



Received: 06-08-2024  
Accepted: 16-09-2024

ISSN: 2583-049X

## **Research on Hanoi People's Satisfaction Level with Cat Linh - Ha Dong Train Service**

**Bui Thi Thu**

Hanoi University of Natural Resources and Environment, Vietnam

Corresponding Author: **Bui Thi Thu**

### **Abstract**

After more than 3 years of official operation, the Cat Linh - Ha Dong train service has proven its advantage in transporting a large number of passengers in a civilized, modern manner and capable of fundamentally solving the "problem" of urban traffic congestion. Through operation and passenger experience, Hanoi Metro has contributed to gradually changing people's travel habits and gradually creating a culture of using civilized, safe and friendly public transport. The stable and safe operation of the train has helped attract more and more people to use the service. The Cat Linh - Ha Dong train has contributed to reducing bus overload, reducing traffic congestion, reducing environmental pollution and encouraging people to use more public transport. In particular, after more than 3 years of

operation, Hanoi Metro has a team of managers and employees directly operating and exploiting in a professional manner, taking passenger satisfaction as the service criterion. The quality of the Cat Linh - Ha Dong train service is rated quite good, the train moves quite fast and relatively smoothly. However, there are still many shortcomings and limitations. Customers encounter many problems in parking their vehicles when the parking area is not spacious and airy, and it is difficult to find a suitable parking space. Therefore, this topic was conducted to find out the factors affecting people's satisfaction when using the Cat Linh - Ha Dong train service. The study has shown that there are 3 main influencing factors: tangibility, assurance and responsiveness.

**Keywords:** Satisfaction, Public Service Quality

### **1. Introduction**

According to the Hanoi Public Transport Management and Operation Center, in the first 9 months of 2022, the bus system attracted 215 million passengers, achieving revenue of over 400 billion. Passenger output began to show signs of recovery from the beginning of the second quarter of 2022 (the second quarter of 2022 increased by 124.1% compared to the first quarter of 2022, 2.2 times higher; the third quarter of 2022 increased by 1% compared to the second quarter of 2022). And according to the preliminary assessment from the Hanoi Transport Corporation - the main unit in operating the capital's buses, it also showed that in the first 9 months of the year, the output of kilometers transported was estimated at about 76.5%; the output of passenger tickets was estimated at 49% compared to orders and bidding, an increase of 62% compared to the same period. Revenue after allocation was estimated at 43.8% compared to the bidding - ordering target. In general, the bus operation situation of Hanoi Transport Corporation is basically stable, the service quality is controlled. The number of passengers using buses has recovered compared to the pre-pandemic period, especially after students returned to school.

Although traveling by bus, electric bus or BRT has recovered, in reality for many years, the growth rate of meeting the travel needs of passengers by public passenger transport, especially buses, is still only about 15 - 16%. This has significantly affected the city's plan to limit personal vehicles. In addition, the development of tram lines, subways, metros across the city, etc. is also a trend of developed countries in the world. Because it is a future trend of the city in particular and Vietnam in general, it is extremely important to survey and evaluate to improve the quality of services to avoid degradation like bus transport.

The implementation of the "Research on the satisfaction level of Hanoi residents with the Cat Linh - Ha Dong Train service" to evaluate some passenger characteristics and the level of passenger satisfaction when participating in this new type of transport, can also increase the database for competent authorities to be able to come up with reasonable policies and solutions to solve

the problems of traffic congestion, environmental pollution and noise pollution in the city, as well as contribute to spreading the benefits of this modern type of transport to the people.

## 2. Literature Review, Research Framework, and Hypothesis Presentation

### 2.1 Literature review

#### *Service*

According to Zeithaml & Bitner (2000), services are actions, processes, and ways of performing a certain task to create value for customers to satisfy their needs and expectations. According to Kotler & Armstrong (2004), services are activities or benefits that businesses can contribute to customers to establish, strengthen and expand long-term relationships and cooperation with customers. Philip Kotler defines services: "A service is an activity or benefit provided for exchange, which is essentially intangible and does not result in the transfer of ownership. The performance of services may or may not be associated with a physical product".

