

A Study on Customer Satisfaction in Tastings Hamburg: A Case Study of Xinhua Store in Zhanjiang

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ABSTRACT: With the improvement of living standards, people pay more and more attention to the overall dining experience when eating out. Satisfactory customer experience determines the customer's repeat consumption, which plays an important role in the long-term operation of enterprises. In recent years, the competition of western fast food in China has become increasingly fierce. As a rising star, Tasting Burger has developed rapidly, but still faces many threats and challenges such as homogenization competition. Therefore, improving customer satisfaction becomes the first choice to enhance its core competitiveness. Based on the American ACSI model, this study selects the indicators of customer satisfaction, makes model assumptions, and tests the hypotheses and model through questionnaire survey and data analysis. Finally, according to the final analysis results, the hypotheses are revised and effective countermeasures are proposed to improve the customer satisfaction of Tasting Burger.

KEY WORD: ACSI model, Customer satisfaction, Countermeasure analysis local, Western style fast food.

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I. INTRODUCTION

1.1 Background

Western fast food has a history of more than 38 years in China. With the opening of "Yili Fast" western restaurant in Beijing in 1984, many western fast food chain brands entered the Chinese mainland market, and were warmly welcomed by people, ushering in a high-speed development of the western fast food industry. With the deepening of reform and opening up, the urbanization rate continued to increase, the disposable income and consumption level of residents increased, and the western fast food market developed rapidly. The scale of China's western food market was 246.76 billion yuan in 2020, slightly lower than 254.16 billion yuan in 2019 due to the impact of the epidemic, rising to 280.07 billion yuan in 2021, and expected to show a growth trend year by year after 2022 (iiMedia, 2022) as shown in Figure 1.

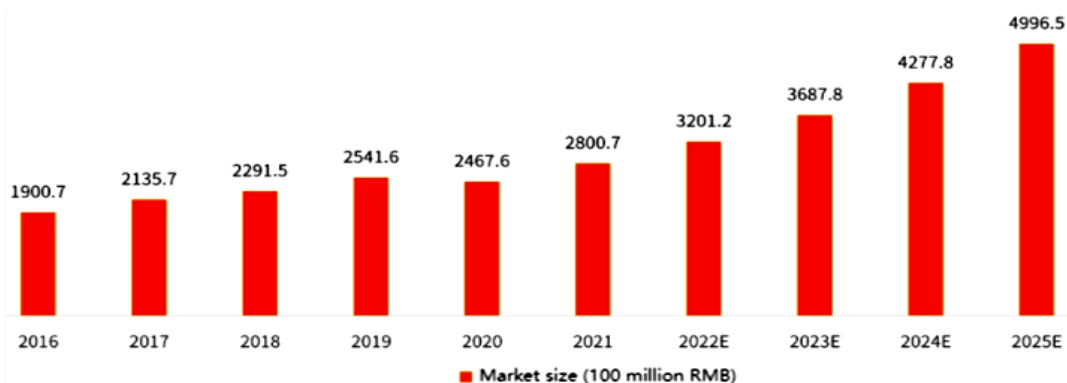


Figure 1 China's Western Fast Food Market Size and Forecast for 2016-2025

Source: iMedia Data Center 2022

As the scale of the western fast food market grows larger, the market mechanism becomes more mature, the fast food products are rich and diverse, and the market competition becomes more intense. Especially when the western fast food giants KFC and McDonald's continue to advance their sinking strategy, actively increase the number of stores in the sinking market, and further intensify the competition in the western fast food market. In today's fierce competition in the western market, low price and promotion strategies are no longer the magic weapon for enterprises to stand invincible, therefore, improving customer satisfaction is the

first choice to enhance the core competitiveness of enterprises, and to better meet people's needs for healthy and delicious products and high-quality services.

Customer satisfaction research can help enterprises optimize costs, improve customer loyalty, promote customer repeat purchases, and enhance enterprise core competitiveness. Therefore, this case study of customer satisfaction has two important meanings. In practice, it conducts research on the factors that affect the customer satisfaction of this case, proposes effective countermeasures to improve customer satisfaction, and then enhances its core competitiveness and achieves long-term development. In theory, there are abundant research results on customer satisfaction and customer perceived value, but there are few studies on customer satisfaction of local western fast food, so this topic has certain research value, and also provides some references and ideas for the development of other western fast food enterprises.

The purpose of this study is to:

a. By reviewing the literature on customer satisfaction, find out the key influencing factors, and determine the quantitative model of TSD customer satisfaction.

b. To study the formation mechanism of TSD customer satisfaction in depth, analyze the relationship between the factors of the model, and propose countermeasures to improve customer satisfaction, so as to improve TSD customer satisfaction.

c. This study combines the factors that affect TSD customer satisfaction with the western fast food industry, and finally obtains more targeted research results.

II. LITERATURE REVIEW

2.1 Customer Satisfaction

The concept of "customer satisfaction" was first proposed in 1965, and scholars have different opinions on the definition of "customer satisfaction". Howard and Sheth (2009) think it is the definition that customers compare the monetary cost they pay with their harvest. Oliver (1981) think it is a psychological state, which is the emotional state when the customer's consumption experience expectation is consistent with the experience. Johnson and Fornell (1991) think it is the overall evaluation of all consumption experiences of a certain product/service provider by customers. Hoffman thinks that the customer's evaluation of the product/service quality comes from the customer's psychological reflection (Hu, 2022).

2.2 Current Situation of Customer Satisfaction Research

Foreign scholars proposed the theory of customer satisfaction in the last century, and they have been actively exploring the evaluation methods, systems and models of customer satisfaction. Richard (1965) pointed out that customer satisfaction significantly stimulates consumers to carry out secondary or multiple consumption activities, making customer satisfaction the first application in the field of marketing. In the next 20 years, the customer satisfaction theory continued to develop and was applied in practice. Claces (1989) constructed the Swedish Customer Satisfaction Barometer Index (SCSB) model. The SCSB model made Sweden the first country to conduct a national customer satisfaction survey. Claces (1994) developed the American Customer Satisfaction Index (ACSI) model (Kan, 2023) based on the SCSB model. The European Union also conducted a customer satisfaction survey in 1999. They conducted an in-depth analysis of the research data based on the reference of the ACSI model, and finally established the European Customer Satisfaction Index (ECSI) system (Jin & Lu, 2023). Many countries started to establish customer satisfaction indexes related to their own countries after 1995.

