

# Service quality, customer satisfaction and retention: Basis for logistic companies continuous improvement framework

Yu, Liting ✉

Graduate School, Lyceum of the Philippines University - Batangas, Philippines ([791753288@qq.com](mailto:791753288@qq.com))

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## Abstract

The paper determined the continuous development framework of Chinese express logistics companies by evaluating service quality, customer satisfaction and customer retention. Respondents evaluated service quality in China from five aspects: reliability, timeliness, economy, convenience and empathy. Customer satisfaction with express logistics services was measured from three dimensions: expectation satisfaction, experience satisfaction and perceived value satisfaction. Customer retention in terms of positive word-of-mouth marketing, continued retention behavior and future retention intention was assessed. The results showed that respondents agreed with moderate evidence on all indicators of service quality, customer satisfaction and customer retention, all sub-dimensions of service quality are significantly positively correlated with customer satisfaction and customer retention, and all sub-dimensions of customer satisfaction are also significantly positively correlated with customer retention. Finally, the continuous improvement framework for logistics companies were presented. The researcher suggested that China Express logistics companies may improve service quality by strengthening the protection of customers' personal information on the outer packaging of express delivery, improving the processing speed of returns and exchanges, providing convenient and diversified return and exchange methods, and formulating competitive prices. Moreover, activities to give existing customers profits or discounts may be carried out frequently to improve customer satisfaction and cultivate customer retention.

**Keywords:** service quality, customer satisfaction, customer retention, express logistics company

## **Service quality, customer satisfaction and retention: Basis for logistic companies continuous improvement framework**

### **1. Introduction**

In China, express delivery has become a part of people's life. Whether people are shopping or sending parcel, they cannot do without express logistics services. Especially in the context of the epidemic, express delivery companies not only undertake the task of transporting epidemic prevention and emergency supplies, but also provide people with basic daily necessities distribution services. According to the statistical bulletin on the development of China's postal industry (2023), in 2021 and 2022, the express business volume has reached 10.8296 million pieces and 11.0581 million pieces, serving nearly 700 million users per day. In e-commerce carnivals such as 6.18 and Double 11, the volume of express delivery has grown exponentially. China has topped the list for eight consecutive years in the ranking of express business volume (Chaoying, 2021). People have reached a consensus: the logistics services of express companies not only ensure the material demand during the epidemic, but also facilitate people's lives. The positive role of express logistics companies is obvious (Diaz, 2017).

Although the growth of express business has laid a good foundation for subsequent development, while the express service business has grown rapidly, complaints about the service quality have also increased. Based on the statistics of the consumer complaint platform of China Quality Miles, in 2019, the number of complaints against traditional express logistics companies in China is close to 14,000 (2019). Relevant departments accepted a total of 32,765 effective complaints from consumers about express service quality, accounting for 91.6% of all valid complaints (Li, 2021). This seemingly contradictory result has aroused the attention of express companies and relevant departments. For express companies, it urgently needs to find out how to improve service quality and customer satisfaction, so as to meet customer needs. At the same time, the growth of express delivery business has intensified the competition among courier companies. If express logistics companies want to remain invincible in the competition, they may not only pay attention to the improvement of service quality and customer satisfaction, but also cultivate customer retention (Huang, 2021).

In addition, in order to improve the public image, the express logistics supervision organization has also begun to pay attention to various quality problems in express logistics services, and has increased the supervision and requirements of express companies, which has also promoted service quality improvement to a certain extent (Diaz, 2017). In China's express logistics industry, service quality is very important, it affects customer retention (Zhuo, et al., 2013). In an environment of increasingly competitive markets, research related to the above topics will help explain what service quality is, what customer satisfaction is, how they should be measured, and what impact service quality and customer satisfaction will have on customer retention, these have become hot topics among current researchers.