There are many concepts of service expressed from different perspectives, but in general, we can draw the concept of service: Service is a product of labor, does not exist in material form, provided by one party to another party for the purpose of meeting the needs of production and consumption. Basically, the results of service activities are intangible and often do not lead to ownership of any production factors. The process of production and consumption of services occurs simultaneously.

#### *Service quality*

According to ISO, the concept of service quality is the set of characteristics of an object, giving the object the ability to satisfy stated or implied requirements.

According to Lewis and Mitchell, 1990; Dotchin and Oakland, 1994; Asubonteng *et al.*, 1996; Wisniewski and Donnelly, 1996, service quality is the extent to which a service meets the needs or expectations of customers.

Service quality can also be defined as the difference between customers' expectations of the service and their perceptions of the service. If expectations are greater than performance.

Specifically: According to Gronroos, "service quality is the result of an evaluation process when customers compare the actual service they have received with their expectations". In line with Gronroos, Parasuraman *et al.* (1985) stated that "service quality is a form of attitude, resulting from a comparison between the actual service that customers perceive when consuming a service and their expectations. Service quality is related but not identical to customer satisfaction." It should be noted here that although service quality and customer satisfaction are two relatively close concepts and are often used interchangeably by many researchers, there are certain differences between them as pointed out by Parasuraman *et al.* (1998) and Rust and Oliver (1994), namely: (1) Service quality is a comprehensive and long-term evaluation while customer satisfaction is an evaluation of a specific service transaction; (2) Service quality lasts longer while customer satisfaction lasts shorter; (3) Service quality is often considered to have fewer antecedents than customer satisfaction. A review of previous theories and studies on the relationship between service quality and customer satisfaction has also left much

controversy. Some studies have suggested that service quality is an antecedent of customer satisfaction (Cronin and Taylor, 1992; Parasuraman *et al.*, 1985, 1988). Meanwhile, other studies have suggested that customer satisfaction is an antecedent of service quality (Bitner, 1990; Bolton and Drew, 1991a, 1991b; Oliver, 1981). The opposite relationship between these two concepts has also been found in some studies in the field of library service quality (Cook and Thompson, 2000; Hernon and Altman, 2010). However, one thing that can be concluded here is that although previous studies have shown conflicting research results, the relationship between these two concepts is relatively close.

#### *Public services*

There are many approaches to the issue of "public services". In European countries, "public services are activities for the common benefit of society, undertaken by state or private agencies". In a market economy, the common benefits that public services bring are expressed in the form of public goods. These are goods that everyone can use, the type of goods that one person's consumption does not reduce the consumption of another person and it still exists when not consumed.

The above concept of public services was used quite commonly in many European countries after World War II. There are many types of public services, from health care, education, infrastructure, poverty reduction to security, social protection... As the economy and social life develop, public services develop into many new types with new methods of provision. Public services have the following characteristics: high social nature, the goal is to serve the community's interests, regardless of class or social status, fairness and mass appeal. Therefore, the economic and profit aspects in the market mechanism are not necessary conditions for public service activities. The exchange of public services does not go through or does not fully include market relations. There are also public services, users have to pay part or all of the cost, but the state is still responsible for providing these services without the aim of profit (such as law, security, national defense, granting of documents to ensure ownership rights and other interests of the people).

#### *Public service quality*

Public service quality is an important measure for the operations of state administrative agencies. Evaluating the quality of online public services helps identify weaknesses, strengths, and limitations that need to be overcome in the system, thereby providing solutions to better serve the people. Methods for evaluating the quality of online public services need to be scientific, consistent with both theory and practice in order to improve service quality.

#### *Satisfaction*

Satisfaction is the level of a person's emotional state resulting from comparing the perception of a product with that person's expectations. Based on the perception of service quality, satisfaction can be divided into three levels: Dissatisfied when the customer's perception is less than expected; Satisfied when the customer's perception is equal to expectations; Very satisfied when the customer's perception is greater than expected. According to Oliver & Bearden (1985), satisfaction is the consumer's response to having their desires met. This definition implies that satisfaction is the consumer's satisfaction in consuming a product or service that meets their desires, including the level below or above expectations.

