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## THE CONSUMER SIDE OF BRTS MODEL OF PUBLIC TRANSPORT IN INDIA– A Case Study of User Satisfaction in Ahmedabad City

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### Abstract:

*Since the economic liberalisation of the 1990s, development of infrastructure within the country has progressed at a rapid pace, and today there is a wide variety of modes of transport. The demand for transport infrastructure and services has been rising rapidly with the current infrastructure being unable to meet these growing demands. Looking at the rising demand, Bus Rapid Transit systems (BRTS) and facility of air conditioned buses have been undertaken by the various state governments to improve the bus public transport systems in cities. This study attempts to study the perception of end users regarding safety, timing, cost and comfort related factors while traveling through BRTS in Ahmedabad city. An attempt is made to uncover the perception of users regarding satisfaction derived from BRTS usage. Results indicate high percentage of users were found satisfied with BRTS service.*

### KEY WORDS:

Perception, Satisfaction, Modes of Transport, BRTS, Public Transport.

### INTRODUCTION

Transport in the Republic of India is an important part of the nation's economy. Since the economic liberalisation of the 1990s, development of infrastructure within the country has progressed at a rapid pace, and today there is a wide variety of modes of transport by land, water and air. However, India's relatively low GDP per capita has meant that access to these modes of transport has not been uniform. However, public transport still remains the primary mode of transport for most of the population, and India's public transport systems are among the most heavily used in the world. Despite ongoing improvements in the sector, several aspects of the transport sector are still riddled with problems due to outdated infrastructure and lack of investment in less economically active parts of the country. The demand for transport infrastructure and services has been rising by around 10% a year with the current infrastructure being unable to meet these growing demands.

New initiatives like Bus Rapid Transit systems (BRTS) and air conditioned buses have been taken by the various state governments to improve the bus public transport systems in cities. The idea of a BRTS concept in India - based on the successful system in Curitiba, Brazil - was first introduced in the year 2000 in the form of a feasibility study for Bangalore carried out by Swedish consultants but was not implemented at the time. Today, however, the concept has caught on and Bus Rapid Transit systems already exist in Pune, Delhi, Ahmedabad, Mumbai and Jaipur with new ones coming up in [Kolkata](#) [Hyderabad](#) [Lucknow](#) and Bangalore. High Capacity buses can be found in cities like Mumbai, Bangalore, Nagpur and Chennai.

Bus Rapid Transit System or BRTS is a bus based on high quality, high capacity rapid transit system that delivers fast, comfortable and cost effective urban mobility. Presently there are 75 BRTS station existing in Ahmedabad covering approx 63 kms and 1.40 lakh people travel through BRTS daily.

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JANMARG also known as Ahmedabad BRTS is a bus rapid transit in Ahmedabad, India. It is operated by Ahmedabad Janmarg Limited, a subsidiary of Ahmedabad Municipal Corporation. At present India is planning to implement same model of transportation to other cities as soon as the evaluation of success gets completed in Ahmedabad. As it is most emerging successes model and having large amount of cost involved therefore it would be fair enough to conduct survey whose outcome may help this project to proceed further. With such an intention and looking forward for the success of this model it was decided to conduct research on evaluating satisfaction level among BRTS users for this model of modern town.

#### LITERATURE REVIEW

From consumer research, satisfaction is known to be of great value in understanding customer's perceptions and evaluations (Oliver 1997), repeatedly showing itself to be an important indicator of future customer behavior (Johnson & Gustafsson 2000). Attributes like reliability, frequency, comfort, information, driver behavior, and cleanliness are shown to be key elements of public transport user satisfaction (Bates et al. 2001, Beirao & Cabral 2007, Friman & Garling 2001, Hensher et al. 2003). In order to achieve an accessible city in a sustainable way, it is necessary to have a good and frequently used public transport system. Quality in public transport covers a wide range of aspects. European Commission (1998, p.75) suggest to categorize quality aspects in public transport into eight groups of which comfort is one of them. A trip can be more attractive if the passengers experience that the comfort on the vehicle is good (Sandow & Westin, 2007, p.47). One of the main reasons car users choose to travel by car instead of public transport is comfort (Berge & Amundsen, 2001, p.27). Hence it is imperative to study the comfort element as a part of making public transport more attractive... Comfort factors are temperature, driver engagement, way of driving, crowd, availability of seat, information, noise and cleanliness. Media frequently covers concerns about personal safety on public transport (e.g. Sexton 2009; Van den Berg 2009). Safety of overseas (mainly Indian) students using public transport in Melbourne has been the focus of much domestic and international concern (Millar 2009). Buses are likely to remain the primary mode of mass transit in low and middle income countries (Tiwari 1994). Mohan and Tiwari (2000) studied that pedestrians, bicyclists, and motorized two-wheeler riders are about 60-90 percent of all traffic fatalities. As per a study by Kharola et. al., in a vast majority of Indian cities, buses is the main mode of public transport. An externality of the bus-based public transport system, like any other mode of transport, is the injuries and fatalities arising out of the crashes involving them. Buses are involved in 12-20 percent of fatal crashes in Indian cities. Researchers should also consider the qualitative features of public transfer as they are alleged to have a large impact on individual welfare along with effective speed (Litman, 2008). Hence we must thus look for 'perceived cost' of transport in order to understand individual modal choices (Li, 2003). In a study of public transport service, Hensher et al. (2003) found that travel times and fares have greatest impact on negative satisfaction, whereas frequency of service and seat availability constituted the largest sources of positive satisfaction. In a different study, Friman et al. (2001a, 2001b) found four factors identified as constituting perceived service quality in public transport services. The first was how travelers were treated by staff. The second factor was service reliability. The third among the factors was simplicity of information (e.g. the availability of departure and destination information). The design of vehicles and space (relating to comfort, safety, and cleanliness) was the fourth factor in the study. Stradling et al. (2007) found 68 items that de-motivate people from using buses. Eight factor were revealed by factor analysis, factor 1 was interpreted as inconvenience of route, scheduling, and other services provision; factor 2 as unwanted arousal from the journey experience (e.g. crowded bus); factor 3 as feeling of being unsafe; factor 4 as the need for autonomy and control; factor 5 as cost; factor 6 as self image; factor 7 as the preference for independence; factor 8 as disability and discomfort. A transnational study of public transport in nine European cities (Fellsson & Friman, 2008) confirmed these results by highlighting the impact of safety, security, frequency, service reliability, comfort, and the quality of staff behaviour on the level of satisfaction with public transport.