China's research on customer satisfaction started after 1990, and the research on customer satisfaction developed rapidly. In 1995, Tsinghua University, the highest institution, became the first domestic university to study the customer satisfaction of the country. Tsinghua University School of Economics and Management (2003) successfully established the China Customer Satisfaction Evaluation Model (CCSI) (AQSIQ, 2003).

Since then, domestic scholars have continued to explore and further enrich the index theory of customer satisfaction. Wang and Wang (2007) proposed that the main way to improve customer satisfaction is to improve the perceived level of control in the customer participation process. Wang et al. (2014) pointed out that the service scene, core and additional services, and the emotional labor of employees in the service experience significantly affect customer satisfaction.

2.3 Customer Satisfaction Model

The customer satisfaction theory has developed for decades, and the development of customer satisfaction models has become more and more. SCSB (Wang, 2023), ACSI type (Kan, 2022) and ECSI (Jin & Lu, 2023) are relatively famous models.

2.3.1 American Customer Satisfaction Model (ACSI)

The ACSI model adds structural variables (perceived quality): the result variables are customer loyalty and customer complaints; the antecedent variables are customer perceived value, quality, customer satisfaction, expectations, and loyalty and complaints, etc., a total of six variables (Kan, 2022). As shown in Figure 3.

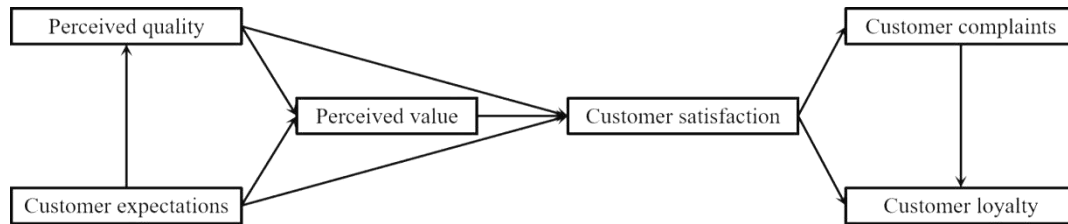


Figure 3 American Customer Satisfaction Model
Source: CFI Group, 1988.

III. SELECTION OF CUSTOMER SATISFACTION INDICATORS AND MODEL ASSUMPTIONS

3.1 Determine the structural variables of customer satisfaction

According to the introduction above, this study determines the influencing factors of TSD customer satisfaction as follows.

3.1.1 Customer Expectations

Customer Expectations (CE): It is the customer's expectation that the whole consumption can meet the needs. If satisfied, it is the psychological expectation, otherwise dissatisfaction. The CE variable in customer satisfaction research has been proven to be very reliable by many studies, and it can reflect the current/past products/services and predict the future quality situation. Therefore, this time the "CE" model is used as the antecedent variable.

3.1.2 Product Perceived Quality

Product Perceived Quality (PPQ): The product of western fast food is food, and food is the most critical part of western fast food enterprises. The quality of food largely determines the advantages and disadvantages of enterprises. For catering enterprises, the customer's perception of food quality directly determines their customer satisfaction. Therefore, this variable of product quality perception is adopted, and its specific observation variables include food taste, variety, hygiene, price, packaging and portion.

3.1.3 Environmental Perceived Quality

Environmental Perceived Quality (EPQ): With the improvement of people's living standards, customers pay more and more attention to their actual dining environment. The current products of western fast food are relatively comprehensive, and it is hard to have a new breakthrough. If we start from creating a warm dining atmosphere and improving the comfort of the hardware facilities, it will be easier to attract customers to consume and make them feel satisfied. Therefore, environmental perceived quality is used as a structural variable, and its observation variables include hygiene, layout, decoration, atmosphere, hardware facilities comfort and location convenience.

3.1.4 Service Perceived Quality

Service Perceived Quality (SPQ): Fast food industry is one of the service industries, and western fast food is inseparable from service. High-quality service can make customers feel more satisfied, and also help enterprises and consumers establish good relationships. Regarding this structural variable, the observation variables are employee service attitude, service comprehensiveness and service waiting time.

3.1.5 Perceived Value

Perceived Value (PV): It is the comprehensive evaluation of the consumption by the customer after the consumption, by comparing the actual experience and the cost expenditure. Customer satisfaction changes with the change of perceived value. When the perceived value increases, the customer satisfaction also increases; when the perceived value decreases, the customer satisfaction also decreases.

3.1.6 Customer Satisfaction

Customer Satisfaction (CS): It is the most important structural variable in the model, which is obtained by evaluating the four aspects of overall, quality, environment and service. It is an indispensable variable for measuring satisfaction in the model. "Customer Satisfaction" is an indispensable variable in this study.

"Customer Complaints" is a variable of the ACSI model (Kan, 2022), which is not adopted in this study. Because it has no significant impact on the survey results of five industries in Norway (6900 customers) (Liu at., 2003), mainly showing that complaint handling does not significantly affect customer satisfaction/loyalty.

"Customer Loyalty" is a variable of ACSI (Kan, 2022), and also a result variable of customer satisfaction, while the content of this study mainly concerns the problem of influencing factors of TSD customer

satisfaction, so the variable of "customer loyalty" is not adopted. Table 1 lists the structural variables and their observation variables of the TSD customer satisfaction evaluation model.

