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Importance Performance Analysis of Users' Perception of the Quality of City Bus Services in Thimphu

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ABSTRACT

The purpose of this paper is to evaluate the service quality of the city bus in Thimphu. In this research, importance performance analysis (IPA) was applied with the focus on assessing the city bus service quality from the users' perspectives. To evaluate service quality, twenty-three items were grouped into six different factors concerning the bus services: bus stop facilities, driver attitude, vehicle, bus capacity, and responsiveness with the use of a five-point Likert scale. The survey was conducted with 182 respondents to grasp the user' expectations and perceptions on the service quality. The result showed that bus services such as availability of schedule/maps at bus stops; ease of purchasing tickets; timetable of services; driver attitude, which included friendly, helpful, and polite customer service of driver and conductor; and responsiveness of the city bus staff were all managed well. On the other hand, there were not enough bus services and seats during rush hours. These attributes needed further improvement and better management. The results are also supplemented by qualitative findings through face-to-face interviews. The results showed that respondents were satisfied with the ease of purchasing tickets, availability of schedule/maps at bus stops, driver attitude and responsiveness of the city bus staff. On the contrary, respondents were not satisfied with the bus services during rush hours as there were not enough bus services and there were no seats available for most of the passengers. The study

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recommends focusing on the need of bus services during peak hours and proposes for more buses to ply across different routes. Secondly, the study also recommends revamping and enhancing the current main city bus terminal and considering introducing Bus Rapid Transit (BRT) with dedicated lanes and more routes for buses.

Keywords: *Bhutan; Importance performance analysis; Service quality; User's expectations; User's perceptions; User satisfaction*

INTRODUCTION

City bus Service

Transportation is a very influential element in economic development. All aspects of the nation's life depend on this one sector, which functions as a driving force, supporter, and driver of economic growth (Santuri and Baharom, 2018). Public transport such as the city bus plays an important role in meeting travel demands of commuters. With increasing population and private car ownership, it would be beneficial to attract more city bus users by improving service quality and user satisfaction. According to Davidson (2003), customer satisfaction plays a critical role in business destiny and success. Since customers are approved to be the "judges' 'of the service, it is logical to evaluate service based on customers' expectations and standards that they need (Wang, Wang and Zhao, 2007).

Some literature on bus service suggests that it is important to make modern society use sustainable modes of transport to replace the excessive use of private cars in most urban areas (Andaleeb, 2007). Andaleeb (2007) suggests that to encourage more people to use the city bus transportation system, it is important to obtain insights from the actual users of the system about the changes they would like to see to better meet their needs.

Today, the increase in travel demand and preference to use private vehicles has caused rapid motorization in many countries around the world. Technological innovation and materialism have made people's lives comfortable. According to Motta, Da Silva and Santos (2013), developing countries have been experiencing rapid growth in the number of vehicle ownership and usage is growing even faster than population, with vehicle ownership growth rates of 15-20% per year. In China, automobiles are increasing by 25% a year, in Korea 24% and between 1975 and 1995, the number of passenger cars per thousand population doubled in Mexico, and tripled in Botswana and Malaysia (Motta, Da Silva and Santos, 2013). Similarly, in Bhutan, according to the Road Safety Transport Authority (RSTA), there are more than 92,008 vehicles registered with RSTA, of which Thimphu region alone has 47,753 registered vehicles (Tshering, 2018).

According to several studies, there is a preference for using a car because public transport is not able to compete with the attractiveness of private cars or motorcycles. This was attributed mainly to low flexibility, no direct access, longer travel time, and feeling unsafe when traveling on public transport (Budiono, 2009). For those reasons, there is an increase in private ownership of cars which has led to a significant reduction in people availing bus services. In Bhutan, as per the Neilson (2017), it was reported that problems of overcrowding of motor vehicles deteriorate bus service quality. In addition, there is periodic passenger overcrowding during peak hours. The buses lack basic facilities to accommodate a wide range of customer needs and expectations and lack of support system for different set of people, namely disabled, sick, old aged, pregnant women and children (Tshedup, 2016). These problems are thwarting quality service delivery in the city bus transport system in Thimphu and ultimately resulting in customer dissatisfaction.

Increasing motorization causes many problems such as traffic congestion, high level of pollution, high consumption of non-

renewable energy resources, and a high number of traffic accidents (Seldon, 2018). Today, Bhutan is also experiencing a drastic increase in vehicles despite stringent rules and regulations on vehicle imports. The number of vehicles increased by 9.15% from 2016 to 2017, according to the Info-Comm and Transport Statistics 2018 released by the Ministry of Information and Communications. The total number of vehicles in Bhutan as of December 2017 reached 92,008 compared to 84,297 vehicles in 2016. According to the traffic division, the Royal Bhutan Police, and RSTA, the overall number of motor vehicle crashes and casualties in 2016 were 726. In 2017, it increased to 862; Thimphu had 506, the highest, followed by Paro with 174 (Seldon, 2018).

The Office of City Bus Service pointed out that the city bus service of the Bhutan Postal Corporation Limited is trying to improve the service by introducing new systems such as E-Ticket which is called a cashless ticket, smart card, etc., to address revenue leakage, loopholes and to increase quality in the city bus service. The office of the city bus service also launched a mobile application called Happy Ride which provides information on bus timing, bus stops and ticketing agents among others (Choden, 2018). To meet the expectations of the growing number of customers, Bhutan Postal ordered 18 new buses to improve efficiency during rush hour that is from 7 AM to 9:30 AM and 4 PM to 6:30 PM. During these hours the city buses are crammed with students and office goers (Tshedup, 2016).

