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## Research on Remedial Quality Evaluation of E - commerce Customer Service Based on Fuzzy Synthesis

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### Abstract

The development of customer service center develops with the development of communication technology and computer technology. With the increasingly convergence of commodity quality and price competition, the business philosophy of enterprises has shifted from "production-oriented" to "customer-centric" and service has become the focus of modern competition. Therefore, the demand for service recovery is also increasing The higher. But also affect the customer satisfaction service remediation service quality evaluation project is more and more complex, and fuzzy comprehensive evaluation method can take into account the importance of these projects in different customer awareness, can accurately customer service customer satisfaction impact of the project Conduct evaluation, can effectively guide enterprises to improve service quality after the failure of the remedy.

### Keywords

Service failed, evaluation, fuzzy comprehensive evaluation.

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### 1. Introduction

At the same time of service development, customer complaints and complaint rates are also on the rise[1]. The inherent features of the highly interactive service system and the synchrony of production and consumption can not completely avoid the omissions resulting therefrom[2].For e-commerce enterprises, trying to avoid customer service failure should be carefully considered in the conditions of how to effectively service recovery, which is to improve customer satisfaction and customer loyalty to improve the effective way to service recovery Should be regarded as the "key moment" for the enterprise to maintain the customer relationship[3].Only by understanding customers deeply, establishing and developing long-term relationship with customers, and improving customer satisfaction can we truly gain the competitive advantages of enterprises. The ability of acquiring, retaining and managing customers is the core competitiveness of enterprises.

Service failure will not only cause customer dissatisfaction, the spread of negative reputation is more damage to the corporate image, through reasonable and correct remedial measures to restore more lasting customer satisfaction[4].Compared to customers who have not suffered a service failure, customers who have failed in service tend to show higher satisfaction after successful service remediation, and can proactively promote the positive business reputation and show more positive loyalty Sex[5].Therefore, the evaluation of the quality of customer service remediation services can better provide some guidance to improve customer service remediation services. The evaluation items that affect customer satisfaction are many and complex[6].However, the fuzzy comprehensive evaluation method can take into consideration the importance of these items in customer cognition and accurately evaluate the items that affect customer satisfaction in customer service. So as to maintain the accuracy and rationality of the evaluation results.

## 2. The evaluation project to determine

### 2.1 Section Headings

In the customer service industry, customer service personnel need face-to-face interaction or voice communication with customers to provide customers with appropriate services so that customers can happily make shopping purchases[7]. The quality of customer service remediation services can be reflected by the satisfaction of mail[8], by the customer to judge independently, but vulnerable to subjective factors such as their own customers age, geographical impact. The failure of service is inevitable, which easily leads to the dissatisfaction of customers and the spread of negative public praise. It even affects the customers' trust and loyalty to the enterprise [9]. Reasonable and correct measures to customer service service quality remedy is to improve customer satisfaction an important way. Therefore, the quality of customer service remediation evaluation study is very important. However, the current research on the service quality of customer service remediation in E-commerce enterprises mostly stays at the theoretical level and lacks of empirical research. Based on the field investigation, and the communication with the live-in customer service workers, this paper developed a service that meets the current situation of customer service and also meets the characteristics of training center Personnel services remedial work quality evaluation project. Customer service representatives as business representatives and customers to communicate with customers is an important clue to determine whether customers trustworthy[10]. Efforts to gain customer trust are also paramount in service remediation. If the customer service staff to win the trust of customers, it is relatively easy to form a trust in the business,as shown in Fig. 1.