#### RESEARCH METHODOLOGY

This study had a sample size of 100 end users of BRTS including students, service class people and other users. A structured questionnaire was administered to study various factors measuring satisfaction including safety, comfort, time and money. Demographic questions could identify types of end users for detail analysis of data underlying demographic dimensions. Statistically mining the data could reveal information regarding satisfaction of users on important parameters like safety, cost, comfort and timeliness.

**OBJECTIVES**

To study the perception of end users regarding safety, timing, cost and comfort related factors while traveling through BRTS.

To study user satisfaction regarding BRTS.

**LIMITATIONS**

Data collected were limited to few hours of a single day.

Language was a barrier for non-English understanding Gujarati people while collecting data.

Number of BRTS stops covered was limited to three for data collection purpose.

**DATAANALYSIS**

Perception of end users regarding following factors were studied;

- 1.Safety
- 2.Time Consideration
- 3.Money Consideration
- 4.Comfort

**Following is the analysis of data regarding above four parameters;**

**1. Safety Consideration:** Safety is one of the key parameters influencing overall satisfaction. Table 1 gives Information of safety based on gender.

Safety level	Female	Male	Grand Total
Feeling unsafe	10	12	23
Feeling ok	18	20	38
Feeling safe	15	24	39

**Table 1: Gender-wise safety related perception (%)**

Results indicate that males find it safer to travel by BRTS as compared to their female counterparts.

**2. Time Consideration:** Time is an important parameter contributing to overall satisfaction results of BRTS. The data was collected regarding the perception of end users about time saved through BRTS, timely arrival of buses and whether BRTS is fastest for considering satisfaction of users regarding time element.

Occupation	Low	Average	High
Student	1		23
Businessmen		2	15
Service	1		40
Laborer			16
Others			2

**Table 2: Occupation-wise perception about Time**

It can be seen from the above table that most of the types of users were found to be satisfied regarding timing element of BRTS.

**3. Cost Consideration:** Responses were gathered whether users perceived cost of traveling through BRTS was high, average or low. Data was analysed based on occupation as shown below;

Occupation	Costly	Reasonable	Cheap
Student	10	6	15
Businessmen	2	1	5
Service	4	6	30
Labour	0	7	12
Others	1	0	1

**Table 3: Cost perception with respect to Occupation**

#### THE CONSUMER SIDE OF BRTS MODEL OF PUBLIC TRANSPORT IN INDIA....

83% of service people find it cheap/reasonably cheap which is much higher compared to users from any other occupation. Labour class found it costly.

**4. Comfort Consideration:** Comfort parameter was measured with the help of variables like ease of reach, route extension, visuals, space inside, audio announcement & drive quality.

Highly comfortable	17
comfortable	31
Neutral	32
Uncomfortable	18
Highly Uncomfortable	02

**Table 4: Comfort level**

48% of users have found BRTS services comfortable.  
32% of users were found to be neutral on comfort parameter.  
20% of users were not finding this service comfortable.

Age group	Not satisfied	satisfied	Highly satisfied
< 24	6	22	12
24-39	4	10	15
40-54	4	5	8
55-69	5		9

**Table 5: Level of satisfaction among different age groups**

81% of the users were found to be satisfied with BRTS.  
Amongst the satisfied users, most young age group (less than 24) were the most satisfied group.  
Only 19% users were not found satisfied with BRTS.

#### CONCLUSION

Amongst the different modes of transport in India, road transport has come a long way and has occupied a pivotal position over the years. Public and Private sector has simultaneously been operating in this sector. However, public sector participation in passenger road transport services in India has always been the lifeline of commuters. While the significance of an adequate road network hardly needs to be reiterated, the much needed and anticipated thrust of policies would have to improve the productivity of the road transport system. The State Road Transport undertakings will have to compete with the private sector. However the former continues to play a dominant role over the years. BRTS is relatively newly introduced transport model in Ahmedabad. The objective of this study was to identify different factors that influence the end users and measure the satisfaction level of BRTS service users in Ahmedabad city. The conclusion made was that the satisfaction level of consumers depends on factors such as safety, comfort, time and money. BRTS users were found reasonably satisfied on these parameters. Overall satisfaction level was also found to be quite high.

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