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# Travellers' Expectations from Metro Rail Services - Literature Review Study

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## Abstract

This research study reviews past literature on what attributes does the travellers expect from metro rail services. The study aims at reporting in a concise manner the research methodologies and the findings earlier studies on the topic of traveller's expectations. Additionally this study also explains and enlists the attributes that travellers of the metro service expect to perform well. This study concludes that travellers expect engage in productive activities 'least travel time', 'security', 'safety', 'infrastructure quality', 'comfort', 'good metro connectivity', 'good frequency of service' and 'economical fare', 'lesser waiting times for ticket purchase', 'comfortable ticket buying experience', 'availability of adequate and vigilant security personnel', ' facility of metal detectors', 'safety against incidents of accidents', 'train ride to be jerk free', 'fellow passengers to be empathising, dependable and friendly'.

**Keywords:** Expectation, Literature Review, Metro Rail

## INTRODUCTION

Expectations from the customer are integral part of any business. Traveller's expectations arise out of preconceived notions, beliefs and standards that the travellers carry about a business or service. It is a feeling combined with rational thoughts that the travellers carry for the performance of the service that they plan to purchase or use or engage with. Such expectations are a result of past experiences (that could be negative or positive), marketing or branding (like advertising, positioning, brand reputation *etc.*), word of mouth or online reviews (recommendations from friends or family or online reviews from past users of the service), current service industry standards (like precision of service, speed of delivery of service, service support technology), personal preferences (based on needs, wants and desires) *etc.* These and such other factors or service attributes significantly impact that travellers expect from metro business. Exceeding or at least meeting such expectations is essential as it leads to loyalty, satisfaction and positive word of mouth message. In contrast failing to meet expectations may results in dissatisfaction, negative message and loss of service business.

## OBJECTIVES OF THE STUDY

To study the research methodology adopted in the earlier research studies published in journals indexed in Scopus on the topic of travellers expectations for metro rail.

To study the findings and results of the earlier research studies published in journals indexed in Scopus on the topic of travellers expectations for metro rail.

To identify and enlist the parameters documented in the earlier research studies published in journals indexed in Scopus on the topic of travellers expectations for metro rail.

## RESEARCH METHODOLOGY

### Search Strategy

1. Databases utilized - Google Scholar

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2. Keyword search software used - Harzing's Publish or Perish.
3. Query run date - The search query mentioning the keywords stated in below point number 4 was run on 17-11-2024 at 10:34:00 AM.
4. Combination of the keywords and bullion searched - "expectation" and "metro rail"
5. Publication date range - Publication date range set is from year 2014 to 2023.
6. Click here to see the search report in MS-Excel format for this research study.

## Screening Process

Manual screening (reading and observing) process was undertaken on the title and abstract of the research papers / articles / case studies (that were obtained from the keywords searched in Harzing's Publish or Perish software), followed by an inclusion and exclusion criteria, that has been mentioned in point numbers C (1), C (2) and thereafter D followed up the process mentioned below.

## Inclusion Criteria and Exclusion Criteria

1. Relevance to topic of study (*i.e.* keywords inclusion criteria) - A keyword combination as mentioned in point number A (4) above relevant to the topic of the presented research study were entered in the search text bar of Harzing's Publish or Perish software.
2. Nature of research papers/articles/case studies included and the Inclusion Criteria - The research paper/articles/case studies which mentioned both the keywords namely; 'expectation' and 'metro rail' in its title were selected for this research study. Additionally, it was noticed that there are more similar keywords and synonym to 'metro rail' that closely meant the searched keyword itself namely; "metro", "metro stations", "metro integration", "intercity rail services", "rail", "light rail ", "rail transit", "rapid transit", "public transportation", "commuter line", "metro users", "suburban rail", "metro services", "transit service", "regional transit system", "multimodal transportation ", "public transit", "multimodal travel", *etc.* existed in the title or the abstract of the research papers. Such research papers were selected for this research study. After manual screening (reading and observing) resulted to selection of 43 research paper while rejecting the majority 951 research papers/articles/case studies that failed to qualify inclusion criteria as mentioned above in this point. In the second stage of screening process the 43 selected research papers were further examined to include only those research papers/articles/case studies that were published in the journals indexed in Scopus database. This second screening process lead to final selection of 20 research papers/articles/case studies while rejecting the remaining 23 research papers/articles/case studies out a total of 43 research papers/articles/case studies. It may here be noted that these final selected 20 research papers/articles/case studies were those that were published in journals indexed in Scopus database. It is further to be understood here that the rejected 23 research papers/articles/case studies were indexed anywhere but not in Scopus database. This strategy was adopted in order to make sure that only meritorious research papers/articles/case studies that are a part of high quality Scopus indexed database journals shall have an entry for this research study. Thereby ensuring the quality of this very research paper.