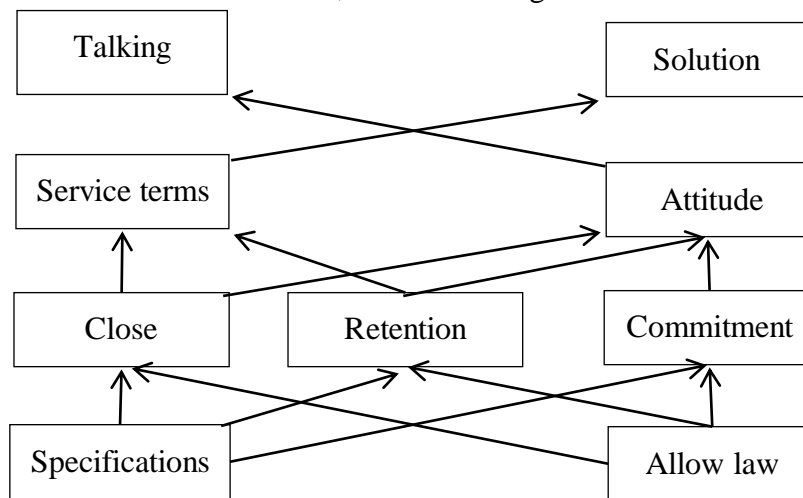


Figure 1 Customer satisfaction factors structural model

There are many influencing factors of customer satisfaction in online shopping platform customer service voice work, many of which are difficult to quantify directly, and socially prominent, and the structure between these factors is very complicated and there is a relationship of mutual influence and interaction. In this study, we read a large number of literature and on-the-spot research room Jingdong training room, and the impact of customer satisfaction factors were classified and sorted. The factors influencing customer satisfaction are mainly three aspects:

First, customer service staff basic vocational skills, including service terms, practices, service attitude, abide by the legal rights of four areas.

Second, customer service staff professional communication skills, including effective communication, business solutions, two aspects.

Third, customer service staff to deal with the problem-solving capabilities, including commitment to cash, the single-track follow-up, order retention in three areas.

The quality of service remediation that affects customer perception is mainly affected by the three factors of customer service staff: basic vocational skills, professional communication skills and problem solving capabilities, as shown in Table 1.

Table 1 Customer Recovery Services Evaluation Project Dimension

Service Recovery 3-dimensional		Specific evaluation project	Description
Basic vocational Skills	A	Terms of service	First name, polite language
	B	Operating practices	Upgrade the correct operation, the correct creation of events and leave a message, hold meet the standard
	C	Attitude of service	Attitude is polite
	D	Comply with legal rights	Keep the privacy of customers, the correct treatment of hot-line bomb event
Professional communication Skills	E	Effective communication	Use positive terminology, do not guide the customer call again, disable the ban
	F	Business Solutions	Business knowledge and answers clearly and correctly, the program provides the correct and feasible
Problem Handling Skills	G	Commitment	SMS calls are clearly promised, cash call back, problem reporting
	H	Single follow-up	Verification of customs clearance standards implementation of the single
	I	Order Retention	Shall not lead the customer to cancel the order or return, and retain

For the customer, the shopping experience is not only satisfied with the functional benefits provided by the tangible products, but also requires greater psychological and spiritual satisfaction. In the context of remedial services, customer service staff's positive emotion transfer to customers can be used as a clue to the customer's ability to judge whether a customer service staff is trustworthy due to the same customer's desire for a smile-friendly service to customer service staff. The failure of the seller caused the failure of the service, the attitude of sincere apology, customer service at this time "smile" more to impress customers, thereby reducing the impact of service failure on the customer. Even if the final transaction is not reached, we should also sincerely say "Welcome to our customers". Good service attitude, standard operating practices and legitimacy are important guarantees to ensure good customer service experience. At the same time, positive attitude toward remedial service will affect customer trust and re-establishment of customer service staff after remediation services .

In the process of seeking service after the search of goods information and service failure on the shopping website, the real-time communication with the online customer service staff has become an important factor for understanding the product information, establishing the customer relationship and enhancing the purchasing intention . Only customers themselves best understand their needs and hobbies, to collect more of these information to provide customers with higher quality services need to be more fully and carefully communicate with customers.

Actively communicate with customers, maintain and remedy service quality and try our best to retain. Problem solving is an important element in retaining customers and remedying quality of service. The customer is the purchaser of the product, not the troublemaker, losing the brand more than losing a deal. When the customer service itself can not be solved in time and need to further verify or consult the

situation at a higher level, the need to explain why the customer and obtain customer understanding, then call the problem to inform and record the order follow-up situation, Ensure the quality of remediation services.