The main business of express logistics companies is to provide customers with parcel mailing services, specifically including cargo transportation, warehousing, packaging, distribution, circulation processing, handling, loading and unloading, and information processing. Relevant statistics show that e-commerce has contributed more than 70% of China's fast-growing express delivery business (Zhang, 2015), and e-commerce drives the development of the express industry (Gulc, 2020). Customers' perception of the express logistics service quality mainly comes from the experience in the process of sending and receiving e-commerce express parcels. The express service quality that customers feel in this process, on the one hand, will affect the customer's choice of express company for online shopping, that is, if the customers feel good service quality, they will designate the express company to provide express packages for him when shopping online. Delivery service, on the contrary, customers may choose to cooperate with other courier companies. On the other hand, when customers have the need to send express parcels,

At the same time, customer satisfaction with express delivery services is an important factor affecting customers repurchase or recommendation to others, and it is also one of the reasons why express delivery companies can gain advantages in the fierce competition. All these make express delivery companies must pay attention to and continuously improve service quality. In a highly competitive market, service quality is one of the key factors that determine customer satisfaction and the status of logistics companies. With consumption upgrades and changing customer needs, it is necessary for express companies to respond in time and find new solutions. This is why express logistics service quality measurement and monitoring has become the focus of attention of express logistics service providers and researchers (Gulc, A. 2017).

In view of this, this study took service quality as the research object, considering the urgent need to improve service quality and customer satisfaction in China express logistics industry, and evaluated service quality in terms of five aspects such as reliability, timeliness, economy, convenience, and empathy. Moreover, it assessed customer satisfaction and customer retention, and then analyzed the correlation among service quality, customer satisfaction and customer retention. On this basis, a sustainable development framework for Chinese express logistics companies was proposed.

**Objectives of the Study** - The study aimed to assess the service quality, customer satisfaction and customer retention in Logistics Companies in China and would be the basis for Continuous Improvement framework for Logistics companies. Specifically, it aimed to determine service quality as to reliability, timeliness, economy, convenience and empathy; Also, it aimed to assess the customer satisfaction as to expectation satisfaction, experience satisfaction and perceived value satisfaction. In addition, was to determine the customer retention in terms of positive word-of-mouth marketing, continuous retention behavior and future retention intention; Furthermore, it tested the relationships among service quality, customer satisfaction and customer retention and developed a continuous improvement framework for logistics companies.

## 2. Methods

**Research Design** - This study adopted descriptive research methods, and used questionnaires to describe and analyze service quality, customer satisfaction and customer retention of Chinese express logistics enterprises, so as to draw up the sustainable development framework of Chinese express logistics enterprises. The descriptive research method is a research method to obtain objective facts, data and information (Rahi, 2017). It performs statistical analysis of collected data and information that can describe the intrinsic characteristics of a phenomenon or population (Suparno, 2017). Meanwhile, the research determined the relationship between (i.e., reliability, timeliness, economy, convenience, and empathy), customer satisfaction (i.e., expectation satisfaction, experience satisfaction, and perceived value satisfaction), customer retention (positive word-of-mouth marketing, continuous retention behavior, and future retention intention). The purpose of designing the test paper with the descriptive research design method is to examine the significant relationship among service quality, customer satisfaction and customer retention, and to systematically and accurately describe the characteristics of the test objects. At the same time, distributing questionnaires also helps to collect accurate information on the respondents.

**Participants of the Study** - The respondents of this paper are customers whom ever used the logistics services of express delivery companies in China. The express logistics companies involved in this research mainly include SF Express, EMS, JD Logistics, three TONGS and one DA, which refer to the unified name of the four courier companies, there are STO, ZTO, YTO, and Yunda Express (Zhong, 2022). Since the author's region is Anhui Province, China, the respondents selected for this study are the courier customers who live in this region. Among them, office workers and college students account for the largest proportion, so they are selected as the main respondents, which is representative. Referring to Ahiafor, et al., (2023), the questionnaire in this paper was issued through the China Internet Questionnaire Star Platform. Finally, a sample size of 474 customers were identified. The respondents are 290 university students, accounting for 61.2%, 167 are office workers, accounting for 35.2%, and freelancers and retirees account for less than 2%. University students and

office workers are the main customers in China's express logistics market, and they send and receive a large amount of express packages every month.