One of the greatest concerns about the quality of the city bus service is the increasing population and the consequent increase in import of cars. The population of Bhutan is increasing every year and over 72% of the urban population lives in Thimphu (National Statistics Bureau, 2017). The matter is made worse as Thimphu has the maximum number of governmental and non-governmental offices, private and public schools, and private firms. These are very large sets of mobile population living in Thimphu who avail and add pressure on the city bus service.

Therefore, the city bus service in Thimphu is burdened and is not able to meet the expectations and demands of the passengers. The increase in vehicles results in traffic jams, pollution, and accidents.

There are 48 city buses in Thimphu at present making trips to pick and drop passengers every day from various designated starting points. Improving the infrastructure, quality, and services in the transport system can help retain the city bus users and even attract more users. To attract more passengers and reduce the use of private cars in the town, the Thromde (Municipality) requested the government for additional 50 city buses to make it 100 buses in the city (Tshering, 2018). Also, an international expert in public transport recommended that to have an efficient road transport system, public transport must be effective (Tshering, 2017). Public transport is a good indicator of economic development and plays a very important role in improving access to workplaces on time and reduces travel expenses (Dubé et al., 2011).

Research Objectives

The objectives of the study are:

- To assess users' importance level and satisfaction level towards service quality of city bus.
- To recognize the strengths and weaknesses of the city bus service in Thimphu.

LITERATURE REVIEW

Service Quality

According to Zeithaml et al. (1990), service quality is the result of the comparison that customers make between their expectations about service and their perception of the way the service has been performed. The understanding of the quality of service is consumers´ responses to the services being consumed

or perceived (Radam, Kartadipura and Yuliana, 2014). Parasuraman, Zeithaml and Berry in 1988, stated that the service quality is determined by passengers´ assessment of the results of services and service processes as well as the comparison of customers´ expectations and service performance. Therefore, the service quality can be considered corresponding to the level of service and customers´ expectations currently. Park, Robertson and Wu (2004) define service quality as the overall consumers´ impression of the efficiency of an organization and its service.

Without ensuring effective and quality public service delivery, the ultimate purpose of service delivery is defeated. Therefore, quality is considered vital in many aspects of public service delivery. In today's competitive public service delivery environment, a service provider requires dependable users. Similarly, users seek those facilities that reliably offer high-quality services. Smith, Hama and Smith (2003) pointed out that service quality is a prerequisite for survival in the current highly competitive leisure-time environment and that the key to maintaining satisfied users is offering high-quality services (Shemwell, Yavas and Bilgin, 1998).

The service quality literature is based on three main paradigms: the expectation-disconfirmation paradigm (SERVQUAL), the performance paradigm (SERVPERF), and the Importance Performance Analysis (IPA). The SERVQUAL considers that perceived service quality results from the gap between performance and expectations (Parasuraman, Zeithaml and Berry, 1988) whilst the SERVPERF argues that expectations are irrelevant and only performance should be considered (Cronin and Taylor, 1994). Another means of assessing the quality of the services is through Importance Performance Analysis (IPA). The IPA is a tool in line with the expectations performance approach to the measure of quality perceptions (Ennew, Reed and Binks, 1993) and it is commonly used to provide directions for making strategic marketing decisions.

A review of previous research shows a variety of methods to study the service quality of public transport including quantitative and qualitative instruments. Vilakazi and Govender (2014) and Randheer, Al-Motawa and Vijay (2011) used quantitative instrument SERVQUAL; Santuri and Baharom (2018) and Ramos et al (2019) used qualitative instruments like focus group discussion, ethnography and interviews to conduct a study on public transport; and Sum et al (2019) used IPA tool to study the service quality of city bus.

Customer Satisfaction

Customer satisfaction is generally considered among the most important long-term objectives of firms. To gain customer satisfaction, first of all, firms have to understand and satisfy their customer needs and wants (LaBarbera and Mazursky, 1983). According to Kotler (2000), customers' needs illustrate the felt deprivation of a customer. Meanwhile, customers' want refers to the form taken by human needs as they are shaped by culture and individual personality.

There are several definitions of customer satisfaction that come from the different points of view of researchers on customer satisfaction. For example, in the opinion of Oliver (1981), 'Satisfaction is a psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumer's prior feelings about the consumption experience'. While Kotler (2000) defined satisfaction as a person's feelings of pleasure or disappointment resulting from comparing a product's perceived performance (or outcome) concerning his or her expectations'. While Hansemark and Albinsson (2004) stated 'satisfaction is an overall customer attitude towards a service provider, or an emotional reaction to the difference between what customers anticipate and what they receive, regarding the fulfilment of some need, goal or desire'.

Factors influencing public transport service quality

There have been several studies in extensively determining the factors and contributors to the efficiency of public transport, resulting from the users' point of view on the service quality. Sum et al. (2019) revealed that based on the previous studies, there were homogenous and heterogeneous factors influencing the quality of public transport service. This is related to the fact that customers have different expectations and perceptions of the service quality because of their society, individuality, and mainstream toward similar service. It was concluded that there are five main factors influencing service quality consisting of bus services, bus stop facilities, driver attitude, vehicle, bus capacity (Sum et al., 2019).

Considering all the aforementioned factors, it is also worth noting to assess the responsiveness of those services provided by the service provider. Responsiveness measures the ability of the service provider to solve problems fast, deal with customers' complaints effectively and the willingness to help customers as well as meet the customers' requirements (Parasuraman, Zeithaml and Berry, 1988).