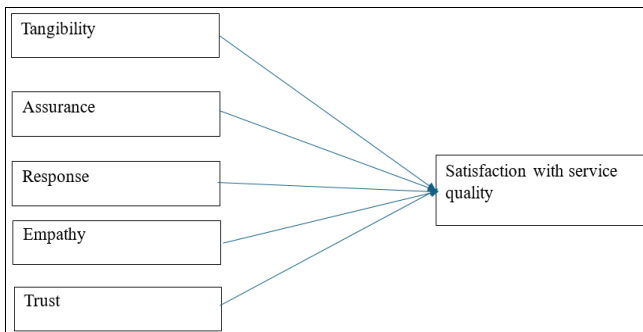
**The relationship between service quality and satisfaction**

Service quality and satisfaction are two different concepts but are closely related in service research (Parasuraman *et al.*, 1988). Previous studies have shown that service quality is the cause of satisfaction (Cronin and Taylor, 1992; Spreng and Taylor, 1996). The reason is that service quality is related to service delivery, while satisfaction can only be assessed after using the service. Customer satisfaction is considered as the result, service quality is considered as the cause. Satisfaction is predictive, expected; service quality is an ideal standard. Customer satisfaction is a general concept, expressing their satisfaction when consuming a service. Meanwhile, service quality only focuses on specific components of the service (Zeithaml & Bitner, 2000). Although service quality and satisfaction are interrelated, few studies have focused on examining the extent to which service quality dimensions explain satisfaction, especially for specific service industries (Lassar *et al.*, 2000). Cronin and Taylor examined this relationship and concluded that perceived service quality leads to customer satisfaction. Studies have concluded that service quality is an antecedent of satisfaction (Cronin and Taylor, 1992; Spreng, 1996) and is a major factor influencing satisfaction (Ruyter, Bloemer, 1997). In short, service quality is a factor that greatly affects customer satisfaction. If a service provider provides customers with quality products that satisfy their needs, then that provider has initially made customers satisfied. Therefore, to improve customer satisfaction, service providers must improve service quality. In other words, service quality and customer satisfaction are closely related, in which service quality is what is created first, deciding customer satisfaction. If quality is improved but not based on customer needs, customers will never be satisfied with that service.

**2.2 Research framework and Hypothesis**

**Research framework**

After reviewing related topics, the author decided to use the SERVQUAL service quality model of A.Parasuraman, Valarie Zeithaml and Leonard L. Berry (1985, 1988) as a framework for the research model. Based on the synthesis and inheritance of previous models and research results, the group of authors used the SERVQUAL model to conduct the survey and propose the following research model:



Source: Author's compilation

Fig 1: Proposed research model

**Research hypothesis**

**Tangibility:** Shown through equipment, communication, and the way employees present themselves to customers.  
**H1:** Tangibility is positively correlated with the level of

satisfaction of Hanoi people with Cat Linh - Ha Dong Train service.

**Assurance:** Shown through professionalism, excellent technical knowledge, polite attitude, and communication skills of employees with customers.

**H2:** Assurance is positively related to the level of satisfaction of Hanoi people with Cat Linh - Ha Dong Train service.

**Responsiveness:** Shows willingness to support customers and provide quick service.

**H3:** Responsiveness is positively correlated with the level of satisfaction of Hanoi people with Cat Linh - Ha Dong Train service.

**Empathy:** Shows care, concern, and empathy for customers.

**H4:** Empathy is positively related to the level of satisfaction of Hanoi people with Cat Linh - Ha Dong Train service.

**Reliability:** Demonstrates the ability to perform the committed service accurately. **H5:** Reliability is positively related to the level of satisfaction of Hanoi people with Cat Linh - Ha Dong train service.

**3. Research Methods**

**3.1 Scale and Questionnaire design**

The questionnaire was built based on the research questions and data collected through a survey of people using the Cat Linh - Ha Dong metro service.

**Part 1:** Includes questions to collect general information including: Gender; Occupation; Educational level; Number of times using the Cat Linh - Ha Dong metro service.

