Using Importance-Satisfaction Analysis (ISA) To Identify the Most Critical Criteria to Improve Service Quality of Public Bus Transport in Libya

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Abstract The Libyan bus transport system plays a pivotal role in the movement of commuters across the country, including contributing to the reduction of traffic congestion and accident. The public bus system appears to provide safe, comfortable and cost-effective transportation compared to some of the alternative means. However, the public bus industry has experienced a steady decline since the 1990s. Therefore, there is potential to better serve the needs of its consumers. To this end, paying attention to service quality could prove useful in making this mode of travel the preferred choice to local as well as international travelers. Therefore, this paper aims to evaluate service quality in the public bus transport system and seeks to measure levels of service quality using Importance-Satisfaction Analysis (ISA). This study, has investigated the customer satisfaction with the service delivery of the public bus transportation of passenger. The questionnaire was personally administered to the target population of bus travelers within Libya. A stratified sampling procedure was used for this research. Therefore, the final research sample consisted of 276 participants. Results show that, customer satisfaction is low level. This indicates that public bus service quality does not match the expectations of customers. In conclusion, this study suggests that policy-makers as well as public bus management need to take workable measures to improve upon public bus service quality. It is important for public bus service providers to recognize the importance of customer satisfaction; as such satisfaction may be the pillar for business continuation in Libya. Public bus transport managers must identify and improve upon factors that could limit or prevent customer defection to alternative transport modes.

Keywords: Importance-satisfaction analysis; public bus service; service quality; enhancing satisfaction.

<h1 dir="rtl">استخدام طريقة تحليل الأهمية و الرضا (ISA) لتحديد أكثر المعايير أهمية لتحسين جودة خدمة النقل بالحافلات العامة في ليبيا</h1>

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الملخص يلعب نظام النقل بالحافلات في ليبيا دوراً محورياً في حركة المسافرين عبر البلاد ، بما في ذلك المساهمة في الحد من الازدحام المروري والحوادث الناتجة من زيادة استخدام السيارات الخاصة. في دولة ليبيا، شهد قطاع النقل بالحافلات العامة انخفاضا مطرداً منذ 1990. لذلك، تهدف هذه الدراسة إلى رصد الوضع الراهن وتحديد الأسباب التي أدت إلى هذا الانخفاض؛ بهدف تمكين المعنيين بقطاع النقل والمواصلات من فهم أبعاد المشكلة للتمكن من معالجتها بشكل دائم ومستمر لزيادة استخدام النقل العام وتقليل الاعتماد على استخدام وسائل النقل الخاصة. تحقيقاً لهذه الغاية ، قد يكون الاهتمام بتلبية احتياجات مستخدمي الحافلات وتحسين جودة الخدمة مفيداً في جعل هذه الوسيلة الخيار المفضل لذى المسافرين في ليبيا. لذلك، تهدف هذه الورقة إلى تقييم جودة الخدمة في نظام النقل العام بالحافلة وتسعى إلى قياس مستويات جودة الخدمة باستخدام طريقة تحليل الأهمية و الرضا(ISA). تم توزيع الاستبيان على ركاب الحافلات في بعض المدن الكبرى في ليبيا حيث تم استخدام طريقة أخذ العينات الطبقية لهذا البحث وكانت العينة النهائية لهذا البحث من 276 مشاركاً. تشير النتائج إلى أن مستوى الرضا لذى ركاب الحافلات منخفضاً جداً مما يشير هذا الانخفاض إلى أن خدمة الحافلات العامة في ليبيا لا تتوافق مع توقعات العملاء. في الختام، أظهر البحث أن هناك مجموعة من العوامل والمعايير التي تساهم بشكل فعّال في تحسين الخدمة وعلى مدراء شركات الحافلات أخذ

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هذه المعايير في الحسبان لتحسين جودة خدمة الحافلات. وكذلك من المهم لمديري خدمات الحافلات أن يدركوا أهمية رضا العملاء وكذلك العوامل التي يمكن أن تحد أو تمنع تحول العملاء إلى استخدام وسائط النقل البديلة ؛ لأن هذا الرضا قد يكون ركيزة للاستمرار في العمل وزيادة وتحسين الخدمة.

