

Research on the Evaluation of College Teaching Quality Based on Student Satisfaction: A Case Study of Qingdao Hengxing University of Science and Technology

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Abstract: With the popularization of higher education, the quality of higher education has been the focus of society. With teaching in colleges and universities being continuously reformed, the means and methods of college teaching quality evaluation are also constantly improving, thus the traditional teaching quality evaluation method can no longer fully meet the actual needs of the current teaching quality evaluation in colleges and universities. As a scientific and systematic theory, the customer satisfaction theory has been gradually recognized by various industries, and has also been widely used in non-profit organizations. Colleges and universities under the non-profit service sector, and the focus is on whether their educational services can satisfy customers (especially students) based on the comparative analysis of customer satisfaction theory and customer satisfaction evaluation method, the model of teaching quality, and the index system and the corresponding measurement model ^[1]. On this basis, the teaching quality of Qingdao Hengxing University of Science and Technology was used as the research object, combined with the teaching service characteristics, and analysis of factors affecting customer satisfaction, which includes school reputation, perceived quality, perceived value, customer complaints, customer loyalty, students' satisfaction. The results were analyzed and suggestions are given to effectively improve the teaching quality customer (student) satisfaction.

Keywords: Customer satisfaction; Evaluation of teaching quality

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1. Introduction

1.1. The statement of the research problem

Since 2000, with the acceleration of the development of higher education in China, the scale is also expanding. The historical process of higher education from being for the elite to now for the public, and the methods to correctly evaluate teaching quality of institutions of higher learning has now been highlighted by many ^[2]. Therefore, it is of great significance to understand the degree of students' satisfaction towards the teaching quality to study the actual teaching quality of colleges and universities.

1.2. The objectives of the research study

This paper studies teaching quality based on real situations in current domestic colleges and universities, analysis of the students' satisfaction with the teaching quality, and quantify teaching quality using specific

measurements. Reasonable countermeasures and suggestions are then put forward to improve the actual teaching quality of ordinary colleges and universities [3]. The ultimate aim of this study is to provide some ideas and references for improving the quality of teaching in general universities.

1.3. The scope of the research study

The study was conducted between January 2021 and September 2021, for all the current students of Qingdao Hengxing University of Science and Technology based on the existing teaching quality evaluation [4].

2. Literature review: ACSI model of American Customer Satisfaction Index

The ACSI model was developed by Professor Claes Fornell and colleagues of the University of Michigan School of Business, and is currently jointly managed by the American Association for Quality and the National Center for Quality Research at the University of Michigan School of Business. ACSI model is mainly composed of the national overall satisfaction index, department satisfaction index, industry satisfaction index, and enterprise satisfaction index. It is the most comprehensive system, the most convincing national customer satisfaction theory model, the theoretical basis for customer satisfaction and expectations before and after product or service consumption and purchase [5], and may lead to two results: customer complaint and customer loyalty. The structure of ACSI model is shown in **Figure 1**.

