

AN EMPIRICAL STUDY ON THE SATISFACTION OF HIGHER DISTANCE EDUCATION SERVICE QUALITY-TAKING HENAN PROVINCE OF CHINA AS AN EXAMPLE

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ABSTRACT

The quality of education service is the fundamental quality requirement of education and the cornerstone of the school's survival and development. This article takes the students of distance education in Henan Province as the survey object, based on the student satisfaction theory and the SERVPERF five-dimensional evaluation scale, designed evaluation indicators and questionnaires, and used SPSS.26 software to statistically analyze the impact of satisfaction. And the degree of relevance, and then propose improvement measures in order to improve the service quality of higher distance education.

Keywords: Higher Distance Education, Service Quality, Satisfaction.

INTRODUCTION

Higher distance education is an academic education model for colleges and universities to provide students with education services based on distance network technology. It has the characteristics and advantages of separation of teachers and students, flexible learning methods, resource sharing, low education costs, and broad development space. At present, it is hold distance education at most colleges and universities in China, and the number of students in higher distance education is as high as 16.2 million, which has become an important platform and carrier for improving the quality of the people Bai (2015).

As an important part of higher education, the quality of higher distance education has always been concerned by the society. Especially in recent years, with the rapid expansion of the scale of higher distance education, the continuous decline in the quality of higher distance education has become a prominent problem that cannot be avoided, even part of society the public believes that higher distance education has become a "degree factory" and seriously questioned the "golden content" of its academic qualifications. Although the decline in the quality of education is a common phenomenon in the rapid development of the popularization of higher education in various countries around the world, if an education model cannot even guarantee the quality of the "popular", then there will be no soil and necessity for survival. Therefore, the quality of education has become a key element of the survival of higher distance education.

The main group of students in higher distance education is social incumbents. With the support of Internet technology, it breaks through the limitations of study time and space, and greatly overcomes the contradiction between study and work. At the same time, because of distance online teaching, the physical space is isolated. The school has a certain degree of laissez-faire in the management of students, unable to guarantee the learning time of students, and cannot realize the supervision of the whole process. Therefore, the evaluation index of the quality of higher distance education should be different from the traditional education model. It should not only pay attention to classroom teaching, extracurricular practice, Student evaluation and so on, but should pay more attention to the subjective feelings of learners (Ding, 2005). Students are the most important “customers” of the school, and student satisfaction is the “weathervane” to measure the quality and level of education (Gong, 2012). The future education reform should be based on the needs of students and strive to Be able to master the laws of student learning and life, make student education and life services more targeted and purposeful, and improve student satisfaction (Yan, 2018). Therefore, from the perspective of service, the quality of higher distance education services is the degree to which colleges and universities meet the needs of students in distance education activities.

Students are the main body of distance education quality evaluation. It is a consensus in the academic circles to use student satisfaction to measure the quality and level of distance education. Based on this, this paper takes the students of distance education in Henan Province as the subject of the questionnaire survey, combined with the actual situation of the development of higher distance education services in Henan Province, based on the perspective of the students, treats the education process as a combination of services, and uses SPSS software to measure the satisfaction of each factor Clarify the students’ needs for distance higher education in teaching, management, and service, and help improve the management service level of distance education. Therefore, research on the satisfaction of higher distance education service quality has good practical significance and practicality value.

LITARATURE REVIEW

Service Quality was first proposed by American marketing scientist in his book "*SERVQUAL: A Multivariate Customer Perceived Service Quality Measurement Method*". From the perspective of marketing management, service quality is the degree of difference between the products or services provided by an enterprise and the expectations of customers, and it is a psychological reflection of customer perception. The quality of education service is the degree to which the inherent attributes of school education management services meet the needs of the student population.

It began for higher education service quality evaluation research in the early 1990s. The service quality model of SERVQUAL was used in the early stage, and it was carried out from five dimensions of tangibility, responsiveness, assurance, empathy and reliability. Empirical Research (Pituch & Lee, 2006) In view of the huge difference between colleges and universities as non-profit organizations and for-profit organizations, they have distinct characteristics that distinguish them from enterprises. In recent years, researchers have begun to explore a measurement system that can fully reflect the characteristics of higher education services. Among them, the most widely used are the SERVQUAL model proposed by Parasuraman et al. and the SERVPERF model proposed by Cronin and Taylor. The common point of these two models is to use five dimensions of tangibility

and reliability to evaluate service quality; the difference is that the SERVQUAL model quantifies the gap between students' real perception and expectation of service quality as the basis for evaluation. The SERVPERF model only evaluates the quality of service based on the feelings of students. In comparison, the SERVPERF model is simpler and more practical.