## Exclusion Criteria

1. The results produced by Harzing's Publish or Perish software produced an aggregate of 994 results. All the 994 results titles and abstract were manually screened to exclude the entries that didn't mentions the searched keywords listed in point C (2). Also the research papers/articles/case studies that were published in journals other that Scopus indexed journals were excluded for this research study.

# LITERATURE REVIEW ON TRAVELLERS' EXPECTATIONS FROM METRO RAIL SERVICES

De Ona and De Ona, (2015) researched on the quality of services in public transport to make an assessment and review of methodological assessments. The research tried to provide a useful and detailed review of critical issues related to the service quality

evaluation for public transport, as well as the reasons for difference in methodological approaches that were applied by researcher in the past for the topic of traveller's expectation. The authors explicitly state that the evaluation of the service quality pose formidable challenges on how to deal with fuzzy, complex and abstract service quality concepts. The research further explains if performance perception only should be used alone for service quality evaluation or it should combined with customers expectations. Also the authors state the complexity of using a particular concept of expectation (namely ideal, desired, adequate or tolerable). To deal with such challenges the authors suggest the use of most sophisticated models like discrete choice models, service perception surveys, fuzzy logic and normalized importance (NIZSQ method).

Malokin *et al*., (2019) studied the influence of activities conducted while commuting on the choice of mode of travel by running a survey on 2229 commuters at North California. The authors quantified the effects to measure travel multitasking behaviours and attitudes, mode perceived behaviours and socio economic traits. The authors revealed a model of preference mode choice that integrates the impact of multitasking attitudes and behaviour. The finding of the study indicates that the tendency of individuals to engage in productive activities during commute (like using a laptop) significantly shaped travel preference. The commuters in a way expect to engage in productive activities during travel.

Fearnley *et al*., (2018) studied the competition and substitution to understand the split of choice between various modes of public transport. The authors studied the drivers that lead to substitution of transit modal by the commuters. The findings reported in this study is derived from more than 150 empirically estimated cross-elasticities between various public transport modes, that were sourced from over 20 studies conducted in Australia, Europe and United States. The study discusses a key finding that 'travel time' is the most significant factor in inter modal competition followed by 'access/transfer-time/egress' and 'number of interchanges'. 'Waiting time' was reported to be the lowest significant factor. Hence to put the findings of the research study in the perspective of travellers expectation from public transport it can be stated that the travellers expect to travel by a travel mode that has least 'travel time' at first place followed priorities like 'fare', 'access/transfer-time/egress' and 'number of interchanges'.

Yeboah *et al*., (2019) conducted a survey to study the factors that influence the public transport 'pre travel information seeking behaviour' of passengers for British urban environment. The survey included a total of 907 responses (360 were from metro, 318 from bus, and 229 from rail). While the study indicated that bus users are make use of internet sites as a pre-information source for travel, rail users more of use multiple sources like internet sites, word of mouth and visit to travel centres. Metro rail users tend not use or seek any pre-travel information source. The study hence makes it clear that metro rail users don't expect the availability of any major pre-travel information source.

Mishra *et al*., (2015) conducted an empirical investigation of North California commuters to study attitude towards waiting. The research formed an aggregate of the data collected from 1212 car commuters, 233 carpool/vanpool/employer shuttle, 1060 bus or rail transit and 318 bike or walk commuters. The findings of the study indicate that public transport users exhibited more positive attitude towards waiting. It was also stated in the study that these users were more ready to prefer to wait for events of waiting than who carpooled or drove for work. Individuals that had a greater tolerance for waiting were also more likely to choose travel modes that involved waiting (such as transit). From this observation of the study it can be stated that when it comes to choosing public transport modes, the travellers have easy acceptance towards waiting time. In nutshell, travellers expect a range of waiting times when travelling by public transport.

Saw *et al*., (2020) researched on the satisfaction of commuters towards metro infrastructure, facilities and services for Tyne and Wear metro service by carrying out a survey of 200 respondents to study 15 selected

attributes. The authors used the technique of Principal Component Analysis (PCA) and Cross Tabulation Analysis (CTA) to identify key factors that influence passenger's satisfaction. The study reported that 'ticket purchase facilities', 'infrastructure quality', 'security', 'comfort' and 'safety' were key factors that influence passengers' satisfaction. From the learning from this study it can be stated that the above mentioned factors add to the satisfaction or dis-satisfaction of the passengers and hence these factors are crucial. Hence it can be interpreted that passengers expect these factors to be performing well.