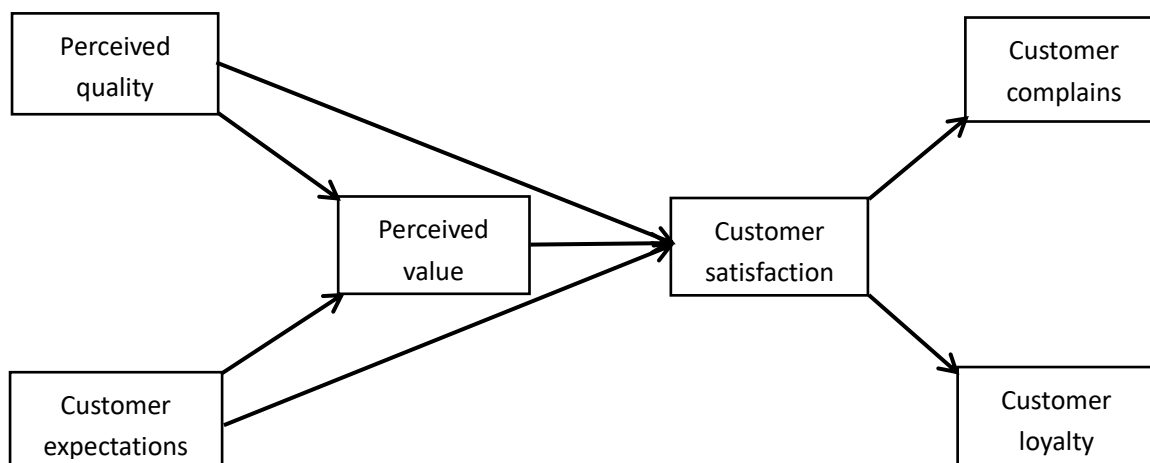


Figure 1. The American Customer Satisfaction Index Model

3. Research methods

3.1. Sampling methods

This paper is an actual questionnaire survey of the students of Qingdao Hengxing University of Science and Technology in 2021, using the random sampling method [6].

3.2. Variables

A basic overview of the influencing factors of the following:

- (1) The level of school reputation;
- (2) The level of customer-perceived quality;
- (3) The level of customer-perceived value;
- (4) The level of customer satisfaction;
- (5) The level of customer complaints.[7]

4. Data Analysis Result

4.1. Analysis on factors of employment satisfaction in Hengxing University

According to the existing literature research and theoretical basis of teaching quality and satisfaction at home and abroad [8], as well as the actual investigation and research results of Qingdao Hengxing University of Science and Technology, there are five factors that affects the satisfaction of college teaching quality: school reputation, customer perception quality, customer perceived value, customer satisfaction and customer complaint. Relevant data was obtained from questionnaires completed by 111 students [9].

4.1.1. Customer satisfaction index calculation

Customer satisfaction index is generally calculated by a weighted sum method, The formula is as follows:

$$CSD = \sum_i w_i x_i$$

CSD: It refers to the customer satisfaction index

w_i : Weight of the indicator i

x_i : Satisfaction score for indicator i

There are many methods to determine the weight of evaluation indicators, such as expert experience method, historical data method, and hierarchical analysis method. There are also methods that can determine the weight of the indicators directly based on the survey data, such as the average assignment method, the principal component method, and the factor analysis method [10]. Although the weight results obtained by the average assignment method have a high correlation with the comprehensive index, the difference between the results obtained by the three methods is very small [11]. Factor analysis was used to determine the index weight using SPSS software. According to the proportion of the factor analysis, the weights are shown in the **Table 1**.

Table 1. Weight value of each index

Variable	Initial	Draw	Weight	Satisfaction value
v1	1.000	.609	0.038319	3.2525
v2	1.000	.553	0.034916	3.1442
v3	1.000	.668	0.042669	3.2342
v4	1.000	.553	0.034918	3.3963
v5	1.000	.651	0.040967	3.3964
v6	1.000	.566	0.035925	3.5494
v7	1.000	.566	0.035927	3.5585
v8	1.000	.535	0.033910	3.3965
v10	1.000	.462	0.029249	2.9731
v12	1.000	.647	0.040902	3.0630
v13	1.000	.653	0.040966	2.8830
v14	1.000	.547	0.034603	3.7118
v15	1.000	.581	0.036743	2.8828
v16	1.000	.490	0.031011	3.2525
v18	1.000	.602	0.038068	3.2885
v21	1.000	.654	0.041410	3.1083
v23	1.000	.442	0.027856	2.7750

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v24	1.000	.477	0.03018	3.0992
v27	1.000	.491	0.03102	3.2616
v29	1.000	.534	0.033782	2.6579
v30	1.000	.675	0.042606	2.8195
v31	1.000	.513	0.032965	3.0812
v32	1.000	.674	0.042608	3.1263
v33	1.000	.492	0.031074	3.0452
v34	1.000	.471	0.029813	3.0093
v35	1.000	.436	0.027418	2.5498
v36	1.000	.695	0.043675	2.1626
v37	1.000	.578	0.036493	2.6309

The average customer satisfaction value was calculated to be 3.10 according to formula, which equals to 60.20% when converted to percentage, which is a bare pass, indicating that great efforts are needed to improve the quality of teaching ^[12].