Table 1 Structural Variable of TSD Customer Satisfaction Evaluation Model

Structural Variable	Observed variable	Code
CE	Overall expectations for store quality	L1
	Expectations for dining food	L2
	Expectations for the overall environment of the store	L3
	Expectations for dining services	L4
PPQ	Evaluation of Food Taste and Deliciousness	M1
	Evaluation of the quantity of food types	M2
	Evaluation of food hygiene status	M3
	Evaluation of Affordable Food Prices	M4
	Evaluation of Food Appearance Packaging	M5
	Evaluation of sufficient portions of food	M6
EPQ	Evaluation of store environment hygiene and cleanliness	N1
	Evaluation of store layout and decoration	N2
	Evaluation of restaurant dining atmosphere	N3
	Evaluation of the Comfort of Store Hardware Facilities	N4
	Evaluation of Convenient Store Location	N5
SPQ	Evaluation of the service attitude of store employees	O1
	Comprehensive evaluation of the thoughtful service provided by employees	O2
PV	Evaluation of service waiting time	O3
	Evaluation of timely handling of customer complaints	O4
	Evaluation of food/service/dining environment/price	P1
CS	Overall satisfaction with the store	Q1
	Satisfaction with store food	Q2
	Satisfaction with store environment	Q3
	Satisfaction with store services	Q4

3.2 Proposed Customer Satisfaction Evaluation Model

Based on the theoretical description of the research topic, the ACSI model, and the characteristics of this case, a CS evaluation model is proposed, as shown in Figure 4.

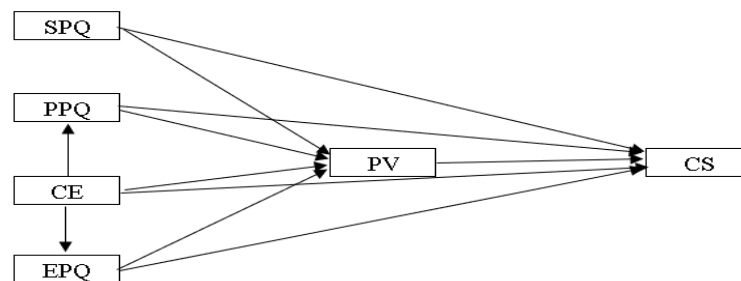


Figure 4 Customer Satisfaction Hypothesis Model

3.3 Hypothesis of the Relationship between Model Structural Variables

Based on the proposed customer satisfaction hypothesis evaluation model, the hypothesis of the correlation between each variable is made (as shown in Table 2), and the empirical research of this case is carried out.

Table 2 Assumptions on the Relationship between Structural Variables

Num	Assumption Content
1	There is a negative correlation between customer expectations and product quality perception
2	There is a negative correlation between customer expectations and environmental quality perception
3	Perceived value is negatively correlated with customer satisfaction
4	There is a negative correlation between customer expectations and perceived value
5	There is a negative correlation between customer expectations and customer satisfaction
6	Product quality perception is positively correlated with perceived value
7	Product quality perception is positively correlated with customer satisfaction
8	There is a positive correlation between environmental quality perception and perceived value
9	Environmental quality perception is positively correlated with customer satisfaction
10	Perceived service quality is positively correlated with perceived value
11	Perceived service quality is positively correlated with customer satisfaction

IV. EMPIRICAL SURVEY RESEARCH

4.1 Research Object

The research object of this study is Tasting Xinhua Store in Zhanjiang (hereinafter referred to as TSD), which was established in 2012, mainly targeting young people, with affordable prices and Chinese style, featuring localized flavors and convenient dining hand-made burgers and pizzas. It is a well-known catering chain brand, with 5 main burgers and pizzas in 2017, "freshly baked bun" in 2018, and "making Chinese people's own burger brand" as the development direction since 2019. TSD interprets the brand concept and endows the brand with energy from three dimensions: cultural brand, creative burger, and close to customers.

Data show that as of December 2022, it has more than 2,000 stores, and new stores cover 2,243 places in all provinces across the country. As of January 2023, the number of online member registrations nationwide reached 23.62 million (Xinchao Media Group, 2023). The brand of the group mainly adopts standardized operation process in the management and development of each branch, which makes the management of goods/services of each store tend to be consistent, so this study only takes TSD as the scope of research.

4.2 Design of Questionnaire

According to the operation characteristics and customer consumption habits of TSD, the main factors affecting customer satisfaction are preliminarily determined to be 16 different variables, which are: food taste, food variety, food hygiene, food portion, food appearance packaging, food price, environmental hygiene, store layout decoration, dining atmosphere, hardware facilities, location convenience, service attitude, service comprehensiveness, waiting time, handling customer complaints, consumption price, etc. All these variables are preliminarily analyzed.

The questionnaire content is mainly based on the customer satisfaction survey form of Jishengke Fast Food Restaurant (Fang, 2016), with a total of 25 questions, of which 4 questions are about personal basic information and 21 questions are about customer satisfaction survey. The second part of the customer satisfaction survey scale adopts the Likert 5-point scale, and assigns 1-5 points to different options.

4.3 Pre-test of Questionnaire

The survey object is mainly focused on customers who have consumed at Xinhua Road Store. Through SPSS 27 statistical analysis and collation of the questionnaire, the data of TSD customer satisfaction influencing factors are obtained. This survey issued 50 questionnaires, which were WeChat questionnaires, and the number of valid questionnaires recovered was 50, with a questionnaire pass rate of 100%.

4.3.1 Descriptive Analysis

The satisfaction score of this survey is 1-5 points, with 3 as the theoretical median, less than 3 points means dissatisfaction, 3 points means neutral attitude, and more than 3 points means satisfaction. According to the results of Table 3, the mean values of all the questions above are between 3.8 and 4.14, showing a high level of customer satisfaction.