**Part 2:** Includes questions on factors affecting the satisfaction of Hanoi people with the quality of the Cat Linh - Ha Dong metro service. All observed variables in the survey form are used with questions with a 5-point Likert scale used to measure the dependent variable, specifically: 1 = Completely disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Completely agree.

The quantification into the above levels is used to assess satisfaction with the Cat Linh - Ha Dong metro service. In addition, the survey also uses a nominal scale to determine gender and income variables. The scale consists of 6 observed variables including 5 independent variables corresponding to 5 basic components of service quality and 1 dependent variable which is customer satisfaction, specifically as follows:

**3.2 Research methods**

The research team chose the convenience sampling method, which means sampling based on the convenience or accessibility of the subjects, in places where the team is most likely to meet the subjects. The team went to Cat Linh Station and used the Cat Linh - Ha Dong metro service to ask for interviews. At the same time, the team also sent questionnaires to acquaintances who had used the Cat Linh - Ha Dong metro service.

In addition to collecting primary data through distributing survey forms, the team also collected secondary data from documents, textbooks, newspapers, theses related to the marketing major, consumer satisfaction with the quality of public services... through Internet sources and documents at Pham Van Dong and Ta Quang Buu libraries.

The survey was conducted from April 2024 to September 2024.

#### 4. Research Results and Discussion

##### 4.1 Descriptive statistics results

The research team conducted a study with the survey subjects being Hanoi residents. After conducting a direct survey and sending out an online survey, the team collected 226 applications, of which 209 were valid, reaching a rate of 92.48%. All valid samples will be processed through SPSS 26.0 software to conduct correlation analysis, reliability analysis, exploratory factor analysis, regression analysis and hypothesis testing.

**Table 1:** Descriptive statistics of research sample frequency

Demographic profile	Frequency	Percentage (%)
<b>Gender</b>	<b>209</b>	<b>100</b>
1. Male	108	51,7%
2. Female	101	48,3%
<b>Age</b>	<b>209</b>	<b>100</b>
1. Under 16 years	24	11,5%
2. 16-25 Years	82	39,2%
3. 26-40 Years	64	30,6%
4. 41-60 Years	23	11%
5. 45 Years and above	16	7,7%
<b>Income (million VND/month)</b>	<b>209</b>	<b>100</b>
1. 5-10 Million	28	8.12
2. 10-15 Million	45	13.04
3. 15-20 Million	162	46.96
4. 20 Million and above	110	31.88
<b>Educational qualification</b>	<b>209</b>	<b>100</b>
1. High school	93	44,5%
2. College/university graduated	49	23,4%
3. Office staff	29	13,9%
4. Worker	38	18,2%
5. Other	93	44,5%

Source: Data analysis results, 2024

Through the above table, the research team found that; **In terms of gender structure:** Out of the total of 209 observed samples, males accounted for 48.3% (101 people), females accounted for 51.7% corresponding to 108 people. It can be seen that the ratio of males and females has a very small difference. This is consistent with the method and sample of the survey chosen because the difference in satisfaction between the two sexes is not much different.

**In terms of age structure:** Out of the 209 observed samples, the age group with the highest proportion is the 16-25 age group (39.2%) and the 26-40 age group (30.6%). And the remaining 3 age groups have the proportions respectively: Under 16 years old (11.5%), 41-60 years old (11%) and over 60 years old (7.7%). Thereby, it can be seen that the subjects using the Cat Linh - Ha Dong Train service are mainly between the ages of 16-40. However, the remaining age groups also have a need to use the Cat Linh - Ha Dong train service.

**About the occupational structure:** In terms of occupation, out of 209 collected samples, 49 (accounting for 23.4%) of respondents are office workers, the number of respondents who are students is up to 93 (accounting for 44.5%). The number of people who filled out the survey who are workers is 29 people (accounting for 13.9%) and the number of people with other occupations is 38 (accounting for 18.2%). Students account for the highest percentage, possibly because this is a similar target group to the research group, so the group can easily approach.