Importance Performance Analysis (IPA)

Importance Performance Analysis (IPA) was first proposed and introduced by Martilla and James in 1977 as a means to measure client satisfaction with a product or service. IPA is a graphical tool used for better understanding customer satisfaction and identifying the most critical attributes/items for improvement (Martilla and James, 1977). Silva and Fernandes (2011) note, "(t)his method has proven to be a generally applicable tool which is relatively easy to administer and interpret resulting in extensive use among researchers and managers in various fields and is a way to promote the development of effective marketing programmes because it facilitates the interpretation of data and increases usefulness in making strategic decisions." However, IPA leads to different conclusions depending on how an

attribute's importance is figured and does not take into consideration the non-linear relationship between the performance of the attributes and customer satisfaction, possibly misleading improvement decisions and hindering the introduction of innovations (Tontini and Silveira, 2007).

Wong, Hideki and George (2011) state, "IPA evaluation tool is used to prescribe the prioritization of attributes for improvement and it can also provide guidance for strategic development." IPA, as an evaluation tool, is used to understand customer satisfaction and prioritize areas for improvement. Based on Frauman and Banks (2011), IPA is composed of a two-dimensional graph where the vertical axis represents Customers' Satisfaction or Performance and the horizontal axis represents the Importance of service, which is broken into four quadrants as shown in Figure 1:

"Concentrate Here" represents the area where items are highly important and where the performance levels are low. One would get the maximum result if the items in this area are improved immediately.

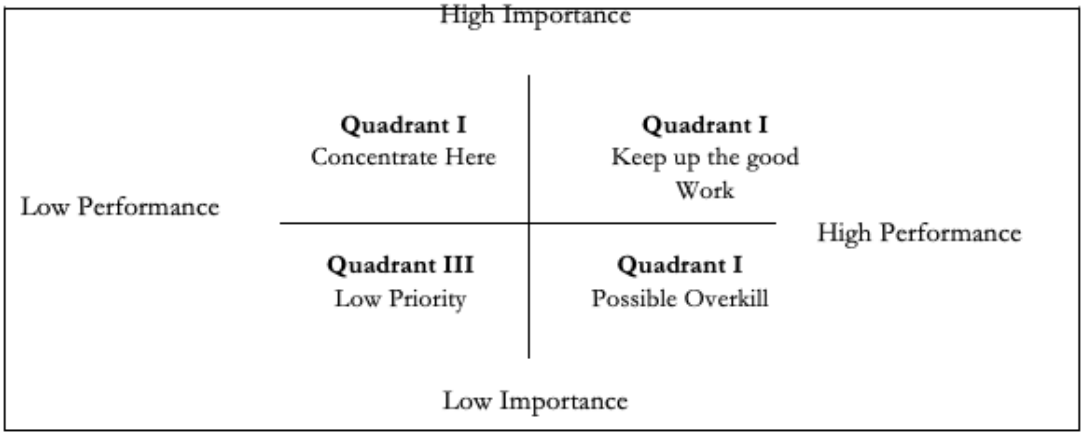
"Keep up the Good Work" denotes the area where items are highly important and where the performance levels are high. The entrepreneurs should maintain recent activities.

"Low Priority" represents the area where items are of low importance and where the performance levels are low. It is not necessary to improve this area.

"Possible Overkill" denotes the area where performance levels are high, but the items are not defined as important. In this quadrant, the improvement of these items can be minimized.

Figure 1

The original IPA framework



Source: Martilla and James, 1977.

According to the literature, IPA has been broadly applied in various fields such as tourism and recreation (e.g., Gladwell et al., 2010; Zhang and Chan, 2016), hotel's service quality (e.g., Qu and Sit, 2007), Public administration (Van Ryzin and Immerwahr, 2007), Restaurant (Chen and Chen, 2010), job motivation and satisfaction in tourist hotels (Pan, 2015; Pakkulnant, 2009) and public transportation (Freitas, 2013; Shaaban and Khalil, 2013). Further, the IPA tool was used by Norbu (2017) to study the importance and fulfilment of job motivational factors and their influence on the overall job satisfaction of hotel employees in Thimphu, Bhutan.

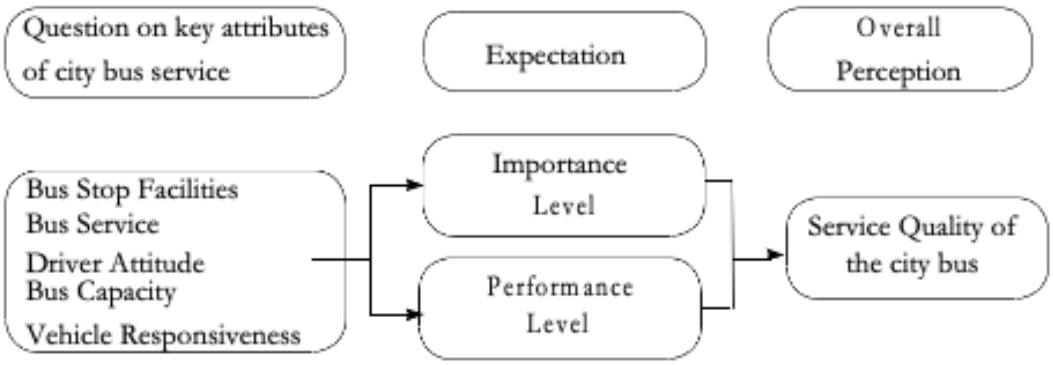
CONCEPTUAL FRAMEWORK

Figure 2 shows that the overall perception of the service quality is the function of importance and performance/satisfaction of the service users. To find out respondents' perception of service quality of city buses, questions on bus stop facilities, bus services, driver attitude, bus capacity, vehicle and responsiveness were asked based on their importance and performance level. Respondents were asked to rate using a Likert scale, ranging from Not at all important (1) to Extremely important for

importance attributes and Not at all satisfied (1) to Extremely satisfied (5) for performance attributes. The findings from each attribute were analyzed to assess the service quality of the city bus using an IPA grid.