In 2008, Hasan et al. (2008) reviewed the five-dimensional method in SERVPERF and studied the relationship between educational service quality and student satisfaction. The results showed that there is a significant correlation between the five dimensions of service quality and student satisfaction. Subsequent empirical research results by Zhang (2016) etc. show that the five dimensions have a positive impact on student satisfaction.

In the research on the measurement factors of distance education service quality evaluation, Ding & Wu (2005) pointed out in her "*Distance Education Service Outline*" that the service quality of distance education can be measured at two levels: technical quality and process quality; Qian (2009) empirical research found that online education students' perceived service quality and service value determine students' satisfaction with online education. In May 2013, QAA released the "*Guidelines for Quality Assurance of Distance Learning*" including six parts: system design, course design, acceptance and inspection, course delivery, student development and support, student communication and expression, and student evaluation. Divided the service into pre-sales service and after-sales service according to the process of distance education student participation, and empirical research found that the highest expectations for the service quality of online education institutions are security, the effectiveness of learning resources and Responsiveness. In Yu (2018) conducted an empirical study on the quality of distance education services from five elements of enrollment, educational administration, platform, communication, and resources, and found that enrollment consultation, class teacher services, and teacher-student interaction have a greater impact on satisfaction.

From the existing literature, it can be found that most scholars at home and abroad tend to regard student satisfaction as the evaluation standard of education service quality, and recognize that student satisfaction reflects the quality of education service. This study draws on existing research results, divides the main body that affects student satisfaction into three dimensions: school service, platform service, and personnel service, combined with the SERVPERF evaluation model, and empirically explores the service quality of distance education in universities and colleges in Henan Province.

RESEARCH AND DESIGN OF SERVICE QUALITY SATISFACTION OF HIGHER DISTANCE EDUCATION

A. Research Model Design

Based on the existing research, according to the five basic frameworks of online education service quality, reliability, security, responsiveness, effectiveness of learning resources, and caring, from the service body that affects student satisfaction (Based on the three dimensions of school, personnel, and platform, based on the SERVPERF evaluation model, the service satisfaction evaluation model is constructed as follows (Figure 1).

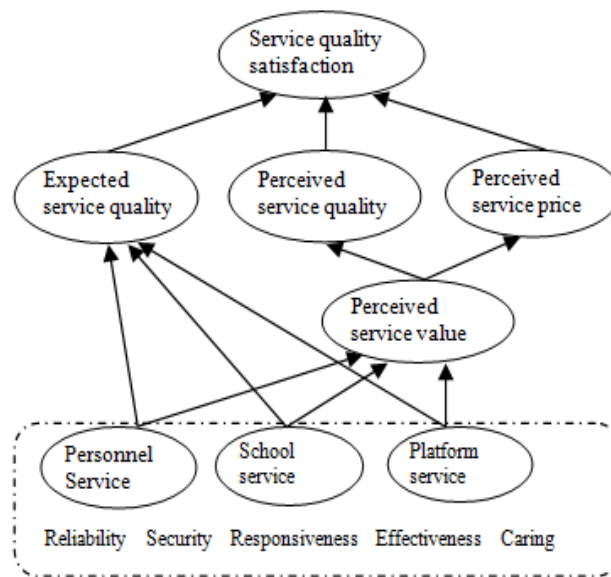


FIGURE 1
DIAGRAM OF THE EVALUATION MODEL OF SATISFACTION WITH THE
QUALITY OF HIGHER DISTANCE EDUCATION SERVICES

B. Research Scale Design

On the basis of collating and absorbing a large amount of literature, this study is based on the SERVPERF five-dimensional measurement scale, combined with the visits and surveys of distance course teachers, managers and students, etc., to design a service quality survey pre-test questionnaire. Comparing with the Likert five-point scale, the subjects according to their own feelings, from the degree of very disagree, disagree, general, agree, strongly agree, etc., and scored with 1, 2, 3, 4, and 5 points respectively. Score, the higher the score, the more satisfactory the service, and vice versa, the worse.

In order to test the rationality and accuracy of the questionnaire item design, a preliminary survey of the questionnaire is carried out before the formal questionnaire survey. After randomly selecting 103 students in higher distance education in Henan Province to conduct a sample survey, after analyzing the reliability and validity of the pre-test questionnaire data, and deleting some of the less relevant factors, a formal higher distance education sample survey questionnaire was formed.

