.Tutors provide opportunities for	4.70	3.41	-1.30

Measurement dimensions and items	Expected Service Mean	Perceived Service Mean	Gap
postgraduates to participate in research projects			
16.The school values the questions and suggestions raised by postgraduates and responds in a timely manner	4.46	2.76	-1.70
Mean	4.56	3.08	-1.49
A 17.Tutor is trustworthy	4.70	3.68	-1.03
s 18.Staff in all departments of the school are trustworthy	4.32	3.00	-1.32
s 19.The school provides a safe campus environment	4.65	3.32	-1.32
20.The staff in all departments of the school are polite and friendly	4.57	3.03	-1.54
21.The tutor has sufficient knowledge and ability to solve postgraduates' problems	4.76	3.57	-1.19
Mean	4.60	3.32	-1.28
E 22.Teach students in accordance with their aptitude and develop a training plan that meets the characteristics of postgraduates	4.70	2.73	-1.97
p 23.The school understands the needs of postgraduates	4.41	2.62	-1.78
24.The service hours of various departments of the school are convenient for students	4.54	2.89	-1.65
Mean	4.55	2.75	-1.80

The magnitude of the expected value reflects the degree to which postgraduates consider the measurement item to be important. Perceived value reflects the actual service quality of postgraduate education experienced by postgraduates.

As can be seen from Table 3, all the gap values are negative, indicating that postgraduate students are generally dissatisfied with the service quality of postgraduate education in HBAU. The greater the gap between perceived value and expected value, the lower the degree of satisfaction of postgraduates. The sensory-period gap values of tangibles, reliability, responsiveness, assurance and empathy were -1.38,-1.43,-1.49,-1.28 and -1.80, indicating that the degree of satisfaction of postgraduates was from high to low in order: assurance, tangibles, reliability, responsiveness and empathy.

Table 4

*Paired sample T test of perceived service and expected service of postgraduate education service quality*

Gap(Expected-Perceived)	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig (2-tailed)
				Lower	Upper			
1	.94595	.87020	.05840	.83085	1.06105	16.197	221	.000
2	1.32432	1.04351	.07004	1.18630	1.46235	18.909	221	.000
3	1.45946	1.08285	0.07268	1.31263	1.60269	20.082	221	.000
4	1.72973	1.05886	.07107	1.58968	1.86978	24.340	221	.000
5	1.10811	.98267	.06595	.97813	1.23808	16.802	221	.000
6	1.56757	1.26650	.08500	1.40005	1.73509	18.442	221	.000
7	1.81081	1.41430	.09492	1.62374	1.99788	19.077	221	.000
8	1.08108	1.26301	.08477	.91402	1.24814	12.753	221	.000
9	1.45946	.97743	.06560	1.33018	1.58874	22.248	221	.000

128 วารสารเอเชียตะวันออกเฉียงและอาเซียนศึกษา

ปีที่ 21 ฉบับที่ 1

10	1.35135	1.14669	.07696	1.19968	1.50302	17.559	221	.000
11	1.56757	1.00336	.06734	1.43485	1.70028	23.278	221	.000
12	1.35135	1.04772	.07032	1.21277	1.48993	19.218	221	.000
13	1.59459	1.26476	.08488	1.42731	1.76188	18.785	221	.000
14	1.35135	1.12277	.07536	1.20284	1.49986	17.933	221	.000
15	1.29730	1.11424	.07478	1.14992	1.44468	17.348	221	.000
16	1.70270	1.29457	.08689	1.53147	1.87393	19.597	221	.000
17	1.02703	1.19924	.08049	.86841	1.18565	12.760	221	.000
18	1.32432	1.21202	.08135	1.16401	1.48464	16.280	221	.000
19	1.32432	1.16636	.07828	1.17005	1.47860	16.918	221	.000
20	1.54054	1.10764	.07434	1.39404	1.68705	20.723	221	.000
21	1.18919	1.13770	.07636	1.03871	1.33967	15.574	221	.000
22	1.97297	1.17638	.07895	1.81737	2.12857	24.989	221	.000
23	1.78378	1.14477	.07683	1.63237	1.93520	23.217	221	.000
24	1.64865	1.19311	.08008	1.49084	1.80646	20.589	221	.000

In order to test whether these gaps are statistically significant, the expected service and perceived service of 24 items in five dimensions of service quality were tested by paired samples, and the results are shown in Table 4. It can be seen that, at the level of 0.01 (2-tailed), the postgraduates' perceptions and expectations of all measurement items of the graduate education service of HBAU are significantly different, which means that the postgraduates are dissatisfied with the postgraduates' service quality of HBAU.

Therefore, the results rejected Hypothesis 2 which states that postgraduates of HBAU are satisfied with the service quality of postgraduate education.

## 9. Suggestions

Postgraduate education services are inseparable from the participation of the government, universities and postgraduates. The improvement of postgraduate education service quality and student satisfaction requires the joint efforts of the three. The service quality of postgraduate education and student satisfaction should be improved from the following three aspects: improving the construction of university management team, strengthening the construction of university management system and improving university learning environment. The countermeasures and suggestions mainly include strengthening the development of management human resources, strengthening the cultivation of school education management innovation ability, establishing the management service concept of “people-oriented”, building a scientific curriculum system, establishing an academic exchange platform, striving to improve the comprehensive innovation ability of scientific research, and improving the innovation ability of school education management.

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132 วารสารเอเชียตะวันออกเฉียงและอาเซียนศึกษา

ปีที่ 21 ฉบับที่ 1

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