### 3. The evaluation process analysis

#### 3.1 A simple evaluation of customer satisfaction

In order to clearly understand the customer's satisfaction and to evaluate the service remediation ability of the customer service personnel, the enterprise often sends the customer service service after the service to remedy the quality evaluation e-mail, and the customer evaluates each evaluation according to his service experience Project feedback, and feedback their own opinions and suggestions to facilitate business consolidation of these data to understand the quality of customer service remediation, and improve the e-mail feedback to improve the quality of customer service remediation services.

A total of 180 copies (45 × 4 months) of e-mails sent to customers are randomly selected, and the score of each evaluation item in the e-mails and statistics of the customers are summarized. The evaluation of some of the emails is more random in nature or incomplete in content, which makes it inconvenient to summarize and organize. There are 150 effective email feedbacks and 89.3% efficient email feedbacks. Table 2 shows the general situation of mail satisfaction assessment for customer service remediation service.

Table 2 Customer Satisfaction Simple evaluation

Customer Satisfaction	Number	Percentage
Very satisfied	16	10.7%
Satisfied	23	15.3%
General	48	32%
Dissatisfied	52	34.7%
Very dissatisfied	11	7.3%

Through a simple evaluation of customer satisfaction, it can be concluded that the customers' assessment of customer service remediation is slightly less than the extreme cases, with "very satisfied" 10.7% and "very dissatisfied" 7.3% For the most part, the general situation is large. The simple evaluation vector of customer satisfaction was [0.107,0.153 0.320,0.347,0.073].

#### 3.2 Set the establishment of evaluation factor

According to the evaluation items of customer satisfaction in Table 1, there is an evaluation factor set  $M = [\text{service term (M1), operation standard (M2), service attitude (M3), compliance with laws and regulations (M4 , M5, M6, M7, M8, M9)]$ .

#### 3.3 A single evaluation of project satisfaction evaluation

The customer scored each evaluation item according to their own service experience, and then set up a comment set  $V = [\text{Very Satisfied (V1), Satisfied (V2), Satisfied (V3), Unsatisfied (V4), Very Unsatisfied (V5) }]$ . According to the customer's e-mail response to feedback on the various evaluation items evaluation score summary, as shown in Table 3.

Table 3 Evaluation Project Satisfaction Evaluation

Evaluation factor	Satisfaction	Very Satisfied	Satisfied	General	Dissatisfied	Very Dissatisfied	%
A	16	10.7	36	24	49	32.7	38
B	10	6.7	39	26	47	31.3	45
C	12	8	16	10.7	44	29.3	63
D	33	22	41	27.3	52	34.7	12
E	9	6	18	12	61	40.7	51
F	11	7.3	29	19.3	58	38.7	32
G	27	18	22	14.7	57	38	30
H	11	7.3	30	20.0	66	44.0	27
I	7	4.7	34	22.7	63	42	29

Each evaluation factor was evaluated by the analysis of the customer's satisfaction with the evaluation items. Among the service items, 10.7% said "very satisfied", 24% said "satisfied", and 32.7% Customers said they were "generally satisfied," 25.3% said they were "not satisfied," and only 7.3% said they were "very dissatisfied." Its corresponding fuzzy evaluation vector is [0.107,0.240,0.327,0.253,0.073]. In the same way, we can also get "Operational Norms," "Service Attitudes," "Compliance with Legal Authority," "Effective Communication," "Business Solutions," "Commitment to Cashing Out," "Closure Order Follow-up," and "Order Retention." Fuzzy evaluation of the evaluation factor of the vector, the fuzzy evaluation of each vector to get the fuzzy matrix R summary.

$$R = \begin{bmatrix} 0.107 & 0.240 & 0.327 & 0.253 & 0.073 \\ 0.067 & 0.260 & 0.313 & 0.300 & 0.053 \\ 0.080 & 0.107 & 0.293 & 0.420 & 0.100 \\ 0.220 & 0.273 & 0.347 & 0.080 & 0.080 \\ 0.060 & 0.120 & 0.407 & 0.340 & 0.073 \\ 0.073 & 0.193 & 0.387 & 0.213 & 0.133 \\ 0.180 & 0.147 & 0.380 & 0.200 & 0.093 \\ 0.073 & 0.200 & 0.440 & 0.180 & 0.107 \\ 0.047 & 0.227 & 0.420 & 0.193 & 0.113 \end{bmatrix}$$

### 3.4 Evaluation of the importance of project row

In order to determine the importance of each evaluation factor to the customer satisfaction, the customers independently decide the evaluation factors according to the importance grade according to their own opinions, and according to the importance of the evaluation items which they consider to be from high to low Order in order, grading 1 to 5. Then according to the customer's decision feedback summary of the customer service remedy the quality of the various evaluation items score, as shown in Table 4.