C. Sampling Survey

In order to save manpower and material resources, and to ensure that the samples drawn are representative, this study uses multistage cluster sampling (multistage cluster sampling) method, random sampling in three stages, and finally randomly selected 3 general undergraduate level colleges and universities (2 public undergraduate colleges and 1 private undergraduate college), 6 general college level colleges and universities (4 public colleges and 2 private colleges), and 1 adult college to carry out online questionnaire surveys. (As shown in Table 1).

Types of school	Number of schools		Total	Percentage	Number of samples	
	Public	Private			Public	Private
General undergraduate colleges	38	19	57	34%	2	1
General colleges	69	25	94	55%	4	2
Adult colleges	18	0	18	11%	1	
Total	125	44	169	100%	7	3

With the strong support of colleges in Henan Province, this research adopted the method of issuing online questionnaires, a total of 516 valid questionnaires were retrieved, and the sample structure distribution is shown in Table 2.

Category	Project	Number of samples	Percentage
School	Public undergraduate school	99	19.2%
	Private undergraduate colleges	61	11.9%
	Public colleges	184	37.5%
	Private colleges	113	21.9%
	Adult college	59	11.4%
Gender	male	319	61.8%
	Female	197	38.2%
Profession	Literature and History	289	56%
	Science and Engineering	207	40.1%
	Sports Art	20	3.9%
Level	Starting from secondary school to junior college	161	31.2%
	Starting from middle school to undergraduate	47	9.1%
	Starting from junior college to undergraduate	308	59.7%
Age	25 years old and below	24	4.7%
	26-30 years old	202	39.2%
	31-40 years old	169	49.1%
	41 years old and above	37	7.2%

D. Analysis of Scale Reliability

Based on the survey data in the paper, SPSS26.0 software is used to analyze the reliability and validity of the being observed variables. In this study, Cronbach's Alpha is used to measure the reliability test index of each factor. If this value is higher than 0.8, the reliability is high; from Table 3, it can be seen that the Cronbach's Alpha coefficients of all factors are all between 0.878 and 0.891, indicating high reliability quality. Therefore, the survey data in this article is more reliable and can be used for further analysis (Gronroos, 1984).

Table 3					
SCALE RELIABILITY ANALYSIS					
Variable	Characterization	Observation item	Average value	SD	Alpha
Personnel Service	Reliability	Q1 Admissions and publicity staff promise to be reliable	3.79	0.844	0.890
	Security	Q2 Teachers have strong professional ability	3.72	0.811	0.883
		Q3 is equipped with professional technical support personnel	3.63	0.711	0.881
		Q4 Equipped with class management service personnel	3.11	0.854	0.891
	Timeliness	Q5 Teacher's homework feedback, etc. timely	3.56	0.680	0.882
		Q6 Technicians provide timely services	3.52	0.755	0.881
	Effectiveness	Q7 Teachers, etc. solve problems accurately and effectively	3.86	0.747	0.883
	Caring	Q8 Actively interact with students	3.35	0.679	0.879
		Q9 Provide individualized services	3.29	0.723	0.883
School service	Reliability	Q10 School image good reputation	3.95	0.644	0.889
	Security	Q11 Various rules and regulations are clear and complete	3.12	0.798	0.882
		Q12 Reasonable arrangement of teaching content	3.78	0.698	0.882
	Timeliness	Q13 Timely release of service information	3.69	0.696	0.880
		Q14 Timely release of teaching materials and guidance materials	3.50	0.696	0.878
	Effectiveness	Q15 Rich and vivid teaching resources	3.84	0.783	0.890
		Q16 Learning resources facilitate self-study	3.71	0.643	0.879
	Caring	Q17 Conduct surveys to improve work	2.86	0.798	0.881
		Q18 Frequent student	2.84	0.787	0.883

		networking activities			
Platform service	Reliability	Q19 Stable and reliable platform operation	4.28	0.699	0.886
	Security	Q20 Rich functions and easy to use	4.09	0.751	0.884
	Timeliness	Q21 The platform is updated and maintained in a timely manner	3.97	0.784	0.883
		Q22 Teaching resources are updated in a timely manner	3.81	0.737	0.883
	Effectiveness	Q23 Complaints and suggestions channels are unobstructed and feedback is effective	3.67	0.790	0.885
	Caring	Q24 Provide a variety of auxiliary functions	3.70	0.773	0.885
Overall evaluation		Q25 Overall evaluation of service quality	3.92	0.718	0.883