**About the frequency structure of service use:** Out of 209 collected samples, 49.8%, equivalent to 104 people, use the

Cat Linh - Ha Dong train service occasionally, not at a certain frequency. Next, 53 people (25.4%) use the service 4-27 times/month. Finally, the group of people using the service less than 4 times/month is 35 people (16.7%) and the group using the service more than 27 times/month is 17 people (8.1%).

##### 4.2 Reliability and Validity Test

**Table 2:** Summary of Reliability Scales Test

S. No	Variables	No. of Observation Variables	Cronbach's Alpha
1	Tangibility (HH)	5	0.86
2	Assurance (DB)	3	0.90
3	Response (DU)	5	0.72
4	Empathy (DC)	5	0.89
5	Trust (TC)	6	0.91
6	Satisfaction with service quality (HL)	3	0.88

Source: Data analysis results, 2024

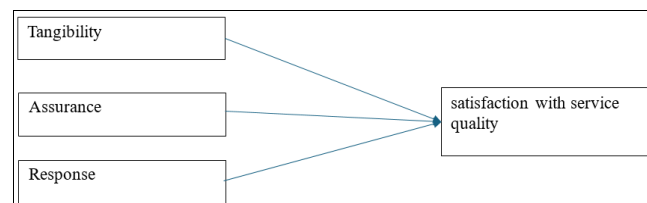
Exploratory factor analysis EFA for dependent variable After analyzing EFA of independent variables, the research team continued to analyze EFA for dependent variable, the specific results are presented below:

**Table 3:** KMO test of dependent variable

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.664
<b>Bartlett's Test</b>	Bartlett test	188.677
	df	3
	Sig.	.000

Source: Data analysis results, 2024

Based on the results obtained, it can be seen that the KMO coefficient = 0.664 > 0.5 and the Bartlett test = 188.677 and the Sig coefficient = 0.000 < 0.05 can be seen that the results of the exploratory factor analysis have high reliability. From there, the group deduced the research model after the exploratory factor analysis EFA.



Source: Author's compilation

**Fig 2:** Research model after exploratory factor analysis EFA

##### 4.3 Correlation and Regression analysis

**Table 4:** ANOVA test

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	47.703	3	15.901	70.831	.000 <sup>b</sup>
Residual	46.021	205	.224		
Total	93.724	208			

a. Dependent Variable: HL  
b. Predictors: (Constant), DU, HH, DB

Source: Data analysis results, 2024

The results from the ANOVA table show that the F value of the models is 70.831 with an observed significance level of Sig. = 0.000 (< 0.05), showing that the proposed linear

regression model is suitable for the actual data set collected and the included variables are all statistically significant.

**Table 5:** Regression analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			B	Std. Error
(Constant)	.356	.245		1.454	.148		
HH	.165	.080	.141	2.069	.040	.519	1.927
DB	.305	.079	.282	3.869	.000	.451	2.217
DU	.429	.073	.390	5.903	.000	.549	1.823

a. Dependent Variable: HL

Source: Data analysis results, 2024

After obtaining the results, it can be seen that the Sig test of the regression coefficients of the independent variables HH, DB, DU are all less than 0.05. In conclusion, there will be 3 independent variables that all affect the dependent variable HL.

The VIF coefficient of the remaining independent variables obtained are all  $< 2.0$ , so the data does not violate the multicollinearity assumption.

The multiple regression coefficients of the remaining variables are all  $> 0$ . This indicates that these dependent variables all affect the dependent variable HL in the same direction. Based on the magnitude of the standardized regression coefficient Beta, the order of the impact from strong to weak of the independent variables on the dependent variable HL is: DU (0.390)  $>$  DB (0.282)  $>$  HH (0.141).

This result corresponds to:

+ Responsiveness has the strongest positive impact on the satisfaction of Hanoi people with the quality of Cat Linh - Ha Dong train service

+ Assurance has the second strongest positive impact on the satisfaction of Hanoi people with the quality of Cat Linh - Ha Dong train service.

+ Tangibility has the weakest positive impact on the satisfaction of Hanoi people with the quality of Cat Linh - Ha Dong train service.

From the 3 hypotheses mentioned and proposed by the research team in the research model. The results after analysis are as follows: All 5 hypotheses are accepted, including: H1, H2, H3.