الكلمات المفتاحية: طريقة تحليل الأهمية والرضا(**ISA**) ؛ خدمة الحافلات في ليبيا؛ جودة الخدمة؛ تعزيز الرضا.

1. Introduction

The Libyan public bus transport industry plays a prominent role in the transportation sector, more specifically, in the passenger (commuter) segment. The industry, as part of the public transport network, contributes to the enhancement of social mobility in Libya. At the same time, this industry helps solve traffic problems created by the excessive use of private motor vehicles in recent years, e.g. pollution and traffic accident and jams. The most common difficulties for tourists and foreigners in unfamiliar areas are that public transport is still not accessible. It would therefore mean that the public bus transport industry has great potential to better serve the needs of its consumers. To this end, paying attention to service quality could prove very useful in making this mode of travel the preferred choice to both local as well as international travelers.

Despite its historical position as a major transportation provider, the public bus industry has recently been in decline. Bus companies have struggled both financially and in terms of passengers carried. The public bus industry has experienced a steady decline since the 1990s. Increase in personal auto ownership has contributed to the decline of the public bus industry. Long density travel by personal automobile increased dramatically in the last half of the twentieth century and has now become the primary means of long density travel. The poor service quality of public bus and operation of public bus carrier is expensive, effectively limiting start-up entry into the market and prohibiting expansion of current systems.

Public bus service quality is an aspect markedly influencing travel user choices. Customers who have a good experience with public bus will probably use public bus services again, while customers who experience problems with public bus may not use public bus services the next time. For this reason, improving service quality is important for customizing habitual travelers and for attracting new users. Moreover, the need for supplying services characterized by high levels of quality guarantees competition among transit agencies, and, consequently, the user takes advantage of better services. To achieve these goals, transit agencies must measure their performance. Therefore, this is the right time to demand a policy, which will improve public transport, especially bus transport, and vehicle ownership regulations. The Libyan government has conducted several studies to overcome these problems [1, 2, 3]. Moreover, the government policy encourages people to use other mode of public transportation, instead of their private car for reduction of traffic accident, congestion and air pollution. However, most of the Libyans prefer to use private vehicles due to the bad quality of services offered by public transports.

In this regard, public transport operators, especially bus transport are forced to emphasize to monitor and improve the services provided. This study focuses on passengers satisfaction in terms of bus transport based on service quality attributes.

Customer satisfaction is one of the most important influential factors in bus industry, and is recognized as a key to the success of business competition. Customer satisfaction is the individual's perception of the performance of the service, in relation to expectations. Customers have substantially diverse expectations; therefore all the bus services thrive hard to maximize customer satisfaction for the purpose of sustaining their business. Nevertheless, they have comprehended the necessity of satisfying customers, to retain existing customers and to gain new ones, hence they have started to initiate many projects to measure service quality, and satisfy the customers by improving service quality.

The findings of this study may provide useful information to policy makers for the development of actionable plan to improve the quality of services provided so as to retain customers and avoid operation losses by public bus transport operators. According to Awasthi [4], managing service quality is vital to retain customer satisfaction and augment revenues for any business organization. Also, understanding the behavioral intentions of public transport passengers is important, because, customer loyalty is seen as a prime determinant of long-term financial performance [5]. However, the increasing requirements from customers concerning service quality attributes put into check the service provided by public bus companies and can further contribute to the proliferation of competitors. The improvement in service quality as a tool for better profitability doesn't mean only to invest money in advanced technologies, but then to prioritize actions that influence the level of quality perceived by customers, resulting in more attractive services to the users. Therefore, keeping the customer satisfied is probably one of the main ways for building the customer loyalty.

