

Study of Delphi Technique in the Application of the Identification of the Factors Affecting the Satisfaction of Passengers in Road Transport Industry

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ARTICLE INFO

Article history:

Received 01 Aug 2017

Received in revised form 05 Sept 2017

Accepted 21 Dec 2017

Keywords:

Customer satisfaction,

Passenger,

Road transport,

Delphi technique,

Factor analysis.

ABSTRACT

Objective: One of the main indicators of economic development of country is growth and development of the transportation industry. The role of transport in sustainable development is very clear and irrefutable. The dramatic developments in the world of today and the deep transport connections with everyday life in terms of access to services and social welfare, indicate the importance and role of transportation and is a major component of the national economy. **Methodology:** The study aimed to identify and rank the factors affecting passenger satisfaction in the road transport sector has been carried out. **Results:** After identifying the factors affecting passenger's satisfaction with the results of other researchers and through interviews with senior managers and executives in the industry studied and also, field observations and surveys in this area, factors affecting passenger satisfaction in the road transport industry to identify and by the two-stage Delphi method, in the form 43 factor finalized. **Conclusion:** Then, due to a number of factors were identified, using a questionnaire distributed among the passengers, while determine the degree of importance of factors at looking them, factor analysis and classification of variables in the form eleven factor was considered.

1. Introduction

Throughout history, the evolution of transport has always been closely linked with the development of human societies. The human needs become more complex; transportation is also more extensive. The changing needs of society and developments in technology, transportation has changed it's regularly. Undoubtedly, today's transportation industry, in turn, has an important role in furthering the objectives of the country. Numerous scientific studies show, identify factors affecting customer satisfaction and operational effort to find ways of influencing their behavior, a very important role in gaining market share and profitability will increase (Shen et al., 2016). Also, managers are able to better decisions, optimal allocation of limited resources to achieve the highest degree of customer satisfaction and customer satisfaction as well as a better understanding of the data. One of the main indicators of economic development is growth and development of the transportation industry. The role of transport in sustainable development is very clear and irrefutable. Dramatic changes in today's world with the technical know-how, technology and new and advanced technologies for sustainable development in all aspects and aspects of human life, including the transportation industry, brought new momentum in this direction, a new action is visible (the toll road and transportation; 2013). To determine the importance of each factor to be dealt with travelers' opinions (Bilişik et al., 2013).

1.1 The importance and necessity of research

Currently in our country, a large number of transit passengers carried by bus. Bus fleet, using the new buses and Extremist and secure areas should provide better welfare of their clients. Road transport fleet of the country, but only if the market can compete with rail and air resistance, which is more

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DOI: <https://doi.org/10.24200/jsshr.vol6iss01pp9-17>

attention to the quality of their services and able to meet the real needs of our customers and to the reform and restructuring of its structure (Department of Transport and Terminals Yazd, 2011). Despite the expansion of the transportation network in passenger transportation (road, rail, sea and air), more than 90 percent of it is done by road (vice president of strategic planning and oversight of the Department of Transportation, 2007). Accordingly, the need to deal with the road passenger transportation services is evident.

1.2 Theoretical foundation

In this section, after a brief review of definitions and concepts, history of previous research in the field has been studied.

1.3 Definitions and Concepts

Customer satisfaction is one of the most basic concepts of assessment that many businesses are looking for. Customer satisfaction is not new to the organization, but the most important priorities of the organization from 1970 onward (Sehat et al., 2010). Today, customer-centric organization's activities are located, so that the modern mission statement based on customer defined. "Quality" is a longstanding concern of management today is defined in terms of customer satisfaction and said, "The quality of response to customer needs" (Firozyan and Ghafourian, 2006). From a new perspective, that is the customer who wants the value-which raises the impact of his behavior. And order of value, something that solve customer problems and meet the need (Kurtuluşoğlu et al., 2016). In the present study, the order of the customer, those customers that the passenger service organizations in fact, the traveler, the one who attempted to travel. Also, a review of existing literature is much of the research on customer satisfaction variation in the definition of the concept of customer satisfaction. Such as Mokonyama and Venter (2013) satisfy customer needs and expectations are met his judgment in faced with moved with the service definition.

