

Analysis of Logistics Customer Complaints Based on Grounded Theory

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Abstract: With the rapid development of e-commerce and the continuous expansion of the global market, the logistics industry is facing increasingly complex challenges in meeting consumer demand and improving service quality. In such a competitive environment, customer complaints have become one of the important indicators to evaluate the quality of logistics services and relationship maintenance. Customer complaints not only reflect customer dissatisfaction with the service, but may also hint at potential systemic problems and opportunities for improvement. In order to better improve logistics services, it is necessary to find the direction of logistics improvement through customer complaints. Based on this, we use the grounded theory method to encode and analyze the customer's online comments on the express service, and then get the logical relationship of each category, refine and summarize the causes of customer complaints, and finally get the customer complaint points. The results show that customer complaints mainly focus on the problems of unclear object status, inefficient logistics business, low staff quality and difficult customer intervention.

Keywords: Customer complaints; Grounded theory; Online reviews.

1. Introduction

In the highly competitive service industry, customer satisfaction is considered to be one of the key indicators of success [1]. As a part of the service industry, the logistics industry is no exception. The significance of logistics customer complaints as a research focus lies in their direct reflection of issues concerning service quality and customer experience. Addressing and resolving these complaints not only represent a straightforward method for enhancing service quality but also serve as a catalyst for identifying opportunities for change and innovation within the service industry [2]. Through a comprehensive analysis of customer complaints, a deeper understanding of customer needs, expectations, and pain points can be attained, thus facilitating ongoing improvements in service quality and bolstering competitiveness [3].

In the Internet era, online reviews have become an important channel for users to express their needs and for enterprises to grasp user demand information [4]. With the continuous improvement of platform management and data monitoring, scholars have also achieved a series of results based on text mining evaluation. Liu Jie [5] found that JD Logistics needs to be improved in terms of delivery speed, packaging integrity, courier standardization and price level by evaluating the service quality of JD Logistics. Li Kang [6] identified the factors that affect consumers' satisfaction with express delivery services through online review data, including express delivery timeliness, service attitude, telephone service, complaint handling, information update and charging price. Based on the SERVQUAL scale and the logistic service quality (LSQ) scale, Wang Hongwei et al. [7] constructed a service quality evaluation system for the express delivery industry based on sentiment analysis, and conducted an empirical study based on the customer review data of two express delivery companies, SF Express and STO Express. Zhang Xiaheng et al. [8] found that the main factors leading to consumers' dissatisfaction with express delivery services are timeliness, price rationality, service quality and

application platform functionality.

There are still some deficiencies in the research on the evaluation of express service quality. The main manifestations are as follows: the research data are mainly based on the commodity reviews or questionnaire data of the e-commerce platform. The former reviews mainly focus on the commodity itself, and the express service factors are less mentioned. The representativeness is not strong, and it is difficult to find service quality defects. The latter is easily limited by factors such as the number of surveys and the respondents, and the accuracy and reliability of the questionnaire results are insufficient. Therefore, we select the online complaint data of seven mainstream express delivery companies on the post bar and microblog for coding analysis, explore the nature of logistics customer complaints, and find out the root causes, to meet customer needs, improve customer satisfaction guidance, and promote the development and prosperity of the logistics service industry.

2. Analysis of Logistics Customer Complaint Coding

2.1. Research Method

Grounded theory is a widely used method in qualitative research, which aims to deeply understand complex social phenomena. Its core idea is to gradually explore the concepts, categories and relationships through systematic analysis of text data, so as to generate a new theoretical framework. This method is not limited to the description of surface phenomena, but is committed to digging deeper into the potential meaning and inherent laws behind the data.

The steps of the grounded theory are shown in Figure 1. First, the relevant literature is obtained through a variety of ways and imported into the software to conceptualize the complaint phenomenon. Secondly, the extracted conceptual sentences are analyzed in depth, and the relationships contained in them are preliminarily summarized into categories and entered step by step. Then, some characteristics of concepts and categories are deeply explored

to lay a foundation for extracting core categories. Finally, based on the selection principle of the core category, the core category is extracted, the potential correlation between the

categories is excavated, and a main line is formed to form a set of theories.

