Analysis of Factors Affecting Service Quality of Chinese Express Delivery Companies

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Abstract. Under the background of national "Internet plus" strategy, E-commerce in China has developed rapidly in recent years. Its ancillary industry, the express delivery industry, has also get rapid development incidentally. However, the service quality of many Chinese express companies is still unable to match the pace of customer demand. Through questionnaire survey, this paper analyzed the influencing factors of service quality of express enterprises, and used SPSS to analyze the obtained data by Factor Analysis. "Reliability", "Affinity" and "Professionally" are the main factors that affecting the service quality of express delivery enterprises.

Keywords: Service Quality; Express; Influencing Factors; Factor Analysis.

1. Introduction

In recent years, under the background of China's "Internet +" development strategy, with the strong development trend of e-commerce and the strong support of the government, the express delivery enterprises in China have been developing rapidly. However, while facing enormous opportunities, the express industry is also facing challenges. With the increasing number of express delivery enterprises, service quality homogeneity is serious. The fierce competition among those companies leads to the decline of service quality and customer satisfaction. So it is an urgent problem for express delivery enterprises to help them straighten out their ideas and stand out in the competition, especially from the perspective of consumer demand.

2. The Factor Analysis

Factor analysis originated from Karal Pearson and Charles Spearmen's statistical analysis of intelligence tests in the early 20th century. At present, factor analysis has been successfully applied in psychology, medicine, meteorology, address, economics and other fields. The common theoretical models of factor analysis are as follows:

$$Z_J = a_{j1}F_1 + a_{j2}F_2 + a_{j3}F_3 + \ldots + a_{jm}F_m + U_m$$
$$(j=1, 2, 3\ldots, n, \text{ for the total number of variables})$$

It can be also expressed in matrix form as $Z = AF + U$.

(1) Z is the standard score of the variables;

(2) Fi (i = 1, 2... m) stands for factors, which are also called common factors because they appear in the linear expression of each original variable;

(3) m is the number of common factors of all variables.

(4) U is the residual error of variable Z, represents the part of the original variable that cannot be explained by the factor;

(5) A stands for the matrix of the factors' weight.

3. The Influencing Factors System of Express Service Quality

3.1 The Process of Express Service

Express is subordinate to service industry that service-oriented. Express enterprises demand to be customer-centered. They mainly provide services for customers. To be exact, they provide express delivery services. Its main process is that customers go to express stations, service staff collect express mail, then fill in the bill of lading information, packaging, then transport to the distribution center, sorting, transport to the destination site, then dispatch by distributors, and finally customer acceptance. Following the process, customers and express companies will fully contact each other.

3.2 Selection Basis of Influencing Factors of Express Service Quality

Express all services, including whether the packaging is reasonable and safe, whether the freight is reasonable, and whether the network tracking information system is updated in time. In addition, the environmental facilities and express displaying methods of the whole express enterprise will affect the quality of service.

Therefore, according to the characteristics of express service contact process, through in-depth interviews with 15 customers (more than three times a month) and 8 employees of express service, this paper synthesizes 17 factors affecting customer satisfaction in service contact of express enterprises.

3.3 Determining the Influencing Factors of Express Service

Through in-depth communication with the 15 customers, they are asked to recall the experience of sending express mail in the past three months, the process of contacting express enterprises, perceiving express service, and recalling the factors affecting their satisfaction. On the other hand, from the perspective of service staff of express delivery enterprises and service providers, recall the factors that affect service quality. Finally, the indicators are counted, classified and summarized, and 17 factors affecting the quality of express service are extracted, as shown in table below.

Table 1. Factors Influencing Customer Satisfaction of Express Enterprises

influence factor	implication
1. Waiting time	Speed of service for staff when receiving express delivery
2. Timespan	How long does express take from mailing to receiving
3. Any delay in express delivery	Does Express Delivery Match the Promised Time
4. Dealing with Customer's Questions	Service staff take timely measures to solve customer's questions
5. Package damage, loss or falsification	Is the package in good condition, whether the information of express claimant is accurate or not
6. Home delivery	Does it provide home delivery service
7. Inspection	Is it possible to open the case face to face for inspection
8. Customer convenience	Reasonable Setting of Express Stations
9. Pricing	Reasonable charges
10. Technological process	The process is simple and the operation is easy to understand.
11. Notify Express Information	Be able to inform express delivery information in time, such as calling before delivery, texting, app notification, etc.
12. Branding Service	Unified clothing, vehicles, specialized equipment obviously different from other express companies
13. Specialty	Does the service staff complete the service quickly and accurately
14. Service Attitude	The service friendly and sincere to customers
15. Environment of the Station	Is the environment of express delivery station clean and tidy
16. Compensation system	Does the enterprise have obvious compensation system and process when express delivery fails
17. Complaints and Adjustment	Can enterprises handle complaints reasonably and quickly