Table 3 describes statistics

Project	Num of cases	Min value	Max value	Avg value	Standard Deviation
L1	50	3	5	4	0.639
L2	50	2	5	4.02	0.742
L3	50	3	5	4.08	0.665
L4	50	3	5	4.12	0.659
M1	50	3	5	4.04	0.638
M2	50	3	5	3.86	0.67
M3	50	3	5	4.1	0.678
M4	50	3	5	3.94	0.682
M5	50	3	5	4.14	0.572
M6	50	3	5	3.88	0.746
N1	50	3	5	4.02	0.622
N2	50	3	5	3.86	0.67
N3	50	3	5	3.98	0.622
N4	50	3	5	3.8	0.606
N5	50	3	5	4.1	0.647
O1	50	3	5	4	0.639
O2	50	3	5	3.98	0.622

O3	50	3	5	3.84	0.681
O4	50	3	5	3.92	0.665
P1	50	2	5	3.9	0.647
Q1	50	3	5	4	0.571
Q2	50	3	5	4.04	0.605
Q3	50	3	5	4	0.67
Q4	50	2	5	4	0.67

4.3.2 Reliability and Validity Analysis

The reliability test results of the questionnaire sample are shown in Table 4. The Alpha coefficients (α) of each variable are all greater than 0.9, and the combined reliability coefficient $\alpha=0.972$, indicating that the reliability of this scale is excellent.

Table 4 Reliability statistics of various structural variables and overall

Level	Variable	Items	Cronbach(α)
Influence factor	CE	4	0.940
	PPQ	6	0.931
	EPQ	5	0.930
	SPQ	4	0.930
Result variables	CS	4	0.937
Overall inspection		24	0.972

Validity analysis: KMO and Bartlett test are performed on the scale, as shown in Table 5, KMO=0.769, which indicates that there is a strong correlation between the variables. PValue<0.001<0.05, the significance reaches the level. The scale is suitable for factor analysis, and its validity structure is good.

Table 5 KMO and Bartlett's tests

KMO sampling suitability quantity		0.769
Bartlett's sphericity test	Approximate chi square	1582.339
	Degree of freedom	276
	Saliency	<0.001

4.4 Data Analysis of Formal Questionnaire Survey

Through the reliability and validity requirements of the pre-test of the questionnaire, the formal questionnaire survey was issued. This time, TSD customer satisfaction questionnaire was issued through online and offline two ways, a total of 264 questionnaires were collected, 116 paper questionnaires, 148 electronic questionnaires, of which 262 valid questionnaires, 2 invalid questionnaires, the questionnaire pass rate was 99.24%. The result data analysis is as follows.

4.4.1 Basic Characteristics of Sample

The results are shown in Table 6: The ratio of male and female customers in the survey sample is about 3:7, with women far higher than men, because there are more women and fewer men in the normal universities and health schools near the store, and the customers who consume in the store are also mostly women. The majority of customers in the survey sample are between 19 and 25 years old, which shows that TSD is loved by young people and is an important consumer group. From the perspective of education level, the number of people with college and undergraduate degrees accounts for more than 90%, which shows that college students like to go to TSD for consumption, and this is also related to the store being close to the school. According to the data statistics of dining frequency, more than two-thirds of customers will consume for the second time in the store.

Table 6 Basic characteristics of formal survey samples

Basic characteristics		Num	percentage
Gender	Male	74	28.20%
	Female	188	71.80%
Age group	Under 18 years old	18	6.90%
	19-25 years old	231	88.20%
	26-30 years old	9	3.40%

	31-40 years old	3	1.10%
	41 years old and above	1	0.40%
Education level	Under high school	4	1.50%
	High school	10	3.80%
	College and undergraduate education	240	91.60%
	Master's degree or above	8	3.10%
Meal frequency	Once	86	32.80%
	2-3 times	59	22.50%
	More than 3 times	117	44.75%

4.4.2 Descriptive Analysis

The satisfaction score of this survey is 1-5 points, with 3 as the theoretical median, less than 3 points means dissatisfaction, 3 points means neutral attitude, and more than 3 points means satisfaction. According to the results of Table 7, the mean values of the following questionnaire questions are between 3.66 and 4.06.

Table 7 Formal Survey Sample Description Statistics

Project	Num of cases	Min value	Max value	Avg value	Standard Deviation
L1	262	1	5	3.97	0.735
L2	262	1	5	4.01	0.78
L3	262	1	5	3.97	0.773
L4	262	1	5	3.93	0.797
M1	262	1	5	4.02	0.753
M2	262	1	5	3.85	0.766
M3	262	1	5	3.96	0.737
M4	262	1	5	3.89	0.813
M5	262	1	5	4.06	0.738
M6	262	1	5	3.77	0.889
N1	262	1	5	3.83	0.749
N2	262	1	5	3.83	0.78
N3	262	1	5	3.87	0.772
N4	262	1	5	3.79	0.777
N5	262	1	5	3.95	0.767
O1	262	1	5	3.83	0.791
O2	262	1	5	3.84	0.784
O3	262	1	5	3.66	0.92
O4	262	1	5	3.81	0.813
P1	262	1	5	3.75	0.801
Q1	262	1	5	3.84	0.824
Q2	262	1	5	3.94	0.812
Q3	262	1	5	3.82	0.778
Q4	262	1	5	3.81	0.841

It can be seen that TSD has done a good job in customer satisfaction as a whole, and customer satisfaction has reached a good level. But through the data, it is found that the sample mean can reach more than 4 is relatively less, which shows that TSD still has some room for improvement in customer satisfaction.

4.4.3 Reliability and Validity Analysis

Reliability analysis: The reliability result of this questionnaire shows that the Value is 0.971, (as shown in Table 8) supporting that the questionnaire has excellent reliability.

Table 8 Reliability statistics of various variables and the overall survey

Level	Variable	Items	Cronbach(α)
Influence factor	CE	4	0.940
	PPQ	6	0.929
	EPQ	5	0.926
	SPQ	4	0.927
Result variables	CS	4	0.935
	Overall inspection	24	0.971

Validity analysis: KMO and Bartlett test are performed on the scale, as shown in Table 9, KMO=0.960, indicating that there is a significant correlation between the variables, and Bartlett's test shows that the chi-square test Value=6625.901, P Value 0<0.05. Therefore, the sample scale degree is suitable and very suitable for factor analysis.