2. Related Studies and Surveys to Improve the Public Transportation Service

The quality of the services provided to the passengers is synonymous with a wide range of characteristics of the transportation system, such as safety, on-time performance, accessibility, efficiency, and many others. Today, more and more public transport operators and associated bodies (e.g. ministries and supervising organizations) worldwide invest in quality control programs in order to assess and improve the services provided to the passengers. Determining the service quality is a difficult problem for service organizations, due to the fact that services are abstract, composite,

volatile, and conjoined. Determining service quality helps the service organizations to effectively manage their marketing and advertising operations. Consequently, this evaluation should be conducted with perfect measurement scales. Customer satisfaction in public bus operations has become critically important. Satisfaction is the customer's evaluation of a product or service in terms of whether that product or service has met the customer's needs and expectations [6]. According to Truong and Foster [7], customer satisfaction takes place in two situations. One is the result of a product or actual service meeting the customer's expectations. The other is where the result exceeds the expectations. Dissatisfaction will occur where the actual service level is below the expected level. Therefore, satisfaction and dissatisfaction are the outcome of a subjective evaluative process by the consumer. The relationship between service quality and customer satisfaction still remains a mystery, from the point of view of whether customer satisfaction is an antecedent of service quality or vice versa. Some researchers suggest that customer satisfaction leads to service quality [8].

The aspects generally describing transportation services can be distinguished into the characteristics that more properly describe the service (e.g., service frequency), and less easily measurable characteristics that depend more on customer tastes (e.g., comfort). In the literature, there are many studies about transport service quality. Examples of the most recent research are reported in [9 to 16]. In these studies, different attributes determining bus service quality are discussed; the main service aspects characterizing a bus service include service scheduling and reliability, service coverage, information, comfort, cleanliness, and safety and security. Service scheduling can be defined by service frequency (number of runs per hour or per day) and service time (time during which the service is available). Service reliability concerns the regularity of runs that are on schedule and on time; an unreliable service does not permit user travel times to be optimized. Service coverage concerns service availability in the space and is expressed through line path characteristics, number of stops, distance between stops, and accessibility of stops. Information consists of indications about departure and arrival scheduled times of the runs, boarding/alighting stop location, ticket costs, and so on. Comfort refers to passenger personal comfort while public transportation is used, including climate control, seat comfort, ride comfort including the severity of acceleration and braking, odors, and vehicle noise. Cleanliness refers to the internal and external cleanliness of vehicles and cleanliness of terminals and stops. Safety concerns the possibility that users can be involved in an accident, and security concerns personal security against crimes. Other service aspects characterizing transit services concern fares, personnel appearance and helpfulness, environmental protection, and customer services such ease of purchasing tickets and administration of complaints.

In recent decades, several studies and surveys in Libya have been developed in order to improve the public road transportation according to the following main approaches: (i) the identification of the main aspects that influence the choice of public road transportation, and (ii) the development of models for assessing the choice of public road transportation. Some of the most recent works on these subjects are [17, 18]. Despite the existence of these studies, it is noted that the aforementioned studies are mostly devoted to the problem of assessing the most factors that affect the choice of public bus transportation, and they are not able to ensure that the criteria and attributes used to such context are perfectly appropriate and adaptable to assessing the quality of bus transportation. In order to contribute to addressing the problem in question, this paper presents a methodological approach to assess the quality of bus transportation. This paper aimed to answer the following research questions: *"What factors have influence on the quality of services in road transport of users carried by bus? Customers are satisfied with the service provided? What actions can be taken to improve the quality of service?"*.

In this study, the Importance-Satisfaction Analysis (ISA) identified the most critical criteria which should be prioritized for improvement actions. Therefore, this research amid to measure the critical elements impacting on the efficiency of current service delivery in the public bus transport in Libya, to prioritize the importance of the factors influencing service delivery in the public bus transport system in Libya, and the action required for improving the service quality in the public bus transport industry. The result of this research will point out the direction for investment of funds in the industry and, thus, for improving the public bus transport infrastructure. At the same time, it will enhance the productivity of these organizations, reduce their vacancy rate, and maximize the benefits.