**Data Gathering Instrument** - This study collected data using a self-made questionnaire, which was based on the SERVQUAL scale. At the same time, the questionnaire also refers to a large number of relevant literatures to design the content of the questionnaire, which has two parts. The first part is to collect the basic information of the respondents, such as age, gender, occupation, educational background and so on; The second part is the measurement and evaluation of service quality, customer satisfaction and customer retention. service quality includes five dimensions: reliability, timelines, economy, convention and empathy. There are 5 items in the economy dimension, and 6 items in each dimension of reliability, economy, convenience and empathy, a total of 29 items. Customer satisfaction includes three dimensions: experience satisfaction (5 items)、 expectation satisfaction(7items)and perceived value satisfaction(5 items).There are 17 questions in total. Customer retention includes three dimensions: positive WOM marketing, continuous retention behavior, and future retention intention. Five questions are measured in each dimension, a total of 15 items. In addition, the thesis used a 4-level Likert scale to evaluate service quality, customer satisfaction and customer retention.

**Data Gathering Procedure** - The questionnaires in this paper were distributed through the questionnaire star, the specific process was to send the link of the questionnaire to friends, colleagues, and university students through QQ or WeChat, and invite them to fill it out carefully. But before officially distributing the questionnaire, researchers would conduct pilot tests to determine the validity, reliability and the items' Cronbach's alpha, which is a convenient test for measuring the reliability or internal consistency of the scores (Bonett & Wright, 2014). Moreover, the letter of request to conduct the paper was approved by the advisor, and the questionnaire was revised and completed under the guidance of the consultant. During the research and investigation process, the researchers declared to the respondents that the purpose of the survey was for academic research needs, and that all data collected were confidential. Finally, 71 questionnaires were distributed for a pre-investigation. After all the data in the pre-survey passed the reliability and validity test and got the consent of the adviser, the researcher sent a formal questionnaire, and the collected data were described and analyzed.

**Ethical Considerations** - Research is a very rigorous work, and ethics consideration is very important to research. First of all, the questionnaire items used by the researcher should have source evidence. Secondly, when answering the questionnaire, the privacy of the respondents should be protected. When sharing the questionnaire data, the names of the respondents should not be disclosed. Third, the researcher should ensure that the questionnaire data is only used for research and cannot be used for other purposes; fourth, the researcher must ensure that the respondents answer the questionnaire according to their own wishes; finally, the research process of the researcher should be open and transparent.

**Data Analysis** - This article analyzed the data collected in the questionnaire using different statistical methods. Among them, frequency analysis is used to describe the basic situation of the respondents, this analysis method can present the distribution of a single observation value in the measurement scale, which can facilitate researchers to browse the entire data. Meanwhile, this study uses the mean method to evaluate and rank service quality, customer satisfaction and customer retention. In addition, Pearson correlation test was used to measure the correlation between difference variables (Puth, et al., 2014).

### 3. Results And Discussion

Table 1 shows the result of service quality that is moderately evident and which is supported by the composite mean of 3.25. It can be seen from the table, all the dimensions in service quality were rated with moderate evidence with means ranging from 3.20-3.28. Timeliness aspect, convenience aspect and empathy aspect ranked first to third, with mean values of 3.28, 3.27, 3.26. In fact, the timeliness of China's express delivery industry is obvious to all. According to the statistics in 2021, the overall timeliness of express delivery services in key areas of China will be reduced by 1.15 hours compared to 2020, to 57.08 hours. Among them, SF

Express is within 48 hours; while JD Express, EMS, Three TONGS and one DA are between 48-60 hours. In addition, SF Express has gained a good reputation for its speed and safety; and Three TONGS and one DA have cooperated with Cai niao Post Station, which has many stations, wide service coverage, and good convenience (Wang & Huang, 2020).

**Table 1**

*Service Quality*

Indicator	Weighted Mean	Verbal Interpretation	Rank
Reliability	3.22	Agree	4
Timeliness	3.28	Agree	1
Economy	3.20	Agree	5
Convenience	3.27	Agree	2
Empathy	3.26	Agree	3
Composite Mean	3.25	Agree	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 - 1.49 = Strongly Disagree

However, Reliability respect (3.22) and economy respect (3.20) got the lowest mean values and ranked last. Although the data shows that as of November 2022, the average price of express delivery in different places in China is 5.4 yuan per order, which is only 0.1 yuan higher than that of intra-city express delivery (Ouyang Jun, 2023), but since most of the respondents in this study are college students, they are sensitive to prices, so the increase in prices reduces the respondents' recognition of the economy of service quality. At the same time, user information leakage incidents of courier companies often occur, such as the name, mobile phone number, and specific address on the courier bill during the delivery process, causing user privacy to be leaked. Chen & Chen (2019) pointed out that user privacy should be protected by establishing a long-term and reliable information protection system. In short, reliability is the foundation of express service, convenience and timeliness are the key to express service, and empathy and economy are the plus points of express logistics service (Rita, et al., 2019)