Figure 2

Conceptual framework for the study



RESEARCH DESIGN & METHODS

Research Design

This study has adopted a descriptive design to study the perceptions of service quality through the importance performance analysis approach and also interviewed a few selected users. A mixed-method was used to study the sample. An explanatory sequential mixed design was employed as the quantitative research findings were followed by qualitative analysis. The weightage for the findings was given more to quantitative and qualitative supplemented the findings. The findings from quantitative and qualitative analyses were integrated, compared, and contrasted.

The research was conducted following importance and performance analysis (IPA) developed by Martilla and James (1977) in which importance and performance were measured in terms of a set of selected attributes. The five selected attributes were adopted from the study done in Cambodia by Sum et al.

(2019) and the sixth attribute responsiveness was adopted from the SERVQUAL model. Subjects were asked to score the importance of 23 attributes and also to score the performance of the same 23 attributes.

For qualitative purposes, three students, two civil servants and a corporate worker were asked to share their experiences to give more insights and shed more light on city bus service quality.

This study used a mixed design with structured questionnaires and interviews based on a literature review and expert opinions.

Sample

For this project, the Convenient Sampling method was used. Target respondents were in the age range between 14 and 60, living in Thimphu, and had the experience of using the city buses. The main reason for choosing ages range from 14 to 60 years is because people in this age usually travel by public transport as their mode of choice. There were ethical considerations to be considered when the research study included children under the age of 18. As per Morrow and Richards (1996) children should only be included in research if, firstly, the relevant knowledge could be gained from the children; secondly, either those included have given consent, or consent has been given on their behalf by a parent or guardian and those included do not object or appear to object in either words or action. Therefore, full consent before the study was obtained from all the participants.

It is very difficult to determine the sampling size for this research as there is no exact number of city bus users. Besides, there is a difference in the number of passengers especially during peak hours where there is overcrowding of passengers and off-peak hours where there are little to no passengers traveling on the city bus. However, it was mentioned that around 6000-8000 passengers use the city bus daily (Yangdon, 2017) and therefore, the approximate number of passengers was kept at 7000 which

is the daily average city bus user, and the sampling size was determined using the online sample size calculator called 'SurveyMonkey sample size calculator' to determine the sample size. The sample size comes to 182 and to get comprehensive responses, an equal number of respondents, out of the total sample size, were surveyed in both the peak hours and off-peak hours.

Data Collection

A survey was carried out for this study. All participants were asked to rate their importance and performance level towards availing city bus services. The survey was carried out in the peak hours in the mornings and evenings; and also, during lean hours, from Monday to Sunday, for a week (7 days) until 110 questionnaires were collected from participants who were waiting for a city bus in the city bus parking. 30 questions were distributed to IT park employees, 22 questions to the Royal Thimphu College (RTC) students and 20 questions were distributed to Debsi Higher Secondary School students. Questionnaires were collected soon after their evaluation in city bus parking, IT Park, RTC, and Debsi School.

In the survey questionnaires, a Five-point Likert scale with a mid-point was used to provide ratings by the respondents. The presence of a midpoint can promote satisfying behavior and social desirability bias. It allows respondents to express their true neutral /indifferent opinion, respondents are not forced to agree or disagree. A five-point Likert scale with a midpoint (Neutral) has been employed as an interval scale for the statistical analysis purpose (Chyung et al, 2017).

Interviews were also carried out to gather qualitative elements of the work and to provide more detailed data on key survey questionnaires. Semi-structured interviews with 6 participants (3 students, 2 civil servants and 1 corporate worker) were carried out to shed more lights on the issues of the city bus services and to meaningfully engage them on issues that they

were most interested in. The semi-structured interview was conducted with only 6 respondents as most of the people were unwilling to respond and most of them were in a hurry.

Data Analysis

Before analyzing, all the data were arranged and organized in Microsoft Excel and all the necessary coding was done. Descriptive statistics (frequencies, percentages, means and standard deviation) were used to describe demographic characteristics as well as to find the mean of the importance and performance level of each respondent. Then, the mean obtained from importance and performance items were entered in the importance performance matrix.

Data on all attributes were plotted on the importance performance grid which is broken into four quadrants: "concentrate here" represents the area where items are high in importance and low in performance; "keep up the good work" denotes the area where items are highly important and where the performance levels are high; "low priority" represents the area where items are low in both importance and performance levels; and "possible overkill" denotes the area where importance levels are low and high in performance.

The overall means for the importance and performance of all attributes served as cutoff points. The scores above the overall mean were considered high, whereas the scores below the overall mean were considered low. For qualitative analysis, overall experiences and views were collected from students, civil servants, and a corporate worker through semi-structured interviews.

DATA ANALYSIS & FINDINGS

This chapter will discuss the analysis and findings of the study. It is divided into 4 sections: (4.1) Socio-demographic characteristics; (4.2) Importance analysis of 23 attributes on city

bus service quality; (4.3) Performance analysis of 23 attributes on city bus service quality; and (4.4) Importance-Performance analysis. Then, it is followed by qualitative analysis.