1.4 Review of previous studies

On the identification and study of factors affecting customer satisfaction in various industries and organizations, many studies have been done. The study also aimed to identify factors affecting the satisfaction of passengers in road passenger transport, many factors in this context, the recent research at home and abroad, have been identified and used in the study. Wong in a study of tourism and hotel in Macau China to examine the relationships between variables and history of relations with the consent of the customer service experience is discussed. In another study in the same industry, performance and perceived value and perceived as independent variables influencing customer satisfaction have been studied (Wong & Dioko, 2013). Awwad (2012) in a paper to assess customer satisfaction with mobile services in Jordan, using the American model of customer satisfaction (ACSI); customer expectations, perceived quality and perceived value as predictors of customer satisfaction is important. On the other hand, as a consequence of his complaint, customer loyalty and customer satisfaction are listed.

Kamaruddin et al. (2012) research in mass transit in Malaysia to investigate the relationship between customer satisfaction and customer expectations and writing; public transportation is undoubtedly an important role in the movement of passengers and reduce traffic and believe; public transportation should be competitive for private transport vehicles to provide a safe journey, reliable, efficient, attractive and seamless travel for passengers from point of origin to reach the destination. Kim and Lee (2011) in a study to examine the relationship between perceived service quality in the transport industry in South Korea airline deals using SERVQUAL model, the effect of the quality of services, including tangibles, reliability, responsiveness, assurance and empathy and trust between Airport in South Korea studied. The tangible, physical objects such as aircraft, seat comfort and space, in-flight entertainment services, such as books, newspapers, magazines, movies and games, dress and appearance, staff and crew, catering service and quality. The reliability can be attributed to perform accurate and timely services. Accountability, staff willing help and solve their problems in the field of passenger services and rapid response in emergency situations. Assurance and confidence, and trust in the ability to ensure the safe operation of passengers and having the knowledge to answer their questions.

Empathy and attention to passenger service is favourable to him. The results of this study indicate that the most effective response to customer satisfaction. Also, the tangible, the important factor is customer satisfaction. Kazemi (2009) in an article on the factors affecting customer satisfaction of the quality of the Bank's Novin Eqtesad Mashhad using a two-stage identification and ranked among the 24 factors, identify and rank the factors affecting the quality of the car in order to have satisfied customers. Some of these factors include; there are adequate procedures to compensate for the losses sustained by the customer, reliable staff, staff and tidy, good location for leisure customers, the importance of customer time (not wasting time customer, employee accountability and responsibility), personnel with suitable treatment, the proportion of the price (quality of provided services), and the staff is eager to help customers, handle complaints in a timely manner. "Efficient use of systems such as the system of turn" is in the first place and then the response and accountability of staff, regular employees and whether the appearance, rank second and third in terms of its consent was allocated. Vahdati (2006), in their study, variable costs of providing banking services, management of the bank staff and how the bank is very much on the customer satisfaction is effective. Also, the location of bank branches, quality banking services, physical facilities, banks largely on customer satisfaction is affecting the banks. After reviewing the research conducted in the study area and identifies factors that can be used in passenger road transport industry, the continuation of the research was conducted.

2. Materials and methods

According The present study sought to identify the factors affecting the satisfaction of passengers in the road transport industry that in term of the purpose is an applied research and in term of nature is descriptive. Methods of data collection, is the library and information needs of the research literature derived from research conducted in the past and partly through field observation and interviews with experts gathered. In this research, in order to identify the

primary factors affecting the satisfaction of road passenger transport industry, Delphi Technique and double sweep Delphi questionnaires were studied between senior executives and experts. Then, because of the multiplicity of factors have been identified, in order to classify the factors, factor analysis was used. To determine the sample of clients, the 30-player versions of the questionnaire and the collection and analysis of data, the sample size was estimated to be 214 clients. Needless to say, the validity of the questionnaire used in this study in terms of academics and experts in the study was approved. Also, to determine reliability, SPSS software separately at each stage of the investigation; Cronbach's alpha coefficient results indicated as in Table 1.

Table 1. Cronbach's alpha coefficients at each stage of research

<i>Research stage</i>	The number of questions	Cronbach's alpha coefficients
The first phase of the Delphi method	28	0.913
The second phase of the Delphi method	54	0.925
Customer Questionnaire	43	0.942

As can be seen in the table above, in both rounds of the Delphi method and the customer questionnaire, Cronbach's alpha value is greater than 0.7. So, is the test of reliability is acceptable.

3. Discussion and results

3.1 Analysis of Data

The Delphi technique to identify the factors affecting the satisfaction of travelers and the number of known factors, factor analysis was used to classify them.