**Table 2**

*Organizational Fairness*

Indicators	Weighted Mean	Verbal Interpretation	Rank
Experience Satisfaction	3.29	Agree	1
Expectation Satisfaction	3.26	Agree	2
Perceived Value Satisfaction	3.22	Agree	3
Composite Mean	3.26	Agree	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 - 1.49 = Strongly Disagree

Table 2 shows the result on the respondents' level of customer satisfaction that is moderately evident and which is supported by the composite mean of 3.26. All dimensions in customer satisfaction were rated with moderate evidence with means ranging from 3.22 to 3.29. Since the respondents are all express service consumers with multiple consumption experiences, a good experience in express service is an effective measure of customer satisfaction (Mohammad Salameh, 2018) believed that customers' consumption activities pay more attention to the experience in consumption, experience satisfaction has become an important performance of customer evaluation activities.

Next in rank is the indicator expectation Satisfaction aspect with a mean of 3.26. The rapid development of China's economy and the improvement of consumption levels have increased customers' requirements for express delivery services, which in turn generate higher expectations (Lu & Tian 2014), however, it is often the new customer needs that come first and the needs are met later, that is, there will be a gap between the actual experience and expectations of customers. Khadka & Maharjan (2017) believed that "satisfying customers' requirements and expectations" will become the highest goal pursued by enterprises.

Perceived value satisfaction obtained the lowest mean values of 3.22, with ranks last. Zhu et al., (2022) divided perceived value into difference perception, quality perception and price perception, and proposed that

service consumption enterprises should focus on the credibility of product pricing, improve service quality and differentiation, and enhance customer satisfaction with perceived value.

**Table 3**

*Organizational Culture Atmosphere*

Indicator	Weighted Mean	Verbal Interpretation	Rank
Positive Word-of-Mouth Marketing	3.22	Agree	1
Continuous Customer Retention Behavior	3.14	Agree	3
Future Customer Retention Intention	3.19	Agree	2
Composite Mean	3.18	Agree	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 - 1.49 = Strongly Disagree

Table 3 shows the respondents' assessment level of customer retention, and the composite mean of 3.18 shown that the respondents' customer retention level is moderately evidence. Among them, positive word-of-mouth marketing ranked first with a mean of 3.22, next in rank is future customer retention intention with a mean of 3.19, and continuous customer retention behavior scored 3.14, with the lowest score. That is, the respondents' ratings on customer retention decreased from positive word-of-mouth, retention intention, and retention behavior. In practice, it is also easiest for customers to give a positive word of mouth to a company, because most people prefer to say good things rather than bad things. The most difficult thing for customers to do is to maintain continuous retention behavior. Even if customers have the intention to continue to cooperate with enterprises, it is difficult to ensure continuous retention behavior, because there are many and complex factors that affect behavior, such as switching costs, customer value, relationship participation and so on (Zhang, 2015). Moreover, It's harder to do than to say.

Magatef & Tomalieh (2015) believed that customer retention includes two aspects of behavior and attitude. Positive word of mouth and retention intention belong to the aspect of customer retention attitude (Barreda, et al., 2015), continuous retention behavior belongs to the aspect of customer retention behavior, and customer retention attitude will promote customer retention behavior to a certain extent (Ajzen, 2020). It can be seen from Table 4 that service quality and all its sub-variables are highly significantly related to customer satisfaction with p-values below 0.01. This shows that the higher express logistics service quality, the higher the customer satisfaction. It shows that there is a highly significant relationship between express service quality and all sub-dimensions of the customer satisfaction (customer experience satisfaction, expectation satisfaction, perceived value satisfaction) and overall customer satisfaction, with rho values of .913\*\*, .922\*\*, .859\*\*, .925\*\*. This means that the improvement of service quality by express companies is conducive to customer satisfaction.