3. Methodology
This study was conducted with the objectives: to know the satisfaction level of customers who use public bus service, to identify the main factors that can give optimum satisfaction to the public bus service customers, to identify aspects which need to be improved to increase the satisfaction amongst the customers and improve public bus. This study covers a sample of 276 respondents and the survey was conducted at the major public bus stations of Libya.

3.1. Questionnaire
The primary focus of the study is propelled by the need to empirically measure customer satisfaction on the quality of service delivery by public bus transportation within Libya, in order to improve the service quality of public bus transportation to be able to provide a satisfactory level of service. The culture of service provision in the public transport arena needs to be improved. Furthermore, it is not clear what actions need to be taken to improve this customer service. Therefore, a public bus operators need to seek ground-breaking ways that would

contribute towards the improvement of their service quality, and enable them to retain their customers and attract new ones. The state of customer satisfaction with service delivery is not clear in Libya as there is no documentation on the issue.

As previously reported, some studies which has been conducted in the global have identified relevant criteria to assess the quality of service of public bus transportation, but it is not possible to ensure that these criteria which have been found from the international studies can be considered to analysis the public bus service problems in Libya due to the particular realities of different countries. In this context, to define the relevant criteria for assessing the service quality of public bus transportation in Libya as perceived by the passengers, the authors have made a pilot survey to identify the most important attributes of public bus to provide a good service quality. In the pilot study, a non structured question was applied to the public bus users in the capital city of Libya, Tripoli: "In your opinion, what are the most important attributes of public bus to provide a good service quality?" The question was answered by 48 bus users, 32 different items were identified. The writing of the items has been improved in order to be better understandable by the respondents in main survey. The items were grouped into eight dimensions of quality (comfort factor, vehicle factor, security/safety factor, punctuality factor, driver factor, ticket price factor, service factor and staff at the counter factor). The questions were structured using the itemized rating scale. In this survey type, seven choices were provided for every question or statement. The choices represented the degree of satisfaction and importance each respondent had on the given question. A seven-point scale ranging from strongly important (7) to strongly unimportant (1) was used to investigate the importance levels of each element. The satisfaction section of the questionnaire was also based on a seven-point scale where (7) was strongly satisfied and (1) was strongly not satisfied. The itemized rating scale was the selected questionnaire type as this enabled the respondents to answer the survey easily [19]. In addition, this research instrument allowed the researcher to carry out the quantitative approach effectively with the use of statistics for data interpretation.

In this study, Importance-satisfaction Analysis (ISA) has been employed to classify those items based on their priority, for instance, some items are classified in "Concentrate here" quadrant, and by assessing those items we were capable of highlighting the adverse impacts on public bus service quality. The responses of each questionnaire were recorded onto a computer. The data was analyzed and measured by Excel software, a statistical program **SPSS 21** (Statistical Package for the Social Sciences) and **R** code software Programming language.