Socio-demographic Characteristics

Of the 182 respondents, there were 50.55% of males and 49.45% female respondents. The age group ranges from 15 to 56. 67.03% were between 15-25 years, 28.57% were between 26-35 years, 3.85% were from 36-45 years, and 0.55% from 46-55 years.

Going by occupation, 39.56% of respondents were students, followed by 15.93% government employees, 10.44% respondents were corporate employees, 20.33% were private/entrepreneurs, 10.99% were trainees and 2.75% respondents were those working in NGOs. Students and civil servants are the highest users of city bus services. Most of them use city buses daily as they travel to and from office/ school in the mornings and evenings. Only a few people were found using the city bus service to go shopping.

Importance Analysis of 23 Variables

The importance of 23 key variables was measured using a 5-point Likert scale. To examine the importance level of 23 variables which include bus stop facilities, bus services, driver attitude, bus capacity, vehicle, and responsiveness, respondents were asked to rate the importance level in the survey.

It has been observed that bus driver driving safely, i.e., at a safe speed, is polite, and respects traffic rules (V16) had the highest mean of importance at 4.78, while the second most important variable was that there are enough bus services in rush hour (V7) at the mean value of 4.73. Timetable is clear and easy to understand (V13) and friendly, helpful and polite customer service of driver and conductor (V15) was the third most important variable at the mean value of 4.7.

The three variables with the lowest importance mean values were: the locations of bus stops are appropriate and not far away from residences (V5), and decent appearance of the vehicle body (V19) with the mean value of 4.43 and 4.43 respectively; bus stops are durable and strong without any damage (V4) with the mean value of 4.41; and the lowest mean value was bus stops have enough seats for waiting (V2) with the mean value of 4.3.

Table 1

Analysis of the Importance of the 23 variables

Item	Variable	Mean	Median	SD
1	Bus driver driving safely, i.e., at a safe speed, is polite, and respects traffic rules (V16)	4.78	5	0.5
2	There are enough bus services in rush hours (V7)	4.73	5	0.5
3	The timetable is clear and easy to understand (V13)	4.7	5	0.6
4	Friendly, helpful, and polite customer service of driver and conductor (V15)	4.7	5	0.6
5	The buses run according to the bus schedule (V9)	4.69	5	0.6
6	Ease of purchasing tickets (V12)	4.69	5	0.5
7	Bus routes cover every area (V11)	4.68	5	0.6
8	Availability of seats during rush hours (V17)	4.68	5	0.6
9	City bus staff are readily willing to help and assist customers (V23)	4.67	5	0.6
10	The seats on the bus are comfortable (V21)	4.66	5	0.6
11	Good personality and appearance of driver and conductor (V14)	4.62	5	0.6
12	The bus floor is clean without any dust or garbage (V20)	4.62	5	0.6
13	There are available schedule/maps at bus stops (V10)	4.6	5	0.6

14	The concerned authority of city bus quickly to customer demand (V22) responds	4.58	5	0.7
15	Bus stops have roofs that protect from sun-light and rain (V1)	4.57	5	0.6
16	Bus stops are located in safe areas that are not lonely and fearful (V6)	4.52	5	0.7
17	Availability of seats outside rush hours V18)	4.52	5	0.7
18	There are enough bus services outside rush hours (V8)	4.5	5	0.7
19	Bus stops are clean without any dust or garbage (V3)	4.49	5	0.7
20	The locations of bus stops are appropriate. They are not far away from residences (V5).	4.43	5	0.6
21	Decent appearance of the vehicle body (V19)	4.43	5	0.7
22	Bus stops are durable and strong without any damage (V4)	4.41	5	0.7
23	Bus stops have enough seats for waiting (V2)	4.32	5	0.8

Performance Analysis of 23 Variables

To examine the performance level of 23 variables which include bus stop facilities, bus services, driver attitude, bus capacity, vehicle, and responsiveness, respondents were asked to rate the performance level in the survey. In terms of performance, it has been noted that ease of purchasing tickets (V12) had the highest mean of satisfaction at 3.64, followed by timetable is clear and easy to understand (V13) with the mean satisfaction of 3.53, and the third most satisfied mean was bus driver driving safely, i.e., at a safe speed, is polite, and respects traffic rules at 3.51.

The three variables with the lowest performance mean values were: bus stops have enough seats for waiting (V2) with a mean value of 2.71; there are enough bus services in rush hours (V7) with a mean value of 2.68; and availability of seats during rush hours (V18) at 2.59.

Table 2

Analysis of the performance of the 23 attributes

Item	Variable	Mean	Median	SD
1	Ease of purchasing tickets (V12)	3.64	4	0.9
2	The timetable is clear and easy to understand (V13)	3.53	4	1.0
3	Bus driver driving safely, i.e., at a safe speed, is polite, respects traffic rules (V16)	3.51	4	1.0
4	The seats on the bus are comfortable (V21)	3.49	4	0.9
5	Decent appearance of the vehicle body (V19)	3.48	3	0.8
6	There are available schedule/maps at bus stops (V10)	3.35	3	1.0
7	The buses run according to the bus schedule (V9)	3.32	3	1.1
8	The bus floor is clean without any dust or garbage (V20)	3.32	3	0.9
9	Bus routes cover every area (V11)	3.31	3	1.0
10	Friendly, helpful, and polite customer service of driver and conductor (V15)	3.31	3	1.1
11	Good personality and appearance of driver and conductor (V14)	3.29	3	1.0
12	Bus stops are located in safe areas that are not lonely and fearful (V6)	3.25	3	1.1
13	City bus staff are readily willing to help and assist customers (V23)	3.23	3	1.0
14	Availability of seats outside rush hours (V18)	3.13	3	1.0
15	There are enough bus services outside rush hours (V8)	3.12	3	1.1
16	Bus stops have roofs that protect from sun-light and rain (V1)	3.1	3	1.3
17	The locations of bus stops are appropriate.	3.09	3	1.1
18	The concerned authority of city bus responds quickly to customer demand (V22)	3.07	3	1.0