Service quality is the customer's sensory experience of the logistics service process provided by the courier company. The customer's first impression of the courier company comes from the perception of service quality. High-level express service quality greatly improves customer satisfaction. (Xia, 2017). In 2022, China's express delivery business volume will complete 11058 million pieces, a year-on-year increase of 2.1%. The annual express business volume has a net increase of 2.28 billion pieces, the average daily business volume exceeds 300 million pieces, and the annual per capita express delivery usage is 78.3 pieces. The scale of express delivery business will hit a new high in the past.

The expansion of the scale of the express delivery industry has intensified the competition among express logistics companies. In order to win in the competition, express delivery companies must pay attention to service quality, because good service quality is the premise to meet customer needs, and it is also the link to maintain the cooperative relationship between enterprises and customers. At the same time, improving service quality is also a necessary means for Chinese express logistics companies to seize market share and increase profits. Moreover, the improvement of service quality is also conducive to establishing a good reputation for the enterprise, enhancing the competitiveness of the enterprise and the trust of customers.

**Table 4***Relationship between service quality and customer satisfaction*

Variables	$r_{xy}$	p-value	Interpretation
<b>RELIABILITY</b>			
Experience Satisfaction	.732**	0.000	Highly Significant
Expectation Satisfaction	.736**	0.000	Highly Significant
Perceived Value Satisfaction	.677**	0.000	Highly Significant
Customer Satisfaction OVERALL	.737**	0.000	Highly Significant
<b>TIMELINESS</b>			
Experience Satisfaction	.853**	0.000	Highly Significant
Expectation Satisfaction	.856**	0.000	Highly Significant
Perceived Value Satisfaction	.779**	0.000	Highly Significant
Customer Satisfaction OVERALL	.854**	0.000	Highly Significant
<b>ECONOMY</b>			
Experience Satisfaction	.827**	0.000	Highly Significant
Expectation Satisfaction	.853**	0.000	Highly Significant
Perceived Value Satisfaction	.831**	0.000	Highly Significant
Customer Satisfaction OVERALL	.863**	0.000	Highly Significant
<b>CONVENIENCE</b>			
Experience Satisfaction	.892**	0.000	Highly Significant
Expectation Satisfaction	.898**	0.000	Highly Significant
Perceived Value Satisfaction	.830**	0.000	Highly Significant
Customer Satisfaction OVERALL	.900**	0.000	Highly Significant
<b>EMPATHY</b>			
Experience Satisfaction	.909**	0.000	Highly Significant
Expectation Satisfaction	.909**	0.000	Highly Significant
Perceived Value Satisfaction	.845**	0.000	Highly Significant
Customer Satisfaction OVERALL	.914**	0.000	Highly Significant
<b>SERVICE QUALITY OVERALL</b>			
Experience Satisfaction	.913**	0.000	Highly Significant
Expectation Satisfaction	.922**	0.000	Highly Significant
Perceived Value Satisfaction	.859**	0.000	Highly Significant
Customer Satisfaction OVERALL	.925**	0.000	Highly Significant

\*Correlation is significant at the 0.05 level /\*\*. Correlation is significant at the 0.01 level

The highly significant relationship between service quality and all sub-dimensions on customer satisfaction has been verified in many studies (Yan, .2019; Zhang Kangkang.2019; Le, et al., 2020; Mohammad Salameh, et al., 2022).

**Table 5***Relationship between service quality and customer retention*

Variables	$r_{xy}$	p-value	Interpretation
<b>RELIABILITY</b>			
Positive Word-of-Mouth Marketing	.677**	0.000	Highly Significant
Continuous Customer Retention Behavior	.596**	0.000	Highly Significant
Future Customer Retention Intention	.665**	0.000	Highly Significant
Customer Retention Overall	.678**	0.000	Highly Significant
<b>TIMELINESS</b>			
Positive Word-of-Mouth Marketing	.773**	0.000	Highly Significant
Continuous Customer Retention Behavior	.679**	0.000	Highly Significant
Future Customer Retention Intention	.734**	0.000	Highly Significant
Customer Retention Overall	.765**	0.000	Highly Significant
<b>ECONOMY</b>			
Positive Word-of-Mouth Marketing	.786**	0.000	Highly Significant
Continuous Customer Retention Behavior	.740**	0.000	Highly Significant
Future Customer Retention Intention	.768**	0.000	Highly Significant
Customer Retention Overall	.803**	0.000	Highly Significant
<b>CONVENIENCE</b>			
Positive Word-of-Mouth Marketing	.808**	0.000	Highly Significant
Continuous Customer Retention Behavior	.723**	0.000	Highly Significant
Future Customer Retention Intention	.802**	0.000	Highly Significant