4.   Importance-Satisfaction Analysis (ISA)

The present study used the Importance-Satisfaction Analysis (ISA), as a useful analysis, to recognize the areas of improvement, equally, as a directory to strategic planning. Importance-Satisfaction Analysis (ISA) is related to the Importance-Performance Analysis (IPA) desined by Martilla & James [20]. The main variation between the two tests is that, IPA employs the views of the respondents concerning the performance of the issue under study, whereas ISA employs the satisfaction of the respondent. The technique is equally useful and simple for recognizing those features of a goods or services that are most very essential for enhancement, or helpful for likely cost-saving situation, without inversely affecting the entire quality. The important attributes were considered first, thereafter the satisfaction was considered using the measured attributes. The mean attributes for importance as well as satisfaction are used as x-axis and y-axis, respectively as shown in Figure 1. Quadrant 'Concentrate here' (low satisfaction and high importance), it is important to give necessary attention to the attributes. If one fail to recognize those attributes it may affect the sustainability of some companies and may lead to consumer dissatisfaction. The attribute 'Keep-up the good work', illustrates the possibility of achieving competitive advantage, as it is the core power, which has high satisfaction and importance. The management makes resolution to sustain its good services from the above quadrant, because the consumers are highly satisfied, and think that, these features is extremely essential to them. The quadrant 'Low priority' implies that, both, satisfaction and importance are very low, and minor weaknesses are the key features in the quadrant, as results do not require additional effort (i.e. Low priority). Meanwhile, the quadrant 'Possible overkill' indicates that, there are ways, which the resources could be organized at other areas. The reason being that, consumers were highly satisfied with this feature however they think that this attribute has less importance.
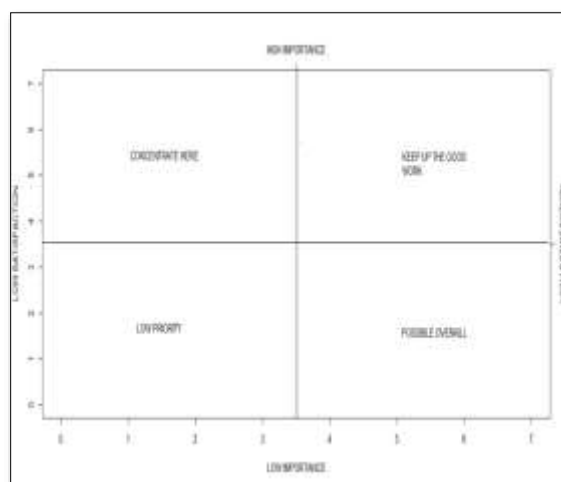

Figure 1 Importance- satisfaction Analysis (ISA)

5.   Result and Discussion
5.1   The Characteristics of Respondent:
Cronbach's Alpha was used as a test of internal consistency. Based on the reliability analysis result, we found that all factors have Cronbach alpha values greater than 0.7. According to

Malhotra [21], in general, a coefficient of less than 0.6 suggests unsatisfactory internal consistency reliability. The total number of bus respondents surveyed for this study was 297. Among the samples collected, female responses were 161 respondents corresponding to 54.2% and male responses were 136 responses (45.8%). Majority of public bus users were aged less than 20 years old (42.8%). The second major age group using bus as transport is between 21-30 years (41.1%). 14.5% of respondents were aged between 31-40 years. 1.3% respondents were between 41-50 years old, whereas only 0.3% were between 51- 60 years of age. On the other hand, 44 (15.4%) of the respondents were students and 9 respondents (3.0%) were private company employees. 29 (9.6%) of the respondents were unemployed, and 0.9% of the respondents were retired. The survey result shows the highest percentage of bus users were 142 (47.8%) having a monthly income between 300 to 400 LyD. The income of 46.1% bus respondents was less than 300 LyD, while 0.3% had income between more than 700 LyD. The respondents were asked to provide some information about having car available for the undertaken trip. The results show that the majority of respondents (97.6%) for the public bus have no car available for the undertaken trip. However, only 7 respondents (2.4%) reported about the availability of car. Moreover, the results also showed that the majority of the respondents (188 persons, comprising 63.3% of the bus study sample) did not have driver's license. However, 109 respondents (36.7%) of the bus study sample reported having a driving license.

5.2 Results of Importance-Satisfaction Analysis (ISA):

The tool for analysis is clearly discussed in this part; Table 1 shows the results obtained from Importance-Satisfaction Analysis (ISA). Figure 2 shows a scatter plot of the mean values for the participants' satisfaction and importance including the elements in service. The data collected have been analyzed with SPSS 21.0 for Windows program and R software programming language. Two types of analysis are discussed in this section; results of ISA (Importance- Satisfaction Analysis), and also results from CSI (Customers Satisfaction Index). The starting point in analyzing the dataset was to rank the service attributes for public bus users according to their satisfaction and importance rating. The Figure 2 illustrates a scatter graph of the average values for the respondents' importance and satisfaction with the service elements. Figure 2 highlights the relative positions of attributes in matrix format, with the values of importance on the vertical axis and values of satisfaction on the horizontal axis. Public bus service quality question items are classified into quadrants as shown in the graph: quadrant I (Concentrate here), quadrant II (Keep up the good work), quadrant III (Low priority) and quadrant IV (Possible overkill). As shown in Figure 2, the items fall in quadrants I, III and IV, with just a few in quadrants II. Moreover, some items fell very close to satisfaction axis or importance axis, which had confused the authors to make correct decisions.