### 3.5 Fuzzy vector calculation

From the score of each evaluation factor in Table 4, the corresponding fuzzy vector can be obtained, that is,  $U = [0.072,0.046,0.161,0.105,0.124,0.221,0.134,0.083,0.053]$ . Using the matrix multiplication method to calculate the fuzzy comprehensive evaluation of customer service remediation, there are  $B = U * R = [0.134,0.193,0.221,0.213,0.133]$ , after normalization, we get  $[0.152,0.218,0.239,0.241, 0.150]$ . Through the analysis of the results of fuzzy comprehensive evaluation, we can get that customer satisfaction rate of customer service remedial service is

"generally satisfied", accounting for 22.1%, with the highest degree of membership; second, 19.3% customer satisfaction is "satisfactory"; 21.3 % Of customer satisfaction is "unsatisfactory" while "very satisfied" and "very dissatisfied" account for a relatively low and roughly identical customer satisfaction rate of only 13.4% and 13.3% respectively.

In order to better understand the customer satisfaction of the various evaluation items, so the satisfaction of the score summary calculation. Scoring criteria are: "Very satisfied" = 2, "Satisfied" = 1, "Satisfied" = 0, "Dissatisfied" = -1, "Very dissatisfied" = -2. According to the integral standard score calculated for each evaluation factor as shown in Table 5.

Table 4 Evaluation Project Ranking of importance

		Rating factor Ranking Score Weighting					
A	27	28	16			131	0.072
B	34	25				84	0.046
C		10	34	26	13	291	0.161
D	21	29	37			190	0.105
E			42	35	17	225	0.124
F		13	38	39	21	401	0.221
G		21	29	27	12	243	0.134
H		32	17	9		151	0.083
I	18	24	10			96	0.053

Table 5 Evaluation of project quantification

Rating item	Score	Ranking
A	8	2
B	-2	3
C	-53	9
D	71	1
E	-37	8
F	-21	7
G	-9	5
H	-7	4
I	-15	6

As can be seen from the score of each evaluation item quantified in Table 5, most of the evaluation items have negative scores. Only the evaluation items of "service terms" and "compliance with legal power" have a positive score. Which "service attitude" this one the lowest score, indicating the lowest customer satisfaction.

**3.6 Data analysis**

The importance of the evaluation items in Table 4 ranks the scores of each evaluation item. Which accounted for a larger "Business Solutions" (0.221). Second, "service attitude" (0.161), "promised cash" (0.134), "effective communication" (0.124), ""Follow-up" (0.083), "Service Terms" (0.072), "Order Retention" (0.053) and "Code of Practice" (0.046) accounted for a relatively small proportion. Customer service staff in the problem-solving at the same time can not ignore these four accounts for a relatively small number of projects, comprehensive and meticulous service package is customer service remediation service quality protection.

#### 4. Conclusion

Through field research and data collection and collation as well as communication with university student customer service staff to determine the more reasonable in line with the actual customer service repair service quality evaluation project. The fuzzy comprehensive evaluation method is used to evaluate the service quality of customer service remediation, and the nine rating items that affect the quality of service remediation are ranked in order of importance. In the e-commerce customer service, the customer satisfaction with customer service remediation service overall is slightly lower, and the customer service remediation service is more concerned with "service attitude", "effective communication" and "business solution".

With the popularization of online shopping, service failures occur frequently due to various reasons, providing high-quality service and proactive service recovery are important ways to retain customers and improve customer satisfaction. Customers need to consult the service in the shopping or after-sale problem solving and rights maintenance, customer service staff "smile" service, can reduce customer anxiety, harmonious atmosphere to ensure the effectiveness of communication, patiently and fully to listen to customer concerns and problems, Making clear and detailed business answers is an important foundation for customer retention and quality of service remediation. Remedial service quality can gain a greater degree of customer loyalty to achieve their own superior business.

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