Table 9 Formal Investigation KMO and Bartlett's Test

KMO sampling suitability quantity		0.96
Approximate chi square		6625.901
Bartlett's spherical test	Degree of freedom	276
Saliency		0

4.4.4 Correlation Analysis

The correlation between the structural variables is studied, and PValue is used to indicate the correlation. If p>0, it means that there is a positive correlation between the two. If p<0, it means that there is a negative correlation between the two.

From Table 10, it can be seen that at the confidence level (double-sided) of 0.01, CE has a significant positive correlation with PPQ, EPQ, SPQ, PV and CS respectively; PPQ has a significant positive correlation with EPQ, SPQ, PV and CS respectively; EPQ has a significant positive correlation with SPQ, PV and CS respectively; SPQ has a significant positive correlation with PV and CS variables; PV and CS variables have a significant positive correlation.

Table 10 Correlation between various structural variables in the customer satisfaction model

Variable	CE	PPQ	EPQ	SPQ	PV	CS
CE	1					
PPQ	.483**	1				
EPQ	.522**	.839**	1			
SPQ	.495**	.779**	.827**	1		
PV	.413**	.731**	.734**	.782**	1	
CS	.450**	.757**	.801**	.824**	.844**	1

**At the 0.01 level (double tailed), the correlation is significant

4.4.5 Regression Analysis

Next, the regression analysis of the independent and dependent variables of the evaluation model is performed to verify the hypothesis relationship of the structural variables in the previous section.

A. CE is negatively correlated with PPQ: As shown in Table 11, the independent variable is CE, the dependent variable is PPQ, and the adjusted R-square Value is 0.231, which can explain 23.1% of the variation. As shown in Table 12, the F-statistic is 79.313, P<0.001b<0.05, indicating that the model has statistical significance, as shown in Table 13, the CE regression coefficient B is 0.459, and the t-test result, P<0.001<0.05. It shows that CE has a significant positive effect on PPQ.

The regression is based on the following equation.

$$PPQ = 2.104 + 0.459 * CE$$

Table 11 Model Summary

Model	R	R2	Adjusted R2	Err. in standard estimation
1	0.483a	0.234	0.231	0.59060

Predictive variable: CE(constant)

Table 12 ANOVAa

Model		Square sum	Free degree	mean square	F	Saliency
1	Regression	27.665	1	27.665	79.313	<0.001b
	Residual	90.692	260	0.349		
	Total	118.357	261			

Dependent variable: PPQ; Predictive variable: CE(constant)

Table 1 coefficient a

Model		Unstandardized coefficient	Standardized coefficient	t	Saliency	
		B	Standard error	Beta		
1	(Constant)	2.104	0.208		10.134	<0.001
	CE	0.459	0.051	0.483	8.906	<0.001

Dependent variable: PPQ

B. CE is negatively correlated with EPQ: As shown in Table 14, the independent variable is CE, the dependent variable is EPQ, and the adjusted R-square Value is 0.270, which can explain 27% of the variation. As shown in Table 15, the F-statistic is 97.381, $P < 0.001b < 0.05$, indicating that the model has statistical significance, as shown in Table 16, the CE regression coefficient B is 0.497, and the t-test result, $P < 0.001 < 0.05$. It shows that CE has a significant positive predictive effect on EPQ.

The regression is based on the following equation.

$$EPQ = 1.883 + 0.497 * CE$$

Table 14 Model Summary

Model	R	R2	Adjusted R2	Err. in standard estimation
1	0.522a	0.272	0.270	0.57759

Predictive variable: CE(constant)

Table 2 ANOVAa

Model		Square sum	Free degree	mean square	F	Saliency
1	Regression	32.487	1	32.487	97.381	<0.001b
	Residual	86.739	260	0.334		
	Total	119.226	261			

Dependent variable: EPQ; Predictive variable: CE(constant)

Table 3 coefficient a

Model		Unstandardized coefficient	Standardized coefficient	t	Saliency	
		B	Standard error	Beta		
1	Constant	1.883	0.203		9.272	<0.001
	CE	0.497	0.05	0.522	9.868	<0.001

Dependent variable: EPQ

C. PV is negatively correlated with CS: As shown in Table 17, the independent variable is PV, the dependent variable is EPQ, and the adjusted R-square Value is 0.243, which can explain 24.3% of the variation. As shown in Table 18, the F-statistic is 645.925, $P < 0.001b < 0.05$, indicating that the model has statistical significance, as shown in Table 19, the PV regression coefficient is 0.785, and the t-test result, $P < 0.001 < 0.05$. It shows that PV has a significant positive effect on CS.

The regression is based on the following equation.

$$CS = 0.912 + 0.785 * PV$$

Table 17 Model Summary

Model	R	R2	Adjusted R2	Err. in standard estimation
1	0.844a	0.713	0.712	0.39952

Predictive variable: PV(constant)

Table 4 ANOVAa

Model		Square sum	Free degree	Mean square	F	Saliency
1	Regression	103.102	1	103.102	645.925	<0.001b
	Residual	41.501	260	0.16		
	Total	144.603	261			

Dependent variable: CS; Predictive variable: PV(constant)

Table 5 coefficient a

Model		Unstandardized coefficient		Standardized coefficient	t	Saliency
		B	Standard error	Beta		
1	Constant	0.912	0.118		7.708	<0.001
	PV	0.785	0.031	0.844	25.415	<0.001

Dependent variable: CS

D. CE is negatively correlated with PV: As shown in Table 20, the independent variable is CE, the dependent variable is PV, and the adjusted R-square Value is 0.167, which can explain 16.7% of the variation. As shown in Table 21, the F-statistic is 53.483, $P < 0.001 < 0.05$, indicating that the model has statistical significance, as shown in Table 22, the CE regression coefficient B is 0.466, and the t-test result, $P < 0.001 < 0.05$. It shows that CE has a significant positive predictive effect on PV.