For example, some attributes fell within the "concentrate here" quadrant, while others fell within the "Concentrate here" quadrant, but very close to the "Keep up the good work" quadrant boundary such as I_7 and I_8. Moreover, I_8, I_{14} and I_{29} fell within the "Concentrate here" quadrant, but very close to the "Low Priority" quadrant boundary, and I_{26} fell within the "Low Priority" quadrant boundary, but very close to the "Possible overkill" quadrant boundary. In addition, I_{30} fell within the "Keep up the good work" quadrant, but very close to the "Possible overkill" quadrant boundary. As the traditional ISA does not distinguish the items assigned into the same quadrant and as the borderline items may fail to offer correct managerial decisions, the researchers might not be able to report accurate findings. In order to deal with this problem, [22] framework was used to make Importance- Satisfaction Analysis (ISA) more sensitive to the variance of the responses. According to Tarrant and Smith [22], for each item, the standard error was calculated for both, the satisfaction, and the importance values. Adding the standard error to the data points on the Importance -Satisfaction graph, a confidence interval with the mean value in the centre and two standard error bars has been created. The standard error bars extend horizontally for satisfaction values and vertically for importance values in both positive and negative values of the mean.

"Keep up the good work" quadrant represents the area, where items are important, and where the passenger's satisfaction degrees are high. On this quadrant, the organizations should maintain the present action strategies. In other words, passengers consider that, the importance of the service quality is high, and their satisfaction level with the public bus company performance is also high concerning items I_{10} (Security on buses) and I_{12} (Luggage storage guarantee). Tarrant–Smith framework suggests that special attention must be dedicated to item I_{30} (Ease of purchase tickets). Although this item is very close to the boundary of this quadrant or belonging to "possible overkill" quadrant, in a conservative attitude, the bus company must act to maintain current action strategies concerning those items which belong to "Keep up the good work" quadrant.

"Possible overkill" quadrant represents the area, where respondents' satisfaction degrees are high, but these are not considered as important. This quadrant suggests that, efforts towards these items can be reduced. In other words, this quadrant contains items that provide satisfaction to the passengers, but they are not as important as other items. According to public bus travelers, the items that belong to this quadrant are I_5 (Time period of stopping at rest areas), driver Factor (I_{18} Friendly and I_{19} Neat and tidy) and I_{21} (Children Cost).

"Low priority" quadrant denotes the area, in which the criteria are not considered so important, and the satisfaction of respondents against the criteria is considered low, and not considered as a priority for implementing improvement actions, and the quadrant. According to public bus travelers, the items that belong to this quadrant are I_2, I_4, I_{25}, I_{26}, I_{27}, and I_{28}. According to Tarrant-Smith

framework, the items I_{26} (Exchanging of departure time service) and I_{28} (Neat and tidy of staff) belong to this quadrant "Low priority" quadrant, and considered I_{28} (Neat and tidy of staff) and I_{19} (Neat and tidy of driver) are the less important among all the items evaluated in this study.