EMPIRICAL ANALYSIS OF SATISFACTION WITH SERVICE QUALITY OF HIGHER DISTANCE EDUCATION

E. Statistical Analysis

The statistical analysis of the scale data shows that the service quality satisfaction of higher distance education is related to the type of school and the level of the school: the service quality satisfaction of undergraduate universities is significantly higher than the service quality of junior colleges, and the service quality satisfaction of public universities Higher than the service quality of private institutions (Xu et al., 2010).

The satisfaction of higher distance education service quality is related to the types of students' majors: the satisfaction of students majoring in literature and history is higher than that of sports and art majors, and the satisfaction of students majoring in science and engineering is the lowest.

There is no significant correlation between the satisfaction of higher distance education service quality and the gender, age, and educational level of student's shows in Table 4.

		Satisfaction			Satisfaction
Types of school	General undergraduate colleges	4.11	Student gender	Male	3.91
	General colleges	3.88		Female	3.92
	Adult colleges	3.79	Student age	25 years old and below	3.93
	Public institutions	4.06		26-30 years old	3.94
	Private institutions	3.85		31-40 years old	3.92
	Adult colleges	3.97		41 years old and above	3.89

Professional category	Literature and History	3.94	Starting point	Starting from secondary school to junior college	3.94
	Sports Art	3.84		Starting from middle school to undergraduate	3.92
	Science and Engineering	3.77		Starting from junior college to undergraduate	3.91

F. Descriptive Analysis

Through the descriptive statistical analysis of the scale data, the overall evaluation is 3.92, indicating that students are relatively satisfied with the service quality of higher distance education. Among them, the platform service satisfaction is the highest (mean value is 3.932), and the highest satisfaction is "*the platform is operating stably. Reliable*", followed by staff service (mean value 3.536), the highest satisfaction rate is "*Teachers, technical and management personnel solving problems accurately and effectively*", school service satisfaction is the lowest (mean value 3.476), and the lowest satisfaction rate is "*Develop student association Activity*", the average value is only 2.84.

G. Correlation Analysis

Through the correlation analysis between the three dimensions and overall satisfaction, the correlation coefficients between personnel service, school service, platform service and overall satisfaction are 0.841, 0.876, 0.801, and the *P-values* are all less than 0.01, reaching The significant correlation level indicates that there is a significant correlation between the three dimensions and overall satisfaction. (See Table 5: Correlation analysis between the three dimensions and overall satisfaction).

	Personnel Service	School service	Platform service
r	0.841	0.876	0.801
P	0.000	0.000	0.009
df	516	516	516

H. Multiple Regression Analysis

Model	R	R ²	Adjustment R ²	Standard estimation error
1	0.825	0.781	0.765	0.304
Change statistics				
△ R ²	△ F	df1	df1	F Amount of change

0.681	43.634	24	491	0.000
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Table 7
REGRESSION ANALYSIS-COEFFICIENT A

Model	Unstandardized coefficient		Standardization factor	t	P
	B	SD	Beta		
(Constant)	-0.180	0.045		-6.213	0.000
Personnel service	0.375	0.199	0.248	2.690	0.007
School service	0.465	0.069	0.534	11.116	0.000
Platform service	0.339	0.056	0.319	7.839	0.000

Through multiple regression analysis of personnel service, school service, platform service and overall satisfaction, three dimensions are independent variables, and overall satisfaction is the dependent variable. From the analysis results in Table 6 above, it can be seen that the adjusted R-square in the model is 0.765, the goodness of fit is high, and the significance P value is less than 0.01, reaching the significance level.

According to the analysis results of regression model coefficients (Table 7), a linear model between overall satisfaction and various dimensions is established as follows:

$$\text{overall satisfaction} = -0.18 + 0.375 * \text{personnel service} + 0.465 * \text{school service} + 0.339 * \text{platform service}.$$

SUGGESTIONS

Distance education is an important part of building a lifelong education system. and it is an inevitable move to build a learning society. Higher distance education should actively adapt to the development of the times, deeply integrate cloud computing, big data and learning analysis and other network information technologies, innovate teaching methods, build a "student-centered" service model, improve the quality of talent training, and rebuild society's right to higher distance education. Confidence in education.