Customer Retention Overall	.816**	0.000	Highly Significant
<b>EMPATHY</b>			
Positive Word-of-Mouth Marketing	.818**	0.000	Highly Significant
Continuous Customer Retention Behavior	.724**	0.000	Highly Significant
Future Customer Retention Intention	.778**	0.000	Highly Significant
Customer Retention Overall	.812**	0.000	Highly Significant
<b>SERVICE QUALITY OVERALL</b>			
Positive Word-of-Mouth Marketing	.838**	0.000	Highly Significant
Continuous Customer Retention Behavior	.751**	0.000	Highly Significant
Future Customer Retention Intention	.813**	0.000	Highly Significant
Customer Retention Overall	.840**	0.000	Highly Significant

\*\* Correlation is significant at the 0.01 level (2-tailed).

It can be seen from Table 5, that is, service quality and all its sub-variables are significantly associated with customer retention with p-values below 0.01. This shows that the higher service quality, the higher customer retention. Specifically, the higher the reliability is, the higher the customer retention. Reliability has a highly significant relationship with all subdimensions of customer retention (positive word-of-mouth marketing, continued retention behavior, future retention intentions) and overall customer retention with rho values of .677\*\*, .596\*\*, .665\* \*, .678\*\*.

Similarly, the higher the timeliness of the express service, the higher the customer retention, and the rho values corresponding to the timeliness are .773\*\*, .679\*\*, .734\*\*, .765\*\*. Also, the more economical the courier service, the higher the customer retention, the rho values are .786\*\*, .740\*\*, .768\*\*, .803\*\* for the same variables and sequences respectively. Moreover, the more convenient the express service, the higher the customer retention, and the rho values corresponding to the convenience are 808\*\*, .723\*\*, .802\*\*, .816\*\*. In addition, the higher the empathy of the express delivery service, the higher the customer retention, and the rho values corresponding to the empathy are .818\*\*, .724\*\*, .778\*\*, .812\*\* express logistics service quality has a highly significant relationship with all sub-dimensions of customer retention (positive word-of-mouth marketing, continued retention behavior, future retention intention) and overall customer retention, with rho values of .838\*\*, .751\*\*, .813\*\*, .840\*\*. This means that improving the express logistics service quality is conducive to customer retention. This is because good express logistics service quality is easy to leave a deep impression on customers, which is conducive to forming a positive corporate reputation and making customers more willing to promote and recommend companies.

At the same time, good express service quality will also enhance customers' willingness to purchase in the future and attract customers to buy again. Good service quality is the basic requirement of customers for express companies, and it is also the premise of customer retention. Cultivating customer retention by improving service quality will bring many benefits to the courier company: First, it can reduce the cost of the courier company, because the courier company and customers know each other, and they have established a trust relationship through long-term cooperation, which can greatly reduce the transaction costs and new customer development costs of courier companies; in addition, it can increase the revenue of courier companies, because loyal old customers are more willing to repurchase, and their price elasticity is small, they will not be easily promoted by other courier companies seduced by strategy.

Generally speaking, express service customer retention refers to the fact that customers are willing and will continue to purchase services from the same express company, and are willing to promote the good reputation of the express company to others (Cheng & Wang, 2013). Chinese express logistics companies should pay attention to express logistics service quality, and actively take measures to improve service quality and retain old customers. The conclusion of the significant correlation between service quality and customer retention has also been verified in many studies, such as Al-Tit (2015) found that service quality in the food industry has a positive relationship with customer retention.

It can be presented from Table 5, customer satisfaction and all its sub-variables are significantly related to



customer retention with p-values below 0.01. This shows that the higher customer satisfaction, the higher customer retention. Specifically, the higher the experience satisfaction, the higher the customer retention. Customer experience satisfaction has a highly significant relationship with all sub-dimensions of customer retention (positive WOM marketing, continuous retention behavior, future retention intention) and overall customer retention.