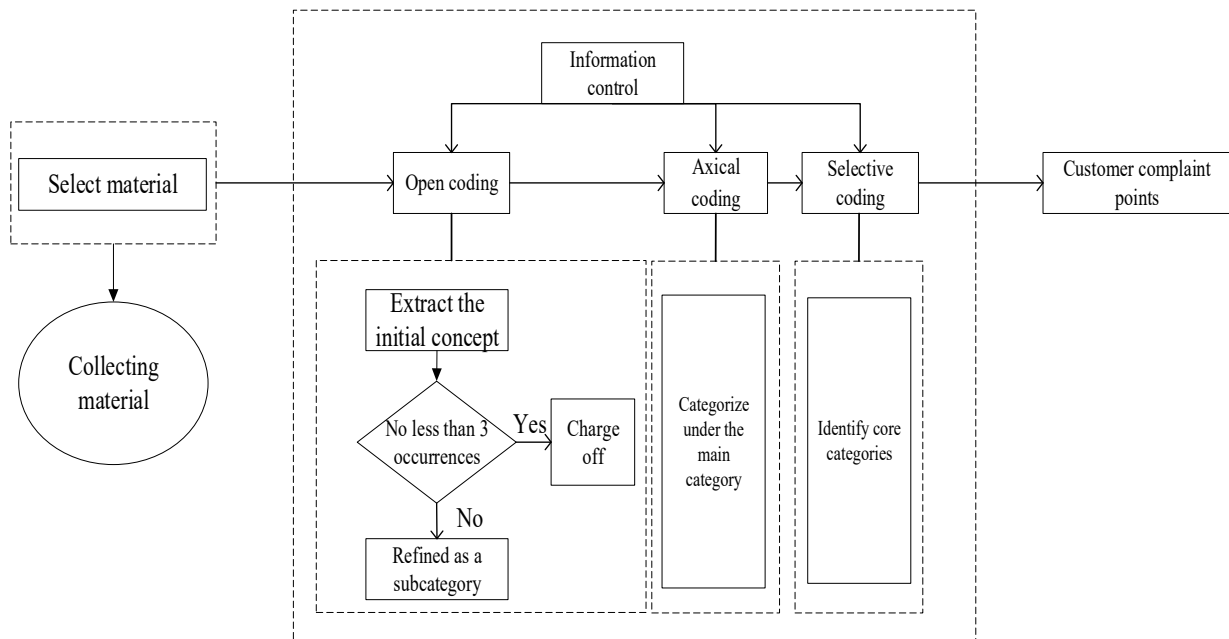


Figure 1. Research steps of grounded theory

2.2. Data Collection

We take the topic of complaints from seven logistics companies as the research object, including SF Express, JD Logistics, ZTO Express, YTO Express, STO Express, Yunda Express and J&T Express. By using the searcher crawler software, the real-time Sina-Weibo plate topics such as “Complaints about SF Express”, “Complaints about JD Logistics”, “Complaints about ZTO Express”, “Complaints about YTO Express”, “Complaints about STO Express”, “Complaints about Yunda Express”, and “Complaints about J&T Express” were crawled. By using the Octopus crawler software, the complaint topics in Baidu Post Bar such as “Shunfeng”, “Jingdong”, “Zhongtong”, “Yuantong”, “Yunda”, “Jitu”, and “Shentong” were crawled. We then screen and sort the crawled data, and obtained a total of 8967 comment information related to the seven logistics companies. The specific data distribution is shown in Table 1.

Table 1. The amount of information commented by express delivery companies

Company	Sina-Weibo	Baidu post bar
SF	809	753
JD	655	675
ZTO	902	723
YTO	842	580
Yunda	784	675
J&T	379	91
STO	426	673

2.3. Analysis of Logistics Customer Complaint Coding

1. Open coding

The main purpose of open coding is to conceptualize the collected raw data, that is, to redefine the concept of scattered

and unsystematic initial data and give it a new concept. In the specific treatment, it is necessary to clarify the objectivity of the research subject, not to judge according to the subjective impression of the individual. On the basis of this analysis, the original concept is formed and the concept is classified. In simple terms, this stage mainly consists of two key steps.

Conceptualization. In-depth understanding of the overall structure of the article, and then read carefully word by word, the scattered expression one by one conceptualization, to ensure that the conceptualization process accurately summarizes the original material, to avoid missing important information. In this process, we try to use the original vocabulary as much as possible to ensure that the sentence coverage is as wide as possible.

Categorization. These preliminary concepts are further categorized, and efforts are made to organically summarize multiple initial concepts with subordinate relations or similar relations into one category. This process helps to organize and integrate information, so that the concept of preliminary extraction can be presented in a more organized way, and provides a clear and orderly basis for subsequent research.