"Concentrate here", denotes an area, where items are important, and also where the passengers' satisfaction degrees are low. Concentrating improvement actions in this area would produce maximum results. Such items are critical and should be prioritized by the company, in order to carry out actions, to improve the quality of services provided. In this study, the following items were assigned to this quadrant, arranged in

ascending order of criticality: I_1, I_3, I_7, I_8, I_9, I_{12}, I_{11}, I_{13}, I_{14}, I_{15}, I_{16}, I_{17}, I_{20}, I_{23}, I_{24}, and I_{29}. The item I_8 is very close to the boundary of "Keep up the good work" quadrant, according to Tarrant-Smith framework, this item is really belongs to "Concentrate here" quadrant. It is important to emphasize that special attention should be devoted to items I_6 (Physical state of vehicles), I_{15} (Departure time of the bus as scheduled) and I_{22} (Announcement of delay and arrival). It is believed that these items are well related to two main reasons for using unauthorized (illegal) transportation and private cars.
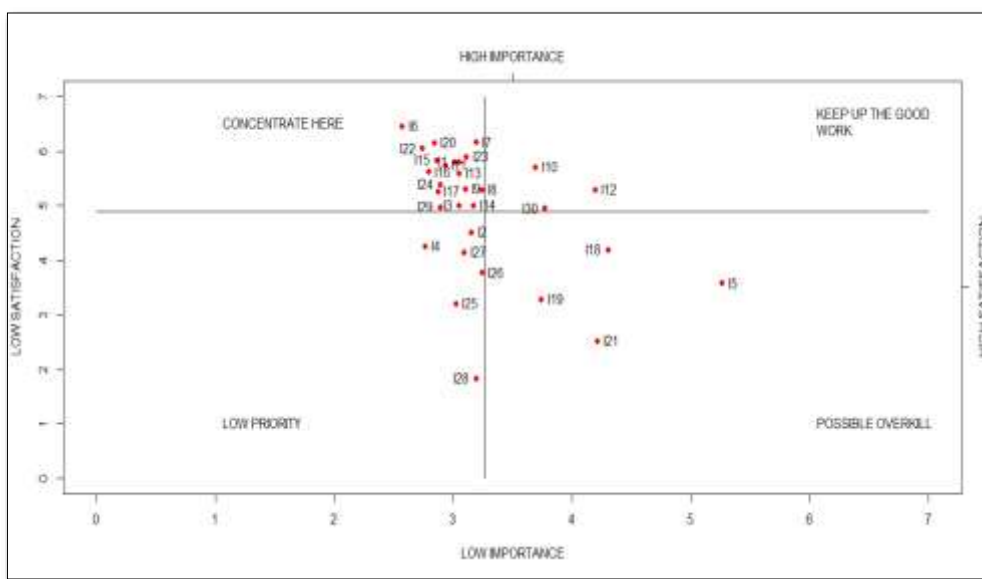

Figure 2 – Graph of the Importance-Satisfaction Analysis of public bus service in Libya

Table 1 Results of importance-satisfaction analysis

Dimensions of Quality	Content of Question Items	Importance Mean (A)	(B) = (A)/(total (A))	Satisfaction Mean (C)	Weight score = (B)*(C)
Comfort Factor	**(I₁)** Comfort of seating	5.800	0.039518	3.010	0.118948
	(I₂) Enough curtains	4.510	0.030728	3.150	0.096794
	(I₃) Luggage storage facilities	5.000	0.034067	3.050	0.103904
	(I₄) Interesting and clear video review	4.260	0.029025	2.760	0.080109
	(I₅) Time period of stopping at rest areas	3.580	0.024392	5.260	0.128301
Vehicle Factor	**(I₆)** Physical state of vehicles	6.450	0.043946	2.570	0.112942
	(I₇) Bathroom existence	6.160	0.041970	3.190	0.133886
	(I₈) Air conditioning existence	5.290	0.036043	3.240	0.116779
	(I₉) Vehicle cleanliness	5.310	0.036179	3.100	0.112155
Security/safety Factor	**(I₁₀)** Security on buses	5.710	0.038904	3.690	0.143557
	(I₁₁) Cautious way of driving	5.740	0.039109	2.930	0.114589
	(I₁₂) Luggage storage guarantee	5.290	0.036043	4.190	0.151019
	(I₁₃) Driver follow the road rules	5.590	0.038087	3.050	0.116165
	(I₁₄) Driver handle the bus efficiently	5.000	0.034067	3.170	0.107992
Punctuality Factor	**(I₁₅)** Departure time as scheduled	5.840	0.039790	2.860	0.113800
	(I₁₆) Variety of departure times	5.620	0.038291	2.790	0.106832
	(I₁₇) Arrival at the destination on time	5.260	0.035838	2.870	0.102856
Driver Factor	**(I₁₈)** Friendly	4.190	0.028548	4.300	0.122757
	(I₁₉) Neat and tidy of driver	3.280	0.022348	3.740	0.083581
Ticket price factor	**(I₂₀)** Adult cost	6.150	0.041902	2.840	0.119003
	(I₂₁) Children Cost	2.520	0.017170	4.210	0.072285