19	Bus stops are durable and strong without any damage (V4)	2.99	3	1.1
20	Bus stops are clean without any dust or garbage (V3)	2.83	3	1.1
21	Bus stops have enough seats for waiting (V2)	2.71	3	1.1
22	There are enough bus services in rush hours (V7)	2.68	3	1.1
23	Availability of seats during rush hours (V17)	2.59	3	1.1

Importance and Performance of the 23 attributes

Table 3

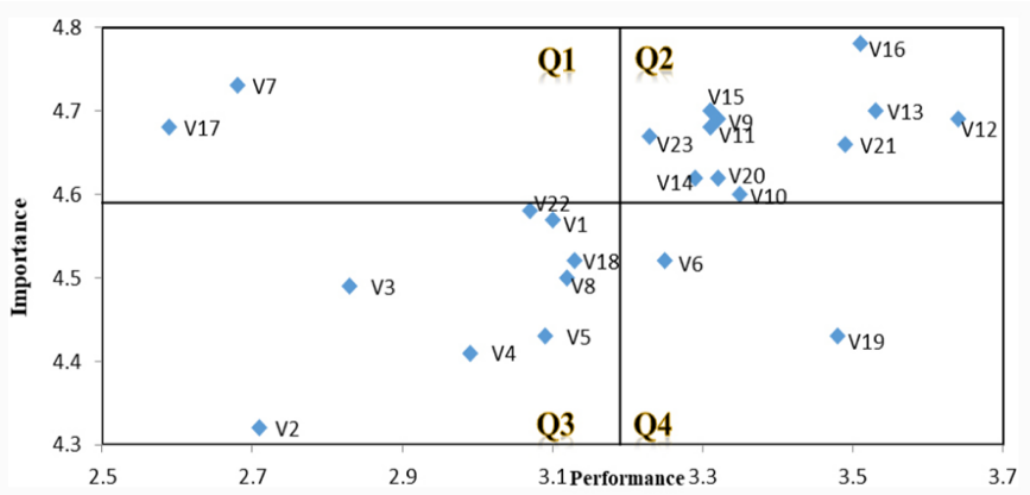
Descriptive statistics of variables/items

Factor	Variable	Importance				Performance		
		N	Mean	SD	Factor Mean	Mean	SD	Factor Mean
Bus stop facilities	V1	182	4.57	0.6	4.46	3.1	1.3	3.0
	V2	182	4.32	0.8		2.71	1.1	
	V3	182	4.49	0.7		2.83	1.1	
	V4	182	4.41	0.7		2.99	1.1	
	V5	182	4.43	0.6		3.09	1.1	
	V6	182	4.52	0.7		3.25	1.1	
Bus service	V7	182	4.73	0.5	4.66	2.68	1.1	3.28
	V8	182	4.5	0.7		3.12	1.1	
	V9	182	4.69	0.6		3.32	1.1	
	V10	182	4.6	0.6		3.35	1.0	
	V11	182	4.68	0.6		3.31	1.0	
	V12	182	4.69	0.5		3.64	0.9	
	V13	182	4.7	0.6		3.53	1.0	
Driver attitude	V14	182	4.62	0.6	4.7	3.29	1.0	3.37
	V15	182	4.7	0.6		3.31	1.1	
	V16	182	4.78	0.5		3.51	1.0	
Bu capacity	V17	182	4.68	0.6	4.6	2.59	1.1	2.86
	V18	182	4.52	0.7		3.13	1.0	
Vehicle	V19	182	4.43	0.7	4.57	3.48	0.9	3.43
	V20	182	4.62	0.6		3.32	0.9	
	V21	182	4.66	0.6		3.49	0.9	
Responsiveness	V22	182	4.58	0.7	4.63	3.07	1.0	3.15
	V23	182	4.67	0.6		3.23	1.0	

All 23 attributes were plotted on the importance-performance grid according to their relationship to each of the following four quadrants: "Concentrate here", "Keep up the good work", "Low priority", and "Possible overkill". In figure 3 the X-axis represents the perception of performance scores relating to the user's experience of city bus services. The Y-axis represents the relative importance that the 23 variables had to the users when using the city bus. The intersection (cut-off point) in this IPA grid is constructed by utilizing the mean average of importance at 4.59 (Y-axis) and the mean average of performance at 3.19 (X-axis). Scores above the mean are considered high, and scores below the mean are considered low.