After double screening of conceptualization and categorization one by one, we get 75 concepts. Due to the large number of coded data and the length of the article, we show some examples of the initial coding of the original interview data, as shown in Table 2. On the basis of Table 2, we classify the initial concept clustering according to the principles and steps of open coding, and get 34 categories. The results of open coding are shown in the Table 3.

Use American English when writing your paper. The serial comma should be used (“a, b, and c” not “a, b and c”). In American English, periods and commas are within quotation marks, like “this period.” Other punctuation is “outside”! The use of technical jargon, slang, and vague or informal English should be avoided. Generic technical terms should instead be used.

Table 2. Examples of the initial concept formation process

Original concept	Reference sentences
No notification upon arrival of package. Courier placed package in locker without consent. Communication barrier. Privacy leakage.	How should I handle the situation where the courier consistently disregards my request not to use the express delivery cabinet despite my repeated instructions via phone messages? Despite my clear instructions, they continue to insist on using the cabinet. Communication has proven to be ineffective. Additionally, I'm hesitant to file a complaint as they are aware of my address.
Poor service attitude. Courier handling customer's items without authorization.	Why is the ZTO courier so reckless? I purchased a keychain online, and although the status shows it was delivered, I never received it. When I called to inquire, the courier was shockingly blunt, accusing me of engaging in click farming and claiming he handled my package privately. Even if it's a bill, does that give him the authority to handle it on my behalf? If I don't receive the package tomorrow, or if it arrives unwrapped, I will definitely file a complaint!
The compensation issue is proving difficult to negotiate. Difficulty in determining liability for damaged goods.	Why did my phone's screen break during the express delivery, and I only received 126 yuan for compensation? It's evident that the problem was caused by the courier's negligence in packaging. I demand to file a complaint against SF Express for their unacceptable service!
Slow delivery.	The STO express delivery is outrageously slow! Do they want me to freeze to death waiting for my package?
Refusing doorstep delivery. Customer did not collect the package, but the delivery was automatically signed for. Fail to contact the courier. Customer was not notified upon arrival of the package.	This morning, I was furious with JD Logistics. The courier didn't deliver the package to my home; instead, he carelessly tossed it into the stairwell and forged a signature. Despite my attempts to contact him, he was unreachable by phone. Later, when I managed to reach him, he claimed to have called me earlier, insinuating that I had missed his call. However, this was a blatant lie, as I had not missed any calls.
Customer service does not respond positively to questions. Slowly logistics information updating.	I made a purchase on November 21st, and the seller used J&T Express for shipping. Initially, it showed that the package had been collected. However, as of November 24th, there hasn't been any update in the logistics information. Despite contacting the logistics customer service, the issue remains unresolved, leaving me unaware of the reason behind the lack of updates on the package information.
Slowly logistics distribution. Incorrectly updating delivery information.	Is express delivery becoming increasingly unreliable? It's been six days since I sent my package, and it still hasn't been delivered. When I called customer service, they informed me that the package is actually in Guangdong, but the logistics information indicates it's in Jingzhou today. Could it be that the express company is providing inaccurate logistics updates?

Table 3. Results of open coding

Subcategories (a1-a34)	Baidu post bar
a1 Object damage	b1 Express packaging damage b2 Object damage b3 The express delivery number on the package is blurry
a2 Loss of property	b4 The object is lost b5 Part of the object is stolen b6 Part of the object is lost
a3 Inaccurate logistics information updating	b7 Logistics information is not updated b8 Incorrect logistics information updating
a4 Mistake of pickup notification	b9 Express delivery notice is not timely b10 The customer is not notified when the express arrives b11 Express delivery has not arrived in advance delivery information
a5 False signature acceptance	b12 The goods did not arrive, but the automatic receipt b13 The customer does not pick up the express, but the express is automatically signed
a6 Concealment of abnormal information a7 False sender information	b14 The object is abnormal, but the customer is not informed b15 Empty parcel (wrong object)
a8 Slow logistics delivery	b16 Logistics timeliness problem b17 Delivery delay problem b18 Slow delivery problem b19 Courier goods stranded at the transfer station
a9 Transit error	b20 Missort b21 Incorrect express goods transit
a10 Express missed delivery	b22 Missing scan of package b23 Express missed delivery problem
a11 Violent operations	b24 Violent transport b25 Express goods were forced into the express cabinet
a12 Service interrupt	b26 The shortage of logistics personnel makes the work impossible to complete b27 Network rectification service