3.2 Delphi technique

This study aimed to identify factors affecting passenger satisfaction; first, the review of previous studies and organizations of all sizes and industries, customer satisfaction. After reaching a conclusion in this regard, as a first step, factors relevant to the satisfaction of passengers as a group of customers in the road transport industry, with experts in industry and academics studied separately and entered the Delphi method was first questionnaire. First questionnaire containing 28 factors to determine the viewpoints of experts about the approval or disapproval of each factor effect on passenger satisfaction was designed. Variables can be removed from the initial list, based on the consensus of experts and the results of analysis of the first phase of the Delphi method can be seen in Table 2.

Table 2. omitted variables in the first phase of the Delphi method One-Sample Test (Test Value = 3)

Variable number	Variable (factor)	sig.(2-tailed)
X2	History of customer service experience	/218
X5	Marketing organization	/834
X8	Customer perceived value	/053
X25	Place of Birth clients	/451
X26	Ethnicity clients	/855

This process and the remaining 23 of the 28 proposed in the first questionnaire, the second phase of this study, we Delphi. To prepare the second questionnaire, Delphi method, in addition to 23 of the initial proposal of the calculations performed according to the first questionnaire remained 31 another factor identified through surveys or research to propose experts, satisfaction agencies and departments involved in the transportation of passengers in passenger traffic was detected, enter and so the second survey to provide a total of 54 proposals for the second time as the first phase of the experts and the Delphi method to modify their views as the first phase of the Delphi method was given. Upon receipt of all completed questionnaires by the expert, preliminary analysis of the data obtained in Phase II. Table 3 shows the parameters and variables are removed in the second phase of the Delphi method.

Table 3. Factors and variables Eliminated in the second phase of the Delphi method One-Sample Test (Test Value = 3)

Variable number	Variable (factor)	sig.(2-tailed)
X10	Customer emotions	/130

X20	Employee satisfaction	/577
X22	Customer Education	/055
X23	Electronic customer relationship management system	/083
X26	Avoid taxis operating in the private passenger terminal complex	1/000
X28	Avoid increasing the dealers to nab passenger	/878
X33	Building houses, the passenger terminal complex	/226
X42	Non-commercial transportation by bus	/871
X49	Obtaining additional funds for overhead carry-on regulations	/694
X50	Loan book in a terminal window and press	/090
X52	Information at the beginning of the journey	/428

Through this process, the Delphi method has finished and 43 of the 54 recommendations in the second questionnaire as factors affecting the satisfaction of passengers in road passenger transport has been finalized and enter the third questionnaire to assess the importance of each factor were the eyes of customers.

3.3 Average grade-related matters at the end of travelers

Specifications subject and responsive public information, and show the number of 214 respondents,

110 of the subjects were female and 104 male form number. The study aimed to 38.3 percent, 20.6 percent, to recreation, 16.8 out to work, 4.2 to pilgrimage to visit and 20.1% of the respondents have stated their purpose among others. Also, 45.8% of the sample population average journey by bus in the city and more than 5 times a year. In Table 4, the average degree of importance of each factor using the Delphi technique, satisfaction passengers were identified from the perspective of the passengers see the final.

Table 4. Average grade of factors has been identified at the end of travelers

Priority	Factors affecting passenger satisfaction	Average	Priority	Factors affecting passenger satisfaction	Average
1	Using a passenger bus model, high quality, safe and affordable	4.3333	23	Between a bus stop in the right places	3.9556
2	Quality bus seats and equipment (by international standards)	4.3111	24	Customers organization	3.9444

14	15	16	17	18	19	20	21	22	23	24	25	26
Customer confidence	Passengers and their luggage during travel insurance	How the staff operators and of commercial (companies	Quick and easy to prepare passengers for	continuous and adequate service by taxi and bus services at affordable	Staff pleasant and reliable	Punctuality and timely movement of buses	Hygiene and cleaning of the internal bus	Quality Services	Lengthy and numerous nonstop passengers trip during the	Behavior of drivers attendants and crew) buses with passengers	Driver performance	2
4.1137	4.1143	4.1381	4.1381	4.1509	4.1596	4.1196	4.2383	4.2430	4.2488	4.2535	4.3005	
There are paintings and booths Guide and Tourist	35 and interaction between different sectors in	36 Use of passenger luggage tag	33 The suitability of the site (where the terminal and the ease of access	31 Customer expectations	31 presence of police officers	30 Platforms and specific sites or unloading passengers	29 and Data quality provide information to customers	28 facilities, amenities and attractive	27 The bus terminal and the intended purpose of the online collection	26 Quality communication with customers	25 Flexibility at the expense	25
3.8122	3.8341	3.8350	3.8406	3.8472	3.8473	3.8915	3.8924	3.8967	3.9043	3.9333	3.9429	