Improve the Education and Teaching Evaluation and Assessment Mechanism, And Build A Teaching Quality Assurance System

A scientific and reasonable teaching quality guarantee system is the fundamental guarantee for the quality of higher distance education. First of all, it is necessary to clarify the teaching syllabus and the teaching content of various professional courses, take into account theoretical study and practical operation, especially for science and engineering majors, and arrange specific and feasible practical teaching plans and assessment methods. Secondly, establish a sound educational supervision and evaluation mechanism, establish an online teaching supervision team, to effectively monitor and supervise the online teaching process of teachers, take student

evaluation as an important indicator of teacher assessment, conduct regular student surveys, and timely feedback and rectify. Finally, we must increase the training and management of remote teachers. X. Y. Liu and J. Cui(2020) empirically show that teacher quality, teaching methods and teaching ability are positively related to student satisfaction. Therefore, we must pay attention to the cultivation of professional quality and ideological sentiment of remote teachers, and create a harmonious teacher-student relationship and a good remote network At the same time, the classroom atmosphere should be spurred by the system or driven by teachers to carry out remote webcast classroom teaching, actively communicate and interact with students from time to time, and reduce teaching in the form of network recording and video broadcasting.

Construct A Learning Support Service System and Provide High-Quality Services

Higher distance education is mostly based on working adults. Each of them has different learning foundation, learning ability, learning motivation and learning conditions. Facing the remote learning method based on independent learning, they will encounter various academic, management, technical and emotional difficulties and problems. Therefore, the task of learning support services is to help them solve the problems encountered during their studies. To promote independent learning and help them to complete their studies smoothly, so as to obtain better career development. The first is to optimize the online education platform. The functional design should include the student timetable query system, student performance query system, student selection system, student matter service system, etc., to implement "one-stop" services; in terms of functional operation design, it should be simple and practical Mainly, convenient operation, reduce invalid operation and misoperation. The second is to build a rich educational resource database, taking into account the depth and breadth of professional knowledge, while taking into account practicality and interest; at the same time, establish a classified resource database for students of various majors such as general, required, supplementary, practice, and expansion to facilitate Students use to improve the effectiveness of student learning. The third is to provide a variety of communication channels and methods, set up special channels such as opinions and complaints, and respond in time.

Equipped With Full-Time Class Management Personnel to Strengthen Daily Management Services for Classes

Class management service personnel are the most important link between the school and students. Equipped with full-time class management personnel, one is to communicate and release school-related information in a timely and effective manner to ensure students' right to know and participate; the other is to further clarify the school's various management service rules and regulations, and supervise their implementation, implementation, and standardize daily management and Service; third, under the guidance of class management personnel, class student autonomous organizations can be established to give full play to the functions of student self-management and self-service, and improve the effectiveness of student learning; fourth, to provide students with "individualized" services to satisfy students The different needs of students can enhance students' sense of learning or life.

Carry Out Student Networking Activities to Enhance Students' Sense of Belonging to the School

Due to the characteristics of the separation of distance educators and physical schools, students are not closely connected to the school, which also causes the students to have a weak sense of belonging to the school, and even more to private colleges, colleges and other institutions with a general social image and reputation. So it is. Therefore, attention should be paid to integrating school resources and using various channels to carry out networking activities, such as learning salons, outdoor mountaineering, photography associations, fishing associations, campus sports meets, etc., and organize distance education students to participate in activities during non-working days to facilitate student exchanges, Discuss academic work, find common enthusiasts, expand the circle of friends, and enhance the sense of learning in distance education and the sense of identity and belonging to the school.

CONCLUSION

Through the empirical analysis of a sample survey of higher distance higher education students in Henan Province, it can be seen that there is a significant correlation between personnel services, school services, platform services and overall satisfaction. The average scores of the various service indicators of the service quality of higher distance education by students are between 2.86 ~ 4.09, which is "satisfied", indicating that students generally recognize the service quality of higher distance education in Henan Province, but some sub-indexes are less satisfied Such as "carrying out student networking activities" (mean satisfaction value 2.84), "carrying out student surveys: (mean value 2.86), "equipped with class management service personnel: (mean value 3.11), "all rules and regulations are clear and perfect: (mean value 3.12), "Provide personalized services: (mean 3.29), "actively interact with students: (mean 3.35), etc. Therefore, if colleges and universities can allocate personnel and provide services in a targeted manner, they can effectively improve the quality of higher distance education services.

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