	interruption
a13 Rude delivery notices	b28 Customers give up delivery without answering the phone
a14 Sending information error	b29 Express order printing error
a15 Incorrect logistics information	b30 The customer's virtual number cannot be dialed b31 Information mismatch b32 Courier information does not match
a16 Incorrect fetching address	b33 Incorrect express delivery b34 Express delivery to the wrong place
a17 Customer privacy leaks	b35 Customer privacy leakage problem
a18 Courier car violation	b36 The express car does not comply with the traffic rules
a19 Unreasonable fees	b37 Repeated charges for express delivery b76 High mailing price
a20 Responsibility shift	b38 Unreasonable logistics rules b39 Problems of logistics cooperation b40 Problems of liability attribution of cargo damage b41 The company evades the problem and pushes the responsibility to consumers.
a21 Intelligent customer service defects	b42 Problem of intelligent customer service
a22 Weak service ability	b43 Customer service avoids answer questions b44 Communication difficulties
a23 Poor service attitude	b45 Problem of service personnel attitude b46 Problem of verbal attack
a24 Employee fraud	b47 Rumor consumers refuse to accept express delivery b48 Service outlets rumor fabricated facts b49 Returning goods without authorization b50 Courier requested the customer to assist in committing fraud b51 Falsifying sender and recipient information for pickup and delivery
a25 Employee intimidation	b52 Problem of threatening behavior b53 Harassing customers b54 Employees ask customers to revoke complaints
a26 Deliberately lost objects	b55 Courier handles customer objects without authorization
a27 Rejection of business	b56 Courier unauthorized refusal to accept business
a28 Employee is out of contact	b57 The courier could not be contacted b58 Can not contact the express outlets b59 The courier station could not be contacted b60 Can not contact the after-sales person in charge
a29 Object delivery is not in place	b61 Express delivery does not deliver to the door b62 Express delivery without consent to the station b63 Express delivery can not reach the area b64 Express delivery without consent to the delivery cabinet b65 The express does not reach the customer specified location b66 The company marks the customer number, which makes it impossible to implement a specific delivery method.
a30 Obstacles to retrieval	b67 Consumers' self-demand is not responsive b68 The damage of the express cabinet causes the customer to not get the express delivery b69 The pickup time of express collection point is unreasonable
a31 Hard to change the service address.	b70 Difficult to change customer address
a32 Hard to complaint	b71 Hard to complaint b72 Hard to handle complaints b73 Customer complaint channel is not smooth
a33 Insured barrier	b74 Problem of value-insured service
a34 Hard to compensate	b75 Hard to compensation negotiation

2. Axical coding

Axical coding is the second stage of grounded theory. We further integrate and classify the 34 subcategories extracted initially to form a more hierarchical and organized main category. This key stage aims to reasonably summarize the subordination or similarity relations between subcategories, so as to better capture the essence and main characteristics of complaint points. By comparing the similarities and differences between subcategories, we combine multiple related subcategories into a more abstract and comprehensive

main category. Through this coding method, 34 subcategories are finally organically merged into 10 main categories, including object breakage, lack of object status information, inefficient logistics operations, logistics information errors, logistics management anomie, insufficient service capabilities, service subjective inferiority, information query difficulty, customized service difficulty, and after-sales service difficulty. The axical coding results are shown in the Table 4.

Table 4. The main category formed by the principal axis coding

Main category	Subcategory
Object damage	Object damage
Object state information is missing	Loss of property, inaccurate logistics information updating, mistake of pickup notification, false signature acceptance, concealment of abnormal information, false sender information
Inefficient logistics operations	Slow logistics delivery, transit error, express missed delivery, false sender information, violent operations, service interrupt, customers give up delivery without answering the phone, false signature acceptance
Logistics information error	Sending information error, incorrect logistics information, incorrect fetching address, abnormal information hiding
Logistics management anomie	Customer privacy leaks, express car violations, unreasonable charges, and responsibility shuffle
Insufficient service ability	Intelligent customer service defects, weak service capabilities
Subjective Inferiority of Service	Poor service attitude, employee fraud, employee intimidation, intentional loss of objects, rejection of business, rude delivery notices
Difficult to query information	Employees lost contact, logistics information update errors, pickup notification failure, abnormal information hiding
Difficult to customize services	Object delivery is not in place, pick-up obstacles, delivery address change is difficult
Difficult to get after-sales service	Complaints difficulties, price barriers, compensation difficulties

3. Selective coding

Selective coding is the third stage of grounded theory. Its purpose is to further screen and deepen on the basis of axial coding to determine the final core category. We combine the sub-category and the main category extracted from the data coding process step by step, and according to the analysis of

logical relations, we finally summarize four core categories, namely, “unknown object status”, “inefficient logistics business”, “low staff quality”, and “difficult customer intervention”. The selective coding results are shown in Table 5.