٢٢	Launched over more ticket offices in the city	٢٣	Prompt and reasonable response to the complaints, criticisms, suggestions, etc	٢٠	Access (office hours available)at	١٩	No smoking on the bus by the driver or passengers	١٨	During the trip, utility services (catering)	١٧	Quality of staff	١٦	There Consignment Warehouse Warehouse luggage of	١٥	Relevance price (quality of services of provided)
٤.٠٠٠		٤.٠٤٦٥		٤.٠٧٢١		٤.٠٨٣١		٤.٠٨٤٥		٤.٠٨٦١		٤.٠٨٦٥		٤.١٠٠٥	
		٤٣	customer)	٤٢	New methods of providing services by	٤١	Staff	٤٠	Organizational Performance	٣٩	Suitable car staff parking for and customers	٣٨	management commitment and support of	٣٧	There wheel shippers to transport cargo and passengers in
		٣.٧١٥٦		٣.٧٤١٥		٣.٧٤٥١	Annearance	٣.٧٥٣٩		٣.٧٥٩٤		٣.٧٧٧٨		٣.٧٨٠٤	

in terms of importance to he table above shows, the passengers at the "top model using a passenger bus, safe and good quality "with the highest averageT .allocated ٤.٣٣٩٥

.٩preference, and you can see out in Table Other factors in order of

The results of the factor analysis run ٣.٩

In this process, since the KMO Given the multiplicity of factors have been identified to the stage of research, factor analysis is used to classify agents. respondents) is adequate for factor analysis. The ٢١٤)and is close to one, factor analysis is a satisfactory and good to say, sample ٠.٨٥٩equal to value is n as the correlation matrix is assumed to be of the show factor analysis of the structure, operating model, know %٥Bartlett test sig value is less than of the variability %١١ ٩٥.٩٨٩and then the remaining analysis. It can also ١with eigenvalues is greater than ١١to ١rejected. The output of the show from .or loadings for the variables in the following categories and eleven shows the fact ٥variance) variables to explain. Table)

Table 5. Classification of factors and factor loadings of variables

Mass	Parameters and values of the highest loadings for each
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Customer relationship management	quality of services provided)) Relevance price data quality and ,(.٧٣١)access (available at office hours) new methods of ,(.٨٧٩)provide information to customers the reaction and ,(.٩٣٩)service delivery organizations .uggestions, etcreasonably fast complaints, criticisms, s (.٩٢٠)
Driver behavior	Lack of long and frequent stops for passengers during the and no smoking on the bus by the driver or ,(.٨٣٤)trip behavior of drivers and attendants ,(.٧٥٤)passengers a bus stop in between ,(.٩٩٧)crew) buses with passengers) hygiene and domestic cleaning ,(.٩٧٧)appropriate places the driver (such as how to drive ,(.٩٧٧)buses ,(.٩٢٨)traffic rules and regulations)
Facilities	Passenger platforms and certain positions or unloading of presence of police officers (police ,(.٧٣٩)passengers the presence of deposit to delivery and ,(.٧٠٧)terminal) maintenance of temporary storage (up to one day) at the time ,(.٩٧٣)the passenger terminal (passenger luggage storage) passengers and cargo the wheels of the carriage to transport the bus and the intended purposes are ,(.٥٢٥)terminal set for ,(.٩٩٥)online at the terminal set ,(.٩٢٩)employees and customers of car parking appropriate
Information Systems	the ,(.٧٤١) Launched over more ticket offices in the city presence of signs and guides and tourist information booth flexibility in the cost of services (Ticketing) ,(.٩٣٧) coordination and interaction between ,(.٥٧١) ,(.٥٢٩)different parts of services to passengers
Staff	,(.٧٣٧)justification of their appearance Regular and attitude of staff ,(.٥٩٧)competent and reliable personnel
	quality of ,(.٩٧٠)and company officers passenger)) ,(.٩٣٧)service staff
Equipment	Using a passenger bus model, high quality, safe and and provide continuous and adequate ,(.٧٧٩) affordable service agencies, taxi and bus services at affordable prices in time departure punctuality and buses -on ,(.٩٩٤)the terminal quick and easy access for ,(.٩٤٢) y services while traveling utilit ,(.٩٢٩)passengers tickets ,(.٩٨٩)catering))
Expectations	Quality bus seats and equipment (by international standards) insurance of passengers and cargo and luggage ,(.٩٢٠) customer ,(.٥٨٤)insurance when they travel ,(.٩٨١)ance organizational perform ,(.٥٠١)expectations
Senior management commitment	Customers Organization ,(.٨١٢)Quality of Service top management commitment and support of ,(.٩٨٩) (٩٨٣)centric strategies and programs -customer
Expectations	the ,(.٧٩٣)Customer confidence in the organization image ,(.٩١٧)quality of communication with customers ,(.٩٩٨)customer perceptions about the Company))
Location	physical ,(.٧٥٠)The suitability of the location (terminal) ,(.٥٧٨)facilities, amenities and attractive organization
Assurance	,(.٩٠٩)passenger luggage tag Use of