The regression is based on the following equation.

$$PV = 1.898 + 0.466 * CE$$

Table 20 Model Summary

Model	R	R2	Adjusted R2	Err. in standard estimation
1	0.413a	0.171	0.167	0.731

Predictive variable: CE(constant)

Table 6 ANOVAa

Model		Square sum	Free degree	Mean square	F	Saliency
1	Regression	28.555	1	28.555	53.483	<0.001b
	Residual	138.819	260	0.534		
	Total	167.374	261			

Dependent variable: PV; Predictive variable: CE(constant)

Table 7 coefficient a

Model		Unstandardized coefficient		Standardized coefficient	t	Saliency
		B	Standard error	Beta		
1	Constant	1.898	0.257		7.39	<0.001
	CE	0.466	0.064	0.413	7.313	<0.001

Dependent variable: PV

E. CE is negatively correlated with CS: As shown in Table 23, the independent variable is CE, the dependent variable is CS, and the adjusted R-square is 0.199, which can explain 19.9% of the variation. As shown in Table 24, the F-statistic is 65.974, $P < 0.001 < 0.05$, indicating that the model has statistical significance, as shown in Table 25, the CE regression coefficient B is 0.472, and the t-test result, $P < 0.001 < 0.05$. It shows that CE has a significant positive predictive effect on CS.

The regression is based on the following equation.

$$CS = 1.982 + 0.472 * CE$$

Table 23 Model Summary

Model	R	R2	Adjusted R2	Err. in standard estimation
1	0.450a	0.202	0.199	0.66604

Predictive variable: CE(constant)

Table 8 ANOVAa

Model		Square sum	Free degree	Mean square	F	Saliency
1	Regression	29.266	1	29.266	65.974	<0.001b
	Residual	115.337	260	0.444		
	Total	144.603	261			

Dependent variable: CS; Predictive variable: CE(constant)

Table 9 coefficient a

Model		Unstandardized coefficient	Standard error	Standardized coefficient	t	Saliency
		B		Beta		
1	Constant	1.982	0.234		8.462	<0.001
	CE	0.472	0.058	0.45	8.122	<0.001

Dependent variable: CS

F. PPQ is positively correlated with PV: As shown in Table 26, the independent variable is PPQ, the dependent variable is PV, and the adjusted R-square is 0.532, which can explain 53.2% of the variation. As shown in Table 27, the F-statistic value is 298.28, $P < 0.001b < 0.05$, indicating that the model has statistical significance, as shown in Table 28, the PPQ regression coefficient B is 0.869, and the t-test result, $P < 0.001 < 0.05$. It shows that PPQ has a significant positive effect on PV.

The regression is based on the following equation.

$$PV = 0.336 + 0.869 * PPQ$$

Table 26 Model Summary

Model	R	R2	Adjusted R2	Err. in standard estimation
1	0.731a	0.534	0.532	0.548

Predictive variable: PPQ(constant)

Table 10 ANOVAa

Model		Square sum	Free degree	Mean square	F	Saliency
1	Regression	89.425	1	89.425	298.28	<0.001b
	Residual	77.949	260	0.3		
	Total	167.374	261			

Dependent variable: PV; Predictive variable: PPQ(constant)

Table 11 coefficient a

Model		Unstandardized coefficient	Standard error	Standardized coefficient	t	Saliency
		B		Beta		
1	Constant	0.336	0.2		1.679	0.094
	CE	0.869	0.05	0.731	17.271	<0.001

Dependent variable: PV

G. PPQ is positively correlated with CS: (As shown in Table 29), PPQ is the independent variable, CS is the dependent variable, and the adjusted R-square is 0.572, which can explain 57.2% of the variation. As shown in Table 30, the F-statistic is 349.856, $P < 0.001b < 0.05$, indicating that the model has statistical significance, as shown in Table 31, the PPQ regression coefficient B is 0.837, and the t-test result, $P < 0.001 < 0.05$. It shows that PPQ has a significant positive effect on CS.

The regression is based on the following equation.

$$CS = 0.568 + 0.837 * PPQ$$

Table 29 Model Summary

Model	R	R2	Adjusted R2	Err. in standard estimation
1	0.757a	0.574	0.572	0.48694

Predictive variable: PPQ(constant)

Table 30 ANOVAa

Model		Square sum	Free degree	Mean square	F	Saliency
1	Regression	82.955	1	82.955	349.856	<0.001b
	Residual	61.649	260	0.237		
	Total	144.603	261			

Dependent variable: CS; Predictive variable: PPQ(constant)

Table 31 coefficient a

Model		Unstandardized coefficient		Standardized coefficient	t	Saliency
		B	Standard error	Beta		
1	Constant	0.568	0.178		3.187	0.002
	CE	0.837	0.045	0.757	18.704	<0.001

Dependent variable: CS

H. EPQ is positively correlated with PV: As shown in Table 32, the independent variable is EPQ, the dependent variable is PV, and the adjusted R-square is 0.537, which can explain 53.7% of the variation. As shown in Table 33, the F-statistic value is 303.571, $P < 0.001b < 0.05$, indicating that the model has statistical significance, as shown in Table 34, the EPQ regression coefficient B is 0.87, and the t-test result, $P < 0.001 < 0.05$. It shows that EPQ has a significant positive effect on PV.

The regression is based on the following equation.

$$PV = 0.395 + 0.87 * EPQ$$

Table 32 Model Summary

Model	R	R2	Adjusted R2	Err. in standard estimation
1	0.734a	0.539	0.537	0.545

Predictive variable: EPQ(constant)

Table 33 ANOVAa

Model		Square sum	Free degree	Mean square	F	Saliency
1	Regression	90.157	1	90.157	303.571	<0.001b
	Residual	77.217	260	0.297		
	Total	167.374	261			

Dependent variable: PV; Predictive variable: EPQ(constant)

Table 34 coefficient a

Model		Unstandardized coefficient		Standardized coefficient	t	Saliency
		B	Standard error	Beta		
1	Constant	0.395	0.195		2.023	0.044
	CE	0.87	0.05	0.734	17.423	<0.001

Dependent variable: PV

I. EPQ is positively correlated with CS: As shown in Table 35, the independent variable is EPQ, the dependent variable is CS, and the adjusted R-square is 0.64, which can explain 64% of the variation. As shown in Table 36, the F-statistic is 464.404, $P < 0.001b < 0.05$, indicating that the model has statistical significance, as shown in Table 37, the EPQ regression coefficient B is 0.882, and the t-test result, $P < 0.001 < 0.05$. It shows that EPQ has a significant positive predictive effect on CS.