Service Factor	**(I_{22})** Announcement of delay and arrival	6.050	0.041221	2.740	0.112945
	(I_{23}) Availability of online service	5.900	0.040199	3.110	0.125019
	(I_{24}) Clear journey time information board	5.390	0.036724	2.890	0.106133
	(I_{25}) Ticket refund service	3.210	0.021871	3.020	0.066050
	(I_{26}) Exchanging of departure time service	3.770	0.025686	3.240	0.083224
Staff at the Counter Factor	**(I_{27})** Friendly	4.150	0.028276	3.090	0.087371
	(I_{28}) Neat and tidy of staff	1.830	0.012468	3.190	0.039774
	(I_{29}) Degree of courtesy of staff	4.970	0.033863	2.890	0.097863
	(I_{30}) Ease of purchase tickets	4.950	0.033726	3.770	0.127148
Weight Percentage					2.800378
Customer Satisfaction Index (CSI)					40.04%

Analysis using Customers' Satisfaction Index (CSI) method as shown in Table 1 shows the mean for every attributes according to importance level, satisfaction level, weightage level, and also weightage score to get the index value of customers' satisfaction , CSI (i.e. CSI = 2.803/7 * 100 = 40.04%). This shows that, as a whole, Customers' Satisfaction Index (CSI) for public bus company is 40.04%, which is at unsatisfactory level. According to [23], customer service is at the excellent level if it has customer satisfaction level at 81%-100% while the Customers Satisfaction Index which is at 41%-80% means the service is good. Finally, Customers Satisfaction Index which is between 0-40 % is said to be at the unsatisfactory level.

6. Conclusions

The enhancement in the quality of service is a means towards better profitability. Therefore, investing money in advanced technologies alone may not solve the problems, but to prioritize company activities in the way they could enhance the degree of quality perceived by passengers. This will result in providing attractive services to the customers. Due to the premise that, if customers' satisfaction level could be sustained, it could probably build their loyalty toward the company.

In short, we have discovered that, users' perception of public bus companies could be improved further, when the key factors are identified, they can be categorized according to their order of importance as well as satisfaction. As a result, public bus companies are required to take some steps to enhance certain features, in order to improve customers' satisfaction level. Every step taken should be aimed at given satisfaction to the customers.

In this study, ISA (Importance-Satisfaction Analysis) was employed to categorize items based on their priority, particularly the items categorized in "Concentrate here" quadrant. Items placed into this quadrant were calculated and the negative influences on service quality were stated. Sorting process was also carried out in order to give service quality indexes to one of pre-defined levels, which stand for the levels of satisfaction. After explanation of the outcome and observations, it was discovered that, the major problems are; the procedure of departure time as planned, convenience of schedules, announcement of delay, arrival and availability of online service and proportion of the adult ticket cost. Some likely modifications could be done to enhance the services quality based each critical item (criterion). It must have the inclination for timely cost reduction, fulfill the highest safety; criteria, practices and meet up their standards, and keep services transparent and simple.

The conclusion of this modelling will be helpful in the travel demand analysis for the Libyan public bus companies and the Ministry of Transportation and Communication. It will also help the government public transportation agencies and private carriers to make marginal decisions and prevent form under or over designing of their facilities, and to improve their service.

Acknowledgement

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