variables that influence the satisfaction of road passenger transport passengers in the industry as ٩٣ of the ١١ As can be seen, according to factor analysis, .ble above the main factors identified were classified according to the ta

4. Conclusion

One of the biggest issues in transportation management is the question of how use and selection of appropriate methods attract more passengers in order to use public transportation travel within suburban or reduce the use of private vehicles (Chiou & Chen, 2010). This study aimed to identify factors influencing satisfaction and prioritization of road passenger transport industry and the degree of importance of each factor was the view of travelers. In the first step, agents, using the Delphi technique, review of previous studies and according to the experts knowledgeable about the industry and in the second step of identifying, to navigate between the passengers, the importance of identifying specific and based on the priorities were clear. If passed, the results of 28 previous studies in the area of customer satisfaction into the Delphi questionnaire was based on the consensus of experts, 5 factors; previous experience in customer service, marketing organization, customer perceived value, birthplace customers, client's ethnicity removed and the remaining 23 were the second phase of the Delphi method.

23 the remainder of the first phase of the Delphi method and 31 another factor affecting passenger satisfaction through surveys or research to suggest experts identified, Delphi was the second phase. Analysis shows this phase, 11, emotions customer, employee satisfaction, customer education, electronic customer relationship management systems, avoid taxis operating in the private passenger terminal complex, avoid increasing the dealers to snatch passengers, have a house in the passenger terminal complex, non-commercial transportation by bus, obtaining additional funds for overhead carry-on regulations, in a terminal window and press the loan book, notification at the beginning of the trip, according to the consensus of experts removed finally, 43 of the 54 recommendations in the second questionnaire as factors affecting the final passenger satisfaction and enter the third questionnaire to assess the importance of each factor and factor analysis were looking passengers. Among the 43 factors listed; passenger bus using a top model, safe and appropriate quality of the highest importance was recognized at the passengers. The results of the factor analysis, the final factor of 43 within 11 classifieds.

Eleven of customer relationship management, driver behavior, facilities, information systems, personnel, equipment, expectations, top management commitment, engagement, positioning and securing each of which includes a number of variables ie the factors are identified during the study and had final and in the process of conducting factor analysis based on factor loadings assigned to each category in their respective clusters.

Evidence suggests that the factors that are more tangible for travelers and more time traveling and more time traveling with them are facing, have given priority to such factors the welfare and comfort of travel on buses, the use of buses with standard equipment, performance and behavior of drivers, non-stop during the long bus trip and it seems, the results indicate the importance of this sector more and more cases the finger of responsibility in it, organization in charge of transport and terminals to other agencies and departments involved in providing services to road travelers. Hence, the organization and at the top of the toll and transport and Road Country should be based on facts available to plan and organize and optimize your service and a survey of passengers on the level of services provided and to measure their satisfaction, assessment of passengers and new ideas and solutions and do their best to provide a quiet and safe for passengers to take a trip.

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How to Cite this Article:

Jamshidi Z., Sharifabadi A.M., Dehghan Dehnavi H., Study of Delphi Technique in the Application of the Identification of the Factors Affecting the Satisfaction of Passengers in Road Transport Industry, UCT Journal of Social Sciences and Humanities Research 6(1) (2018) 9–17.