4.2. Structural equation model fitting

In structural equation model analysis using LISREL software, the results are not accurate if the sample size is small, and the model fit and sum effect is not good enough. What the structural model needs to be verified is to influence relationships and paths in a wide range ^[10]. The sample size of 111 meets the sample size requirements and a unified path analysis can be conducted ^[13].

Using the structural equation model established in **Section 3**, the Correlation Coefficient Matrix was input, and LISREL software was initiated to process the data, and the result obtained are shown in **Figure 2**.

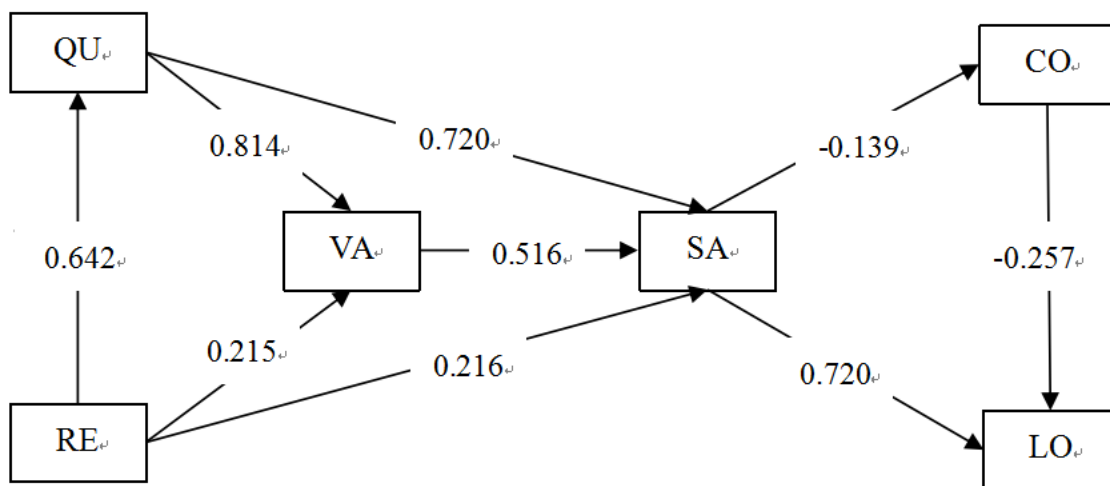


Figure 2. The path map of causality among the variables in the teaching quality customer satisfaction model

5. Summary

5.1. Results

Taking Qingdao Hengxing University of Science and Technology as an example, the teaching quality satisfaction were evaluated according to the weight and comprehensive score of the influencing factors, so as to improve the students' satisfaction with the college teaching quality ^[14].

Based on the factors of college teaching quality, such as customer satisfaction and customer loyalty, and

the combination of local and international results, and the specific conditions of colleges and universities in China, a measurement model of college teaching quality customer satisfaction was put forward, the six factors involved in the model were discussed in detail, and then a questionnaire was designed according to general observations ^[15]. The students of Qingdao Hengxing College of Science and technology were selected to carry out the investigation. After collecting the questionnaire survey data, an in-depth analysis of the data was carried out in terms of two aspects ^[16].

5.2. Conclusion

School reputation has significant influence on perceived quality, perceived value, and customer satisfaction. Perceived quality has significant influence on customer value and customer satisfaction, and customer perceived value has significant influence on customer satisfaction. Customer satisfaction has a significant effect on customer loyalty and customer complaint, and customer complaint has a significant effect on customer loyalty ^[17].

From the further analysis of the correlation coefficient, we can see that the main factors affecting the teaching quality customer satisfaction are perceived quality, customer perceived value, and school reputation ^[18]. The customer loyalty of teaching quality mainly depends on the degree of customer satisfaction of teaching quality, but at the same time customer complaints also have an impact on customer loyalty. The customer perceived value is mainly determined by the customer perceived quality of teaching service. The school reputation also has some influence on the customer perceived value ^[19].

In short, it is of great practical significance to carry out teaching quality customer satisfaction survey, especially in the critical period of quality engineering in higher education ^[20]. It is believed that the overall quality level of higher education in China will reach a new stage when the teaching quality, customer satisfaction survey and improvement are carried out in colleges and universities in China.

Disclosure statement

The author declares no conflict of interest.

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