Figure 1

Importance and Performance analysis grid of the 23 variables/attributes



In quadrant 1 "Concentrate Here", users perceive the attributes as very important, but the perceptions of performance levels are below average. Thus, further improvement efforts should be concentrated here. There were only two variables located in this quadrant:

- There are enough bus services in rush hour (V7)
- Availability of seats during rush hour (V17)

Variables situated in quadrant 2 "Keep up the Good Work" are perceived to be very important and are satisfied with the users'

perspective. There were eleven variables categorized under this quadrant:

- The buses run punctually according to the bus schedule (V9)
- There are available schedule/maps at bus stops (V10)
- Bus routes cover every area (V11)
- Ease of purchasing tickets (V12)
- The timetable is clear and easy to understand (V13)
- Good personality and appearance of driver and conductor; neat, clean, and meets uniform standards (V14)
- Friendly, helpful, and polite customer service of driver and conductor (V15)
- Bus driver driving safely, i.e., at a safe speed, is polite, respects traffic rules (V16)
- The bus floor is clean without any dust or garbage (V20)
- The seats on the bus are comfortable (V21)
- City bus staff are readily willing to help and assist customers (V23)

There were eight variables in the "Low Priority" quadrant (quadrant 3) of the grid (they were low in both importance and performance):

- Bus stops have roofs that protect from sunlight and rain (V1)
- Bus stops have enough seats for waiting (V2)
- Bus stops are clean without any dust or garbage (V3)
- Bus stops are durable and strong without any damage (V4)
- The locations of bus stops are appropriate. They are not very far from residences (V5)
- There are enough bus services outside rush hours such as during the daytime and evening (V8)
- Availability of seats outside rush hours (V18)

- The concerned authority of city bus responds quickly to customer demand (V22)
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The "Possible Overkill" quadrant (quadrant 4) contains variables of low importance and relatively high performance. Following are the variables that fall in this quadrant:

- Bus stops are located in safe areas that are not lonely and fearful (V6)
- Decent appearance of the vehicle body (V19).

Qualitative analysis of city bus service

Bus stop facilities

Many of the participants agree that city bus services are good. They reported that having city bus stops with proper roofs and facilities is not that important at every route where the city bus is plying. They also added that to construct sheltered bus stops at every route is not feasible. In addition to it, they reported that they are happy with the city bus stop signposts which can be further improved and enhanced in the future. However, many participants were not happy and satisfied with the current city bus main terminal from where the buses ply to different routes across Thimphu city.

A 27-year-old civil servant (P1) said,

> … currently, most of the city bus stops have only signposts without a proper roof and sitting space for the city bus users. It is not that important to have sheltered city bus stops with a proper roof and sitting space at every route where the city bus ply, as it is not feasible in the present context.

A female student (P2) from Yangchenphug High school said that

> there needs to be a proper shelter with roofs and seats to protect from sunlight and rain specifically in the main city bus terminal which is located in the heart of the town. The parking space is also not spacious for buses to park conveniently and there is so much

> crowding of buses and especially since the terminal space is shared with taxis and taxi parking, there is more often than not overcrowding and congestion of vehicles in the city bus terminal.

As per her experience and viewpoints, the main city bus terminal needs to be enhanced and made more convenient for city bus users.

Bus services

The participants were dissatisfied that there were not enough bus services during rush hours. They were not able to reach their office or school on time. They reported that a taxi is a fair and better option in terms of reaching their destination in time but not financially. Many of the participants were satisfied with the timeliness of arrival and departure of the bus, however, several of them were not satisfied with the buses not coming on time. The participants were satisfied with the ease of purchasing tickets. They were also satisfied with the availability of schedules/maps at designated bus stops. The respondents also mentioned the mobile app like the 'happy ride' app which provides information on bus schedules, bus stops, ticket agents and provides an online platform to provide feedback. Many of the respondents were positive about the introduction of the smart card system introduced by the city bus office.

A female civil servant (P3) responds that,

> in rush hours there are not enough buses, and I am left with no option but to catch a taxi to go to the office. Taxi seems reliable in terms of timeliness but not financially if I am going to travel by taxi every day.

A student (P4):

> City buses do not come on time and I have to wait for the bus. I arrive late at school sometimes when the buses don't arrive on time.

A corporate worker (P5) said:

> I enjoy using the happy ride app and it is convenient. How I wish there could be more attractive features in this app so that it pulls more passengers to use it as I am aware that many of the passengers do not know about this app. However, it gives problems and doesn't respond, and I am not able to get the required information like the bus schedule, bus stops, etc.

A civil servant (P1) asserted that

> it would be good if the smart card system is extended, possibly in the future for an efficient and effective way of increasing the number of passengers availing the city bus services.

Drivers' attitude

Respondents believed that it is important to have a good personality, friendly and helpful driver and conductor to have a positive environment while traveling in the city bus; and many of the participants were satisfied with the driver and conductor's attitude. Several participants agreed that they enjoyed traveling on a city bus where the bus driver drives at a safe speed following traffic rules.

A student (P6) responded that,

> the bus driver and conductor are very friendly, helpful and the driver drives safely at a safe speed. The only thing is the route where I have to travel on the city bus is filled with potholes and that is giving some problems in enjoying my travel where the travel is not smooth.

Bus capacity

The participants commented on the bus capacity. There seats are not available during rush hours, as there is overcrowding of passengers, especially students and office goers. While outside rush hours, participants found it not that important as during those times fewer passengers are traveling but they were satisfied.

A 20-year-old student (P4) from Debsi school said,

> in rush hour, there is a problem of not getting a seat and I remember I have traveled mostly standing in city bus; sometimes understanding for friends and sometimes for senior citizen.

A corporate worker (P5) said that,

> during rush hours there is no available seat in the bus and thinking I will have to travel standing, sometimes I travel by taxi. Whereas outside rush hours, there are not many passengers and mostly the seats are empty. It is satisfying to travel in lean hours.