The rho values corresponding to customer experience satisfaction are .852\*\* and .745\* respectively \*, .812\*\*, .843\*\*. Similarly, the higher the customer satisfaction expectations, the higher the customer retention, and the rho values corresponding to customer satisfaction expectations are .893\*\*, .781\*\*, .834\*\*, .877\*\*. Also, the higher the customer perceived value satisfaction, the higher the customer retention, and the rho values corresponding to customer perceived value satisfaction are .922\*\*, .839\*\*, .850\*\*, .913\*\*. In addition, customer satisfaction has a highly significant relationship with all sub-dimensions of customer retention(positive WOM marketing, continued retention behavior, future retention intention) and overall customer retention, with rho values of .917\*\*, .813\*\*, .857\*\*, .905\*\*. This means that improving customer satisfaction helps customer retention. In fact, customer satisfaction is an important factor affecting customer retention, It is also the premise and basis for customer retention. When the customer is very satisfied with the express service provided, the customer is likely to repeat the purchase, even spreading the good news of the company, and high satisfaction becomes an emotional bond between the customer and his company (Nugroho, et al., 2020).

With the intensification of competition in China's express logistics industry, the homogenization of express logistics service quality is becoming more and more serious, and courier companies must pay attention to customer retention. This is because it is cheaper to maintain an old customer than to develop a new one, and when an old customer becomes a loyal customer, the company can obtain long-term benefits. At the same time, customer satisfaction is the key to forming customer retention intentions. High satisfaction will make customers repurchase and consciously resist the promotion temptation of competitors (Hanaysha, 2018). Customer satisfaction can improve customer retention, prevent customer loss, and contribute to the long-term development of enterprises. There is a direct correlation between customer satisfaction and customer retention. That there is a significant impact between customer satisfaction and customer retention.

**Table 6**

*Relationship Customer Satisfaction and Customer Retention*

Variables	$r_{xy}$	p-value	Interpretation
<b>EXPERIENCE SATISFACTION</b>			
Positive Word-of-Mouth Marketing	.852**	0.000	Highly Significant
Continuous Customer Retention Behavior	.745**	0.000	Highly Significant
Future Customer Retention Intention	.812**	0.000	Highly Significant
Customer Retention Overall	.843**	0.000	Highly Significant
<b>EXPECTATION SATISFACTION</b>			
Positive Word-of-Mouth Marketing	.893**	0.000	Highly Significant
Continuous Customer Retention Behavior	.781**	0.000	Highly Significant
Future Customer Retention Intention	.834**	0.000	Highly Significant
Customer Retention Overall	.877**	0.000	Highly Significant
<b>PERCEIVED VALUE SATISFACTION</b>			
Positive Word-of-Mouth Marketing	.922**	0.000	Highly Significant
Continuous Customer Retention Behavior	.839**	0.000	Highly Significant
Future Customer Retention Intention	.850**	0.000	Highly Significant
Customer Retention Overall	.913**	0.000	Highly Significant
<b>CUSTOMER SATISFACTION OVERALL</b>			
Positive Word-of-Mouth Marketing	.917**	0.000	Highly Significant
Continuous Customer Retention Behavior	.813**	0.000	Highly Significant
Future Customer Retention Intention	.857**	0.000	Highly Significant
Customer Retention Overall	.905**	0.000	Highly Significant

\*\* . Correlation is significant at the 0.01 level (2-tailed).

A continuous improvement framework has been presented for express logistics companies. Moreover, this will be a good way to improve service quality, and an effective means for express companies to enhance their

competitiveness and seize market share. Furthermore, this will ensure that customer satisfaction is considered from a service quality point of view, thus fostering customer retention and loyal customers for the courier company.