Table 5. Results of selective coding

Main category	Core category	Core category connotation
Object damage. Missing of object state information.	The state of the object is unknown	Customers lack a clear understanding and control of the status of the purchased or transported objects in the process of logistics services.
Inefficient logistics operations. Incorrect logistics information. Logistics management anomie.	Logistics business is inefficient	In the process of logistics, the service operation is not fast and smooth enough, resulting in inefficient logistics operations, logistics information errors and logistics management anomie.
Insufficient service ability. Subjective Inferiority of Service.	Low quality of staff	The staff of the logistics service provider shows the problem of insufficient service ability and subjective inferior service in the service process.
Difficult to query information. Difficult to customize services. Difficult to get after-sales service.	Customers are difficult to intervene	Customers encounter difficulties in information query, customized service and after-sales service in the whole logistics service process, which limits their involvement in logistics.

4. Theoretical saturation test

In order to ensure the accuracy and credibility of the established theoretical model, we used 8967 comments as auxiliary materials, of which 7967 were extracted as coding materials, and the remaining 1000 were used as saturation test materials. In the data coding process of the remaining 1000 comments, no new category is generated, and no new category features appear. Therefore, the final coding result passes the saturation test.

3. Interpretation of Logistics Customer Complaints

Through the above research on grounded theory, it can be concluded that customer complaints focus on four aspects: unclear object status, inefficient logistics business, bad-mannered staff, and difficult customer intervention. On the basis of depicting the story line and dimension model, we further construct the root cause of the formation of customer complaint points according to the analysis of customer

complaint points.

3.1. Unclear object status

According to the coding, the unknown state of the object refers to the lack of clear understanding and control of the purchased or transported objects in the process of logistics services, including the damage of the object and the lack of information on the state of the object.

Object damage is mainly divided into two parts: object packaging damage and object itself damage. The damage of packaging stems from improper packaging operation, inappropriate packaging materials, unreasonable packaging planning, and inadequate packaging technology. The damage of the object itself covers the factors of packaging damage, as well as the damage caused by the impact of the object in each link of logistics, human error and stacking and other improper operations make the object suffer from extrusion damage.

The missing state of the object information includes the loss of the object, the loss of the object information, the object information includes the object logistics information, and the

object quality information.

3.2. Inefficient logistics business

According to the coding, the root cause of the inefficiency of logistics business is reflected in the multiple problems of logistics operation, information processing and management.

The low efficiency of logistics operation is divided into three problems: low efficiency of logistics warehousing operation, low efficiency of logistics transportation operation and low efficiency of logistics distribution operation. In terms of logistics warehousing operations, low efficiency is mainly due to personnel errors, cumbersome warehousing processes, insufficiently advanced warehousing equipment, and low human work efficiency. In terms of logistics and transportation operations, low efficiency is mainly due to factors such as improper selection of transportation modes, unfavorable traffic conditions, insufficient coordination between links, and insufficient equipment. In terms of logistics and distribution operations, low efficiency is mainly due to factors such as poor route planning, poor traffic conditions, insufficient equipment, technical defects, human errors, and low human efficiency.

Logistics information errors are mainly divided into two aspects : order processing and abnormal information processing. The causes of information errors mainly include human errors, system errors, technical defects and low efficiency caused by insufficient communication level.

Logistics management anomie is mainly reflected in the organization and planning, including the lack of effective organization and coordination within the company, the lack of scientific and reasonable logistics plan. It is specifically due to the quality of management personnel, human errors, internal management problems, technical loopholes, system errors, and management irregularities caused by cooperation problems, which further leads to inefficient business.

3.3. Bad-mannered staff

According to the encoding, bad-mannered staff mainly refers to the problem of inadequate service capability and subjective inferiority of the staff of the logistics service provider in the service process.