3.4 Questionnaire Design and Data Collection

Specifically, the 17 factors mentioned above are directly transformed into the evaluation items in the questionnaire, forming a questionnaire with 21 evaluation items. The 17 items were presented in the form of Likert scale. There were five options behind each item, namely "very important", "more important", "general", and "unimportant" or "very unimportant". Each level has its own score, 5 to 1. A total of 150 questionnaires were sent out and 150 were recovered, with a recovery rate of 100%. Among them, 150 valid questionnaires met the requirement that the recovery rate should not be less than 20%. Eliminating unqualified, incomplete and identical questionnaires, the effective rate was 96.6%. The number of samples meets the requirement of not less than five times the number of items measured. In the survey sample, 58 males accounted for 38.67%, 92 females accounted for 61.33%. There are 14 customers under 21 years old, accounting for 9.33% of the total sample; 125 customers between 21 and 30 years old, accounting for 83.33%; 9 customers between 31 and 40 years old, accounting for 6%; and 2 customers over 40 years old, accounting for 1.33%.

3.5 Analysis of Survey Results

According to the data running after Factor Analysis by SPSS, we would clearly see the results of the survey that shown below.

Table 2. Reliability Statistics

Cronbach's Alpha	N of Items
.926	150

Table 3. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.889
Bartlett's Test of Sphericity	Approx. Chi-Square	1370.133
	df	136
	Sig.	.000

Firstly, the reliability statistics shows that the level of Cronbach α was 0.926, therefore, all the items should be retained, which further shows that the reliability level of the research data is high, that is, and the quality of the questionnaire is high. Secondly, with the KMO and Bartlett's test, KMO measure of sampling adequacy is 0.889, Approx. Chi-Square meets 1370.133, df 136 and sig. shows 0.000. All the indexes shows that it is suitable for factor analysis.

Finally, as the factor analysis results, three factors were extracted, accounting for 60.114% of the total variance. In order to clarify the meaning of each principal factor, the rotated component matrix of the factor is obtained and shown below.

Table 4. Rotated Component Matrix

	1	2	3	
1. Waiting time	0.706			0.578
2. Timespan	0.808			0.727
3.Any delay in delivery	0.820			0.703
4.Dealing with the Questions	0.638			0.617
5.Damage, loss, falsification	0.630			0.598
7.Inspection	0.495			0.475
8. Customer convenience		0.640		0.571
9. Pricing		0.819		0.736
10. Technological process		0.672		0.583
16. Compensation system		0.758		0.693
17.ComplaintsandAdjustment		0.646		0.603
6. Home delivery			0.570	0.487
11. Notify Information			0.560	0.625
12. Branding Service			0.813	0.728
13. Specialty			0.740	0.709
14. Service Attitude			0.531	0.603
15. Environment of the Station			0.676	0.634

The first factor mainly reflects the reliability of enterprises in providing services. It means that the purpose of company service is to make customers feel at ease with the services they receive. So we call it "reliability".

The second factor includes reasonable set-up of express delivery sites, open and transparent fees, simple and understandable business process, clear compensation system and process, reasonable and prompt handling of complaints when express delivery fails. These factors mainly analyze the convenience services provided by express delivery enterprises to customers, which we call "Affinity".

The third factor mainly reflects the good attitude of courier service staff, patiently explaining customers 'questions, accurately identifying and dealing with customers' needs, all of which have a direct relationship with service staff, which we call " Professionally ".

4. Summary

Through exploratory factor analysis, it is concluded that 17 variables affecting service quality can be summarized as three factors, namely "Reliability", "Affinity" and "Professionally". Generally speaking, the service quality of express enterprises in China is not very high. Enterprise managers

should pay attention to the influencing factors of service quality in order to attract more customers and obtain higher customer satisfaction.

Firstly, improve the professional skills of staff packaging, reasonable choice of transport, correct and reasonable distribution routes, improve vehicle loading technology and improve the packaging methods in distribution, so as to shorten the time needed for express delivery from mail to receive, and improve customer satisfaction.

Secondly, ensure that all express package charges are clear and transparent. If possible, the price details should be uploaded to the official website or the enterprise mobile terminal.

Thirdly, improve the level of information technology, speed up the construction of information systems, timely update logistics information, so that customers can grasp the direction of their product logistics at anytime and anywhere. Make the delivery arrival time consistent with the logistics information displayed on APP, and notify customers in advance.

And next, strengthen the training of staff's professional quality and improve the express service level. As a service industry, the level of service and professional skills of employees seriously affect the image of enterprises.

Last but not least, Enterprises should have uniform clothing and vehicles. Specialized equipment can make customers clearly distinguish the brand of express delivery enterprises, and distinguish employees from customers and give customers a sense of professionalism.

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