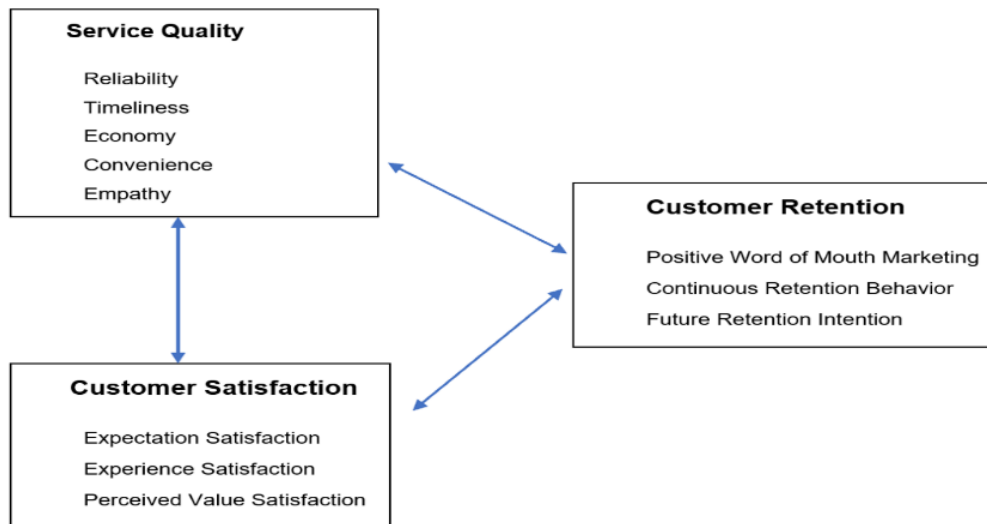


Figure 1. Proposed Continuous Improvement Framework for Logistics Companies

As can be seen from Figure 1, the proposed continuous improvement framework for logistics companies needs to pay attention to service quality, customer satisfaction and customer retention. Because service quality is significantly positively correlated with customer satisfaction and customer retention, and customer satisfaction is significantly correlated with customer retention. In this study, the objects used as the explanatory framework consist of Chinese express logistics companies selected in the questionnaire.

#### 4. Conclusions And Recommendations

Based on the results of the paper there is a moderate evidence on service quality in terms of reliability, timeliness, economy, convenience and empathy. The respondents manifested moderate commitment to customer satisfaction in terms of expectation satisfaction, experience satisfaction and perceived value satisfaction. Moderate evidence was found for customer retention in terms of positive word-of-mouth marketing, continuous retention behavior and future retention intentions. A high significant relationship existed among service quality, customer satisfaction and customer retention. The proposed continuous improvement framework for logistics companies was presented to improve service quality, customer satisfaction, and customer retention in express logistics companies in China.

The researcher suggested that Courier companies may strengthen the protection of customer privacy to improve the quality of express logistics service. Express companies may pay attention to protecting the privacy of customers, because the disclosure of customers' personal information during the delivery process will interfere with customers' normal life and even lead to the loss of customers' property. The researchers suggest that express companies may actively apply Internet big data technology to improve the efficiency of express shipment identification, and at the same time encrypt personal information on the outer package of express delivery, and do not display complete customer information. In addition, express logistics companies can also strengthen the training and supervision of express employees to prevent them from intentionally disclosing customer information in the process of serving customers. The researcher suggests that courier company may pay attention to customers' sensitivity to price and reduce express charges appropriately to improve customer satisfaction. Express companies may conduct surveys and interviews with customers from time to time to clarify customer needs and understand customers' psychological costs for express services. Express companies may try their best to price according to customers' "expected price" to maximize customer value. In general, large express delivery

companies may seize market share through price wars and service upgrades, while small express delivery companies can formulate differentiated prices to win specific customers. For example, for university students, it is necessary to meet the basic express needs of customers at low prices to improve customer satisfaction.

Researchers also suggest that express companies may often carry out activities that benefit old customers to make them become loyal customers of the company. For express delivery companies, the cost of retaining old customers is lower than developing new customers. Therefore, in order to maintain the relationship with old customers, express delivery companies may present gifts or discount coupons to customers according to the number of buybacks, so that old customers can feel the same service level and pay a cheaper price. In addition, on the premise of ensuring basic logistics services, express delivery companies may continue to innovate service content and provide services beyond customer expectations, so as to increase customer retention. Express companies may continue to pay attention to service quality, customer satisfaction and customer retention, and constantly improve their service level and management capabilities to meet customers' needs for express services. Only through continuous innovation and improvement of service quality can express logistics companies improve customer satisfaction and retention. Express logistics companies can use the proposed framework in this study to improve the performance and ratings of Chinese express logistics companies in terms of service quality, customer satisfaction and customer retention. Future researchers may use other variables such as customer trust, customer complaint and customer switching cost to analyze the impact on customer retention of Chinese express delivery companies.

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