Majumdar *et al*., (2020) identified the key factors that influence the service quality of Hyderabad metro rail to prioritize these factors. The authors used a 5-point Likert scale to analyse the responses using TOPSIS and IPA (Importance Performance Analysis) technique. The study indicated that 'metro connectivity', 'frequency of service' and 'fare' was the important determinants for passenger satisfaction. At the same time it was also reported that the performance of these factors on IPA graph was unsatisfactory. Hence it can be interpreted that the passengers expect the factors of 'metro connectivity', 'frequency of service' and 'fare' to be performing well to meet service use satisfaction.

Ismael and Duleba, (2021) studied the relationship between the perceived quality of public transport service and satisfaction among private vehicle users in the city of Budapest in Hungary. The authors employed PLS-SEM (Partial Least Squares Structural Equation Modelling) to analyse the data collected from 100 respondents through questionnaire. The study indicated that 'safety and security' weren't the significant factors linked to satisfaction, whereas 'accessibility' and 'perceived service quality' were strongly linked to high degree of satisfaction level. From the travellers expectation perspective it can be interpreted that the travellers expect more from the 'accessibility' attribute than from 'safety' and 'security' attribute.

Luo *et al*., (2023) identified the attributes that impact customer satisfaction for transit services. The study involved 177807 microblogs from Sina Weibo (a Chinese social media platform) as the data to gain insights into customer sentiments. The authors made use of the technique of sentiment analysis and then applying the beta regression model the authors identified key factors that influence satisfaction. The findings of the study show that 'travel mode', 'travel time', 'age', 'gender', 'space' are the influential factors that contribute to transit satisfaction of the travellers. To interpret that data from the point of view of travellers expectation it can be stated that the travellers expect the above listed attributes to add to the travel service use satisfaction. That also means that the travellers expect these attributes to perform well.

Yan *et al*., (2023) evaluated the potential of use of shared e-scooter to enhance public transit. In other words the study tried to evaluate the extent to which shared e-scooters can be used to enhance public transit. The authors carried out a survey in Washington D.C. and Los Angeles. The findings of the study reveal that most of the surveyed riders used shared e-scooters to connect to transit services. Also the concept of bundled pricing effectively promotes a combination of scooter and ride trips. Also that the travellers use scooters for short trip but when it comes to longer trips travellers prefer to use a combination of scooter and ride trips. This makes it clear that the travellers use and thus expect a co-ordination between transit businesses to have an enhanced transit experience.

Srivastava and Purohit, (2021) studied the commuter satisfaction for the effectiveness of the ticketing services for the metro station in Delhi, India. The authors identified primary factors that impact the ticket service satisfaction for the attributes namely, 'long waiting times', 'ticket price' and 'discomfort at ticket counters'. The findings of the study reveal that commuter are mainly concerned about 'duration of waiting times at counters', 'ticket price', and 'discomfort during ticketing process'. Hence it can be interpreted that the traveller expect lesser waiting times for ticket purchase, economical ticket price and a comfortable ticket buying experience at the ticket counters.

Srivastava, (2019) carried out a study to study the perception of travellers using the services of metro rail in Delhi, India. 1100 respondents were surveyed from 160 metro stations in Delhi, India to gather data on a 5-point Likert scale. The authors examined relationship between dependent variables namely; 'adequacy and effectiveness of CCTV camera', 'effectiveness of metal detectors', 'alertness of security personnel', 'safety against accidents', 'terrorist threats', 'women's safety', 'luggage security' and 'incidents of pickpocketing' and the dependent variable 'commuter satisfaction'. Deterministic Regression Model (DMR) and Probabilistic Regression Model (PRM) were applied by the researchers to estimate the dependent variable on the basis of independent variable. The results of the study indicated a significant correlation between commuter satisfaction and security services namely 'adequacy and vigilance of security personnel'. Hence it can be interpreted that commutes expect the availability of adequate and vigilant security personnel at the metro facilities. The study also identified 'effectiveness of metal detectors' and 'safety measures against accidents' to be important factors of overall satisfaction. Hence it can be further interpreted that commuters expect to have a facility of metal detectors and safety against incidents of accidents at the metro stations.

Srivastava and Dash, (2019) identified primary factors that influence commuter satisfaction for the services of metro rail system. The researchers collected data from 1015 respondents across 160 metro statins by survey method. The study reported that 'delays', 'jerking' and 'overcrowding in trains' were the major sources of dissatisfaction among commuters. Given this it is interpreted that it is natural for the commuters to experience dissatisfaction due to 'delays' and 'overcrowding in trains', but at the same time the commuters also expect the train ride to be jerk free.