Vehicle

The participants were satisfied with the appearance, seats and cleanliness of the city buses. A civil servant (P3) shared that,

> I enjoy the ride on the city bus, the bus floor is mostly clean and proper dustbins are also placed in the bus. The seats on the bus are comfortable, one thing is the ride is mostly silent and it can be enjoyable if there is some music on the bus.

Responsiveness

The respondents commented on the responsiveness of the city bus service provider and also on how their feedback and grievances were addressed by the city bus service provider. A 27-year-old corporate worker (P5) says that,

> I have sent my feedback online from the happy ride app on the timeliness of the bus arrival, I think it will be taken into consideration. I have also been to the city bus office and the staff are helpful and they are always concerned about the demands and problems faced by the passengers.

A student (P2) says,

> The drivers and conductors are really helpful and are readily willing to help and assist passengers.

DISCUSSION

City bus users' importance and performance level

Objective 1: To assess users' importance level and satisfaction level towards service quality of city buses.

Based on the results of IPA, it has been observed that only two variables, (V7), there are enough bus services in rush hours and (V17), availability of seats during rush hours, fall into quadrant 1, Concentrate Here, which means that users considered these variables as very important, but the performance level is under average. From the qualitative findings, it was also found that respondents were not satisfied with these two variables. They have reported that during rush hours, there were not enough bus services and there were no seats available for most of the passengers. Therefore, government authorities and concerned agencies should concentrate on these variables.

Moreover, increasing population, is exacerbating the problem. Firstly, as there are many schools, training institutes, and central agency offices in the capital city, it becomes very challenging for the city bus service providers to provide enough bus services to the passengers consisting mainly of students and office goers during rush hours. There are a total of 48 buses currently in Thimphu and they are not able to satisfy and cater to the needs of the passengers, especially during rush hours. Secondly, due to an increase in the number of car ownership in Thimphu, there is an increase in the number of vehicles commuting across the capital city which causes vehicle congestion problems. Subsequently, traffic congestion leads to the delay of the city bus to arrive and depart on time which is ultimately leading to not having enough bus services during rush hours.

In the same line, no matter how many new buses with increased capacity are added on the routes, problems of not having enough bus services and non-availability of seats during rush hours will persist because of the increase in population. Government

authorities should prioritize this critical variable to improve the service quality provided. Therefore, it is imperative to concentrate on improving this quadrant as ignoring these variables may seriously threaten city bus passengers' satisfaction.

Variables which are under Bus Services (V9, V10, V11, V12, V13); Driver Attitude (V14, V15, V16); Vehicle (V20 and V21); and Responsiveness (V23) are positioned in quadrant 2, Keep up the Good Work, which is classified as having high importance as well as high performance level. The qualitative findings were similar, where many of the respondents were satisfied with the timeliness of arrival and departure; however, several of them were dissatisfied with the bus timing. The respondents were satisfied with the ease of purchasing tickets, availability of schedule/maps at bus stops, driver attitude and responsiveness of the city bus staff. Even though these variables are the strength of the service, the government agencies should continue to give focus and keep up the good work to keep users satisfied. On the contrary, variables such as (V14) Good personality and appearance of driver and conductor that is neat, clean, and meets uniform standards and (V23) City bus staff are readily willing to help and assist customers, have high chances of moving into quadrant 1 (concentrate here). Some of the variables are considered as Low Priority "Low importance and the performance levels are also low" and fall directly into quadrant 3, which are: Bus Stop Facilities (V1, V2, V3, V4, and V5); Bus Services (V8); Bus Capacity (V18); and Responsiveness (V22). Correspondingly, it was found from the qualitative findings that city bus stops with proper roofs and facilities are not that important at every route where the city buses ply. They reported that in the future, properly designated city bus stops are necessary and important. From the quantitative findings, the satisfaction level on availability of enough bus services and seats outside rush hours showed a low satisfaction level. Whereas from qualitative findings, it was found that respondents were

satisfied traveling outside rush hours as there are less and sometimes no passengers traveling in those hours. The findings on the responsiveness of concerned authority are also contrasting as quantitatively it showed low satisfaction level but qualitatively respondents were satisfied. Thus, it is not necessary to improve in this area.

In quadrant 4, Possible Overkill, there are only 2 variables (V6) Bus stops are located in safe areas that are not lonely and fearful and (V19) Decent appearance of a vehicle body. The users considered these variables as low importance and the performance levels are high. Similarly, qualitative respondents considered these two variables as low importance and they were satisfied with these two variables. Thus, the improvement in this area would be ineffective since the users are satisfied with the service already.

Strengths and weaknesses of the city bus service in Thimphu

Objective 2: To recognize the strengths and weaknesses of the city bus service in Thimphu.

The strengths and weaknesses of service were investigated by the level of satisfaction using the IPA tool. From figure 4.1 (IPA grid), it has been revealed that there are only two variables which are the weakness of service (V7) There are enough bus services in rush hours and (V17) Availability of seats during rush hours.

The strengths of service consist of: (V9) The buses run punctually according to the bus schedule; (V10) There are available schedule/maps at bus stops; (V11) Bus routes cover every area; (V12) Ease of purchasing tickets; (V13) Timetable is clear and easy to understand; (V14) Good personality and appearance of driver and conductor that is neat, clean, and meets uniform standards; (V15) Friendly, helpful and polite customer service of driver and conductor; (V16) Bus driver driving safely, namely at a safe speed, is polite, respects traffic rules; (V20) The