The regression is based on the following equation.

$$CS = 0.454 + 0.882 * EPQ$$

Table 35 Model Summary

Model	R	R2	Adjusted R2	Err. in standard estimation
1	0.801a	0.641	0.64	0.44679

Predictive variable: EPQ(constant)

Table 36 ANOVAa

Model		Square sum	Free degree	Mean square	F	Saliency
1	Regression	92.703	1	92.703	464.404	<0.001b
	Residual	51.9	260	0.2		
	Total	144.603	261			

Dependent variable: CS; Predictive variable: EPQ(constant)

Table 37 Coefficient a

Model		Unstandardized coefficient		Standardized coefficient	t	Saliency
		B	Standard error	Beta		
1	Constant	0.454	0.16		2.835	0.005
	CE	0.882	0.041	0.801	21.55	<0.001

Dependent variable: CS

J. SPQ is positively correlated with PV: As shown in Table 38, the independent variable is SPQ, the dependent variable is PV, and the adjusted R-square is 0.611, which can be interpreted as 61.1% of the variance. As shown in Table 39, the F-statistic is 410.485, where $P < 0.001 < 0.05$, indicating that the model is statistically significant. As shown in Table 40, the regression coefficient B of SPQ is 0.834, and the corresponding $P < 0.001 < 0.05$ is found by using the t-test. This indicates that SPQ has a significant positive predictive effect on PV.

The regression is based on the following equation.

$$PV = 0.59 + 0.834SPQ$$

Table 38 Model Summary

Model	R	R2	Adjusted R2	Err. in standard estimation
1	0.782a	0.612	0.611	0.5

Predictive variable: SPQ(constant)

Table 39 ANOVAa

Model		Square sum	Free degree	Mean square	F	Saliency
1	Regression	102.47	1	102.47	410.485	<0.001b
	Residual	64.904	260	0.25		
	Total	167.374	261			

Dependent variable: PV; Predictive variable: SPQ(constant)

Table 40 coefficient a

Model		Unstandardized coefficient		Standardized coefficient	t	Saliency
		B	Standard error	Beta		
1	Constant	0.59	0.159		3.715	<0.001
	CE	0.834	0.041	0.782	20.26	<0.001

Dependent variable: PV

K. SPQ is positively correlated with CS: As shown in Table 41, the independent variable is SPQ, the dependent variable is CS, and the adjusted R-square is 0.678, which can be interpreted as 67.8% of the variance. As shown in Table 42, the F-statistic is 551.481, where $P < 0.001 < 0.05$, indicating that the model is statistically significant. As shown in Table 43, the regression coefficient B of SPQ is 0.817, and the corresponding $P < 0.001 < 0.05$ is found by using the t-test. This indicates that SPQ has a significant positive predictive effect on CS.

The regression is based on the following equation.

$$CS = 0.762 + 0.817SPQ$$

Table 41 Model Summary

Model	R	R2	Adjusted R2	Err. in standard estimation
1	0.824a	0.68	0.678	0.42213

Predictive variable: SPQ(constant)

Table 42 ANOVAa

Model		Square sum	Free degree	Mean square	F	Saliency
1	Regression	98.272	1	98.272	551.481	<0.001b
	Residual	46.331	260	0.178		
	Total	144.603	261			

Dependent variable: CS; Predictive variable: SPQ(constant)

Table 43 coefficient a

Model		Unstandardized coefficient		Standardized coefficient	t	Saliency
		B	Standard error	Beta		
1	Constant	0.762	0.134		5.673	<0.001
	CE	0.817	0.035	0.824	23.484	<0.001

Dependent variable: CS

4.5 Verification results

4.5.1 Model hypothesis verification results

Based on the above analysis, the hypotheses of CE with PPQ, EPQ, PV, and CS were not verified, and the hypotheses of PV and CS were also not verified. The rest of the hypotheses were verified. The detailed verification results are shown in Table 44 below.

Table 44 Model Hypothesis Validation

Num	Assumption Content	Verification results
1	CE is negatively correlated with PPQ	Not supported
2	CE is negatively correlated with EPQ	Not supported
3	PV is negatively correlated with CS	Not supported
4	CE is negatively correlated with PV	Not supported
5	CE is negatively correlated with CS	Not supported
6	PPQ is positively correlated with PV	support
7	PPQ is positively correlated with CS	support
8	EPQ is positively correlated with PV	support
9	EPQ is positively correlated with CS	support
10	SPQ is positively correlated with PV	support
11	SPQ is positively correlated with CS	support

4.5.2 Determination of model results

According to the analysis of the verification results, CE has a positive effect, and the rest of the hypotheses are correct. Therefore, the model is established as shown in Figure 5.

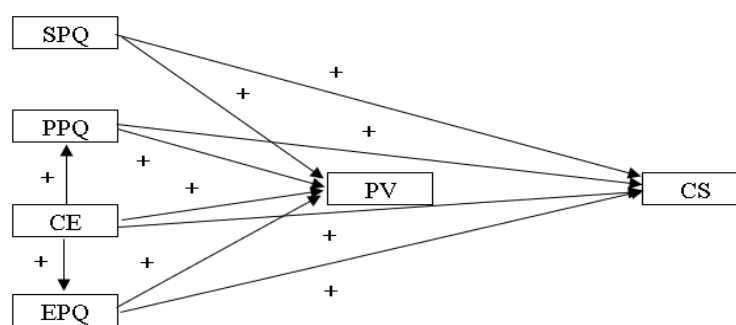


Figure 5 Customer satisfaction measurement model

4.6 Survey of customer satisfaction with characteristics

Through the study of the characteristics of TSD, it is found that it is mainly divided into six aspects, namely, hand-rolled and freshly baked burger buns, Chinese-style fillings, unique product packaging, national trend advertising campaigns, Chinese elements as the main store decoration, and brand culture built on Chinese culture. According to the results of Table 45, more than half of the consumers are most satisfied with the hand-rolled and freshly baked burger buns, followed by 13% of the consumers who are most satisfied with the Chinese-style fillings, and 12.2% of the consumers who are most satisfied with the brand culture built on Chinese culture. The proportion of consumers who are most satisfied with the unique product packaging, national trend advertising campaigns, and Chinese elements as the main store decoration are all less than 10%.