Sukwadi *et al*., (2022) developed a satisfaction model to analyse the impact of service quality on overall traveller satisfaction for MRT (Mass Rapid Transit) in the city of Jakarta in Indonesia. The authors used Structural Equation Model (SEM) in R studio to test 24 variables, whereas the qualitative data was analysed using thematic analysis. The findings of the study revealed that improvements in perceived accessibility driven by service quality led to increase in travel satisfaction. Also that travel satisfaction and perceived accessibility were largely influenced by service quality. Hence it can be interpreted that travellers expect and hence perceive ease of access to the metro facility.

Mandhani *et al*., (2023) comprehensively studied the perception for service quality among Elderly and Physically Disabled passengers (E and PD), an overlooked segment of travellers, for Delhi metro rail. The main aim of the study was to establish relationship between different service quality parameters to identify critical areas that would need improvement to serve E and PD passengers better. The researchers collected data from 254 E and PD passengers and used Bayesian Network (BT) and partial least squares path modelling for data analysis. The results of the study revealed that one unit increase in the satisfaction regarding 'safety and security' attribute can result to a remarkable 68% increase in overall satisfaction of the metro rail service quality. This statistic goes on to prove that E and PD passengers expect 'safety and security' at the metro travel services to be top notch. The authors also applied Importance - Performance Analysis (IPA), which stressed on the need of enhancing facilities related to 'passenger ease', 'safety and security' and 'seamless connectivity' for E and PD passengers. Hence it can be stated that E and PD passengers expect these attributes to have a good service performance.

Bharadwaj, (2023) conducted a study to identify key attributes that influence the service quality and impact on the travellers" satisfaction for Delhi metro rail corporation. Purposive sampling methods were used to select a sample of 850 respondents and data was collected through a structures questionnaire on a 5-point Likert scale. Structural equation model was employed to validate the findings of the study. The results of the study indicated that 'safety', 'assurance' and 'empathy' significantly impact commuters satisfaction. The study also found an inverse relationship between 'friendliness of fellow commuters' and service quality. The study also concluded that people can be encouraged to use metro rail services if 'reliability' quotient of the service can be improved. Hence from the travellers'

expectation perspective it can be said that travellers' expect metro rail service to be assuring to the travel needs, empathising, dependable and friendly fellow commuters.

Sharma and Jain, (2016) studied the metro train scheduling by customer centric approach with an objective to study how mobility can be enhanced for Delhi metro rail. Though it seemed that this research article closely matched the objectives the present research study, due to limited availability of the research article text an in-depth analysis couldn't be done.

Malokin *et al.*, (2021) studied how millennials value the travel time because of productive multitasking. Data was collected from 2216 commuters from North California to determine the significance and magnitude of household and individual factors that affect the mode choice of the commuters. The results of the study show that young adults have more willingness to pay for travel to be able to make use of laptop.

## CONCLUSION

The past research on traveller's expectations from metro rail indicates that travellers expect the metro rail service to fulfil needs. Malokin *et al.*, (2019) concluded that millennials expect to engage in productive activities during travel like use of laptop. Fearnley *et al.*, (2018) and Luo *et al.*, (2023) stated that travellers mostly expect to have a least 'travel time'. According to the study carried out by Yeboah *et al.*, (2019) travellers don't necessarily expect availability of any major pre-travel information source. Saw *et al.*, (2020); Mandhani *et al.*, (2023) and Ismael & Duleba, (2021) stated that 'security' and 'safety' are in the expectations list of the travellers.

Saw *et al.*, (2020) also concluded that 'ticket purchase facilities', 'infrastructure quality' and 'comfort' were key factors that travellers expect to be performing well. As per the study conducted by Majumdar *et al.*, (2020) passengers expect the factors of 'metro connectivity', 'frequency of service' and 'fare' to be performing well to meet service use satisfaction. Ismael and Duleba, (2021) found out that travellers expect more from the 'accessibility' attribute than from 'safety' and 'security' attribute. Yan *et al.*, (2023) travellers also expect a co-ordination between transit businesses to have an enhanced transit experience. In a study conducted by Srivastava and Purohit, (2021) it was concluded that traveller expect lesser waiting times for ticket purchase, economical ticket price and a comfortable ticket buying experience at the ticket counters (Mandhani *et al.,* 2023; Srivastava, (2019) specified that travellers also availability of adequate and vigilant security personnel at the metro facilities. The same study further indicated that travellers also expect to have a facility of metal detectors and safety against incidents of accidents at the metro stations. Traveller expect the train ride to be jerk free (Srivastava & Dash, 2019). In a study (Bharadwaj, 2023) assuring to the travel needs found out that travellers expect their fellow passengers to be empathising, dependable and friendly.

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