The lack of service ability of employees is mainly due to the lack of service ability caused by low education, lack of training, lack of experience and large amount of logistics business. Low education level of employees may affect their professional knowledge level. Lack of training will lead to unskilled service skills. Insufficient experience will make employees feel difficult in dealing with complex situations, while large logistics business volume may make it difficult for employees to handle a large number of service requests in time, affecting service efficiency.

The reason for the subjective inferiority of employees in service is that some employees may have poor individual quality, lack of professional ethics and good service attitude, resulting in improper behavior such as abusive or intimidating customers. At the same time, long-term work and high-intensity work stress may lead to employee fatigue and emotional instability, which in turn affects service quality. The lack of emphasis on employees' good behavior in the company culture, or the phenomenon of condoning negative behavior, may affect employees' service attitude. In addition, the lack of moral education and professional ethics training for employees, as well as the poor management of the company, the lack of effective supervision mechanism and

disciplinary measures are also the reasons for the subjective inferiority of employees' services.

3.4. Difficult customer intervention

According to the coding, the difficulty of customer intervention mainly refers to the difficulty of information query, customization service and after-sales service encountered by customers in the whole logistics service process, which limits the customer's intervention in logistics.

The root causes of customer involvement difficulties are as follows. First of all, the state of the object is unknown, and the logistics enterprise has not been able to achieve real-time access to the detailed information of the object, resulting in difficulties for customers to query logistics information. The lag of information makes it impossible for customers to accurately track the transportation status of goods, which reduces the transparency of the overall service. Secondly, the current logistics industry is still insufficient in terms of informatization, digitization and intelligence, and it is difficult for the system to obtain and process huge data streams in real time. This makes the logistics solutions often too general and fixed, lack of advanced data analysis and forecasting capabilities, and it is difficult to provide personalized, real-time demand-based logistics solutions for each customer. Therefore, customers are limited in selecting and customizing services. In addition, the low quality of employees leads to untimely service response and incomplete problem handling, which affects customer satisfaction with after-sales service.

4. Suggestions for Logistics Service Improvement

In the context of the intelligent era, intelligent technologies such as the Internet of Things can well solve the above customer complaints. First of all, in terms of unknown object status, the use of advanced Internet of Things technology and big data analysis can achieve real-time monitoring and accurate tracking of object status. Compared with the traditional scanning express order number method, this method not only provides more detailed location information and logistics status information, but also has a clearer understanding of the actual status of the item, meets the customer's demand for real-time logistics information, and improves the transparency of the overall service. Secondly, the study found that in terms of logistics business efficiency, the application of modern technologies such as artificial intelligence, logistics technology, and 5G has significantly improved logistics efficiency. 5G technology has a significant impact on the logistics industry, and logistics efficiency has also increased due to technological changes. These studies jointly emphasize that the development of advanced technology is an inevitable trend to improve logistics efficiency and promote logistics industry innovation. In addition, through technical means, on the one hand, the substitution of employees can be achieved, thereby reducing or even eliminating the cost of the system. This is because artificial intelligence does not involve opportunism and moral hazard, which is more reliable. On the other hand, technology can also empower employees, improve their skill levels, and achieve effective supervision of employees' work.

5. Conclusions and Prospects

5.1. Conclusions

Through the grounded analysis method, we conclude that the four main categories of logistics customer complaint points are unknown object status, inefficient logistics business, low staff quality, and difficult customer intervention, and further analyze and discuss the reasons for the formation of the four main categories. We find the root cause of the formation of the four complaint points.

We have carried out research with certain theoretical and practical value. Firstly, through in-depth analysis of customer complaints through grounded theory, we show the dissatisfaction and pain points of customers in existing logistics express services. Secondly, we analyze the complaint points, guide how to meet customer needs, and how to improve customer satisfaction, so as to promote the development and prosperity of logistics service industry.

The manuscript should include a conclusion. In this section, summarize what was described in your paper. Future directions may also be included in this section. Authors are strongly encouraged not to reference multiple figures or tables in the conclusion; these should be referenced in the body of the paper.

5.2. Prospect

There are some limitations in our research. We collect and analyze the customer's complaints about the express delivery service, and expect to achieve the saturation of the scope and structure when coding, but this is only a regional idealized state. Due to the limited number of complaints in the study, the complete saturation of coding cannot be guaranteed, which limits the scope of application of the research results to a certain extent. Based on this, future research can further obtain more sample data support through questionnaires,

interviews and other forms, and provide a more solid and universal theoretical basis for the related research of customer complaint points.

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