## 5. Conclusion

From the surveyors' assessments, it can be seen that the quality of Cat Linh - Ha Dong train service has not completely satisfied the needs of the people. In particular, the factors that have not been highly appreciated by the people include: Parking services, additional services and the suitability of stations with the required traffic routes.

Regarding the research model, after conducting qualitative research, the proposed model includes 5 factors with 21 observed variables affecting the satisfaction of Hanoi people with the quality of Cat Linh - Ha Dong train service. However, after testing the reliability of the scale and analyzing the EFA, 2 variables were removed from the model. From the analysis results, it can be seen that the factors: (1) Tangibility of the service; (2) Service responsiveness; (3) Service assurance all affect the perception and decision to use Cat Linh - Ha Dong train service of Hanoi people.

With the results achieved, the study has outlined an overview of Hanoi people's satisfaction with the quality of Cat Linh - Ha Dong train service, as well as identified the main factors affecting people's satisfaction.

As the demand for using public services in general and using public transport in particular is increasingly interested and focused, improving the convenience and quality of Cat Linh - Ha Dong train service is an urgent task of the train management board and the city management board. People's satisfaction is an important measure of the quality of services provided by the management boards.

## 6. Acknowledgments

The article was conducted under the research support of the topic "Research on Hanoi people's satisfaction level with Cat Linh - Ha Dong train service". Subject code: 13.01.24.F.09 Hosted by Hanoi University of Natural Resources and Environment.

## 7. References

- Ahn JH, Han SP, Lee US. Customer churn analysis: Churn determinants and mediation effects of partial defection in the Korean mobile telecommunications service industry. *Telecommunications Policy*. 2006; 30:552-568.
- Anderson EW, Fornell C, Mazvancheryl SK. Customer Satisfaction and Shareholder Value. *Journal of Marketing*. 2004; 68:172-185.
- David MC, Arturo M, Agueda E. An integrated model of Price Fairness, satisfaction and loyalty: an empirical analysis in the service sector. *Journal of Product & Brand Management*. 2007; 16(7):459-468.
- Deng Z, Lu Y, Wei KK, Zhang J. Understanding customer satisfaction and loyalty: An empirical study of mobile instant messages in China. *International Journal of Information Management*. 2009; 30:289-300.
- Dianne C, Milena H, Alex I. Design aesthetics leading to m-loyalty in mobile commerce. *Information & Management*. 2006; 43(8):950-963.
- Eshghi A, Haughton D, Topi H. Determinants of customer loyalty in the wireless telecommunications industry. *Telecommunications policy*. 2007; 31(2):93-106.
- Gustafsson A, Johnson MD, Roos I. The Effects of Customer Satisfaction, Relationship Commitment Dimensions, and Triggers on Customer Retention. *Journal of Marketing*. 2005; 69:210-218.
- Hennig-Thurau T, Klee A. The Impact of Customer Satisfaction and Relationship Quality on Customer Retention: A Critical Reassessment and Model Development. *Psychology & Marketing*. 1997; 14(8):737-764
- Herrmann A, Xia L, Monroe KB, Huber F. The Influence of Price Fairness on Consumer Satisfaction: An Empirical Test in the Context of Automobile Purchases. *Journal of Product & Brand Management*. 2007; 16 (1):49-58.
- Kim MK, Park MC, Jeong DH. The effects of customer satisfaction and switching barrier on customer loyalty in Korean mobile telecommunication services. *Electronics and Telecommunications Research Institute, School of Business, Information and Communications University, Yusong-gu, Hwaam-dong, Taejon 305-348, South Korea*, 2004.

11. Thorsten HT, Alexander K. The Impact of Customer Satisfaction and Relationship Quality on Customer Retention: A Critical Reassessment and Model Development. *Psychology & Marketing*. 1997; 14(8):737-764.
12. Tse DK, Wilton PC. Models of Consumer Satisfaction Formation: An Extension. *Journal of Marketing Research*. 1988; 25(May):204-212.
13. Turel O, Serenko A. Satisfaction with mobile services in Canada: An empirical investigation. *Telecommunication Policy*. 2006; 30(5, 6):314-331.