Table 45 TSD Characteristic Satisfaction Survey Results

The characteristics of TSD	Number	Percentage
Hand roll freshly baked burger embryos	132	50.4%
Chinese style filling	34	13%
Unique product packaging	21	8%
China-Chic Style Advertising Activities	18	6.9%
Store decoration with Chinese elements as the main focus	25	9.5%
Brand culture constructed with Chinese culture	32	12.2%

4.7 Customer satisfaction improvement strategy

Through the above research on TSD customer satisfaction model, we also understand the importance of customer satisfaction. Combining this research, we will propose customer satisfaction improvement strategies for TSD from the following three aspects

4.7.1 Improve product quality and create product characteristics

The previous research shows that the correlation coefficient between PPQ and CS is 0.757. According to the questionnaire survey on TSD characteristics satisfaction, hand-rolled and freshly baked burger buns and Chinese-style fillings are the two items that consumers are most satisfied with, that is, innovative product characteristics can make customers most satisfied. Therefore, business operators should always pay attention to product quality, innovate characteristic products, and meet the different needs of customers. It can start from the following two points.

Strengthen the quality management of products. Although the operation process of western fast food is strict and highly standardized, TSD has quality problems such as "ink oil" fried chicken and expired food sales (NetEase, 2023), which makes customers more concerned and worried about product quality. TSD stores should strictly manage and control the food ingredients, processing, and sales links, and adopt regular inspections and random inspections to strengthen the quality management of each link, to ensure that the food ingredients sold every day are fresh, the frying oil is not black, and the processed food ingredients are sufficient and accurate.

Innovate product characteristics. Although TSD has innovated the burger buns and fillings, making the products more in line with the Chinese taste, the other products in the store are still no different from other western fast food. Moreover, other western fast food also launched hand-rolled and freshly baked burger buns and Chinese-style fillings, so TSD in the fierce market competition, should pay more attention to the development of new products to meet the needs of society and customers, and thus improve the core competitiveness of products.

4.7.2 Optimize the dining environment

The correlation coefficient between EPQ and CS is 0.801, indicating that they have a strong correlation. A comfortable environment can make people feel happy, and similarly, a comfortable dining environment can attract more customers to dine, meet the environmental expectations of customers, and improve the perceived value. To attract more customers with the dining environment and improve customer satisfaction, it should start from the following three points:

Optimize the design of the store and improve the hardware facilities. Through field observation, it was found that the store space was small, with only 25 stools, and many customers gave up dining because there were no seats. There is no bathroom in the store, and there are many scratches on the tables and stools. The wooden stools are hard and uncomfortable. Therefore, the TSD store should optimize the store space, set up a bathroom, and choose more comfortable soft-faced stools to improve the customer's dining experience.

Pay attention to the rendering of the store atmosphere. According to the theory of marketing, the store atmosphere has a vital role in the customer's purchase desire and repeat purchase, and the five most important factors for the store atmosphere rendering are: environmental color, store lighting, background music, environmental smell, and product display (Jiang, 2012). The TSD store environment adopts a red and green color scheme, with the bright red store decoration and the dark green stools contrasting with each other, giving people a strong visual conflict, and a sense of freshness, liveliness, and vitality. TSD is mainly based on the national trend style, and if it can add some Chinese elements to the store decoration, it can better render the store atmosphere. The store always plays the same promotional song in a loop, and the music is too loud, which can easily make people feel annoyed and affect the dining experience. When customers are dining, they should play more relaxed and cheerful light music, which can have a positive effect on the customer's senses.

Improve the hygiene and cleanliness standards. Through field observation, the hygiene of the TSD Xinhua Gate store was not up to standard, flies were flying around in the glass store, and even stopped on the customer's food, the table was not cleaned, and there were food residues, and the paper skin was randomly piled

up at the store entrance. Therefore, the hygiene and cleanliness standards should be improved, and strictly implemented according to the requirements, to make customers feel clean and tidy. At the same time, employees should develop good hygiene habits, use disposable gloves, wear masks, and use more sanitary utensils such as plastic wrap when making food, and avoid touching unclean things such as mobile phones.

4.7.3 Optimize service

According to the research results, the correlation between SPQ and CS is the highest, with a correlation coefficient of 0.824. Therefore, the operator should pay more attention to service quality management and improve the customer's dining experience. To improve service quality, customer's good experience will be improved, customer's concession value will be increased, and then the number of customers and market share will be increased, and competitiveness will be enhanced (Xiang, 2023). High-quality service quality includes: good service status, skilled service skills, convenient service methods, continuous innovation of service, standardized one-stop service, and fast response (Wu, 2009).

V. CONCLUSION

Our study fully draws on the ACSI model, and according to the characteristics of TSD fast food, constructs a customer satisfaction measurement model, uses questionnaire survey method to obtain the customer satisfaction data of Xinhua Road store, and then uses SPSS27.0 to obtain and analyze the data, and finds that there is a cause and effect relationship between CE, PPQ, EPQ, SPQ, PV and CS, which is the TSD customer satisfaction measurement model determined above.

Our study can provide some help for the actual operation of TSD by analyzing the customer satisfaction of TSD. The research can provide decision-making direction for the operators, and the managers can make corresponding adjustments and improvements quickly and accurately in the actual operation process by grasping the correlation between the variables, so as to improve the customer satisfaction.

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