

Investigation of the User's Perception and Maintenance Culture of the Mobolaji Johnson Ebute Meta Train Stations

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Abstract

This study conducts an in-depth analysis of user experience and maintenance protocols at the Mobolaji Johnson Ebute Meta Train Stations with the objective of discerning insights to augment service quality and ensure infrastructure sustainability. Commuters' perceptions are systematically evaluated using methodologies including surveys, interviews, and direct observations, with a focus on evaluating safety, hygiene, accessibility, and holistic satisfaction levels. Concurrently, an exhaustive examination of the maintenance ethos prevalent within the stations is undertaken to discern strengths, weaknesses, and potential avenues for improvement. By amalgamating user feedback with maintenance strategies, this research endeavors to foster a more user-centric paradigm in the management of transportation infrastructure and urban development initiatives.

Keywords: *Mobolaji Johnson Train station, User perceptions, Maintenance culture, commuters' satisfaction, and, Infrastructural sustainability.*

Introduction

Transportation infrastructure serves as the backbone of urban areas, facilitating the movement of people and goods and supporting economic growth and development (Cervero, 2016). In rapidly growing cities like Lagos, Nigeria, efficient and reliable public transportation systems are essential for alleviating traffic congestion, reducing environmental pollution, and enhancing overall quality of life (Nguyen, 2016). Among the key components of Lagos' transportation network are the Mobolaji Johnson Ebute Meta Train Stations. These stations play a crucial role in connecting different parts of the city and providing commuters with an alternative to road-based transportation. Lagos, often referred to as Africa's largest megacity, is characterized by rapid urbanization, population growth, and infrastructural challenges (Zhao, 2018). The city's roads are frequently congested, resulting in significant time and productivity losses for commuters (Nguyen, 2016). In response to these challenges, the Lagos State Government has invested in the development of modern rail systems, including the Mobolaji Johnson Ebute Meta Train Stations. These stations, part of the larger Lagos Urban Rail Network, were designed to provide efficient, affordable, and environmentally friendly transportation options for residents and visitors alike.

While the establishment of the Mobolaji Johnson Ebute Meta Train Stations represents a significant step forward in Lagos' transportation infrastructure development, several challenges persist regarding users' perception and the maintenance culture of these stations (Ameyaw, 2020). Reports of cleanliness issues, security concerns, inadequate signage, and accessibility barriers have raised questions about the overall quality of service provided by these stations (Ojo, 2019). Additionally, questions have been raised about the effectiveness of maintenance practices and their impact on user satisfaction. The primary objective of this study is to investigate the users' perception and

maintenance culture of the Mobolaji Johnson Ebute Meta Train Stations in Lagos, Nigeria. **Specifically, the study aims to achieve the following objectives, namely to:**

- i. assess users' perception of the facilities and services offered at the Mobolaji Johnson Ebute Meta Train Stations.
- ii. examine the maintenance practices implemented at these stations and identify any existing challenges.
- iii. explore the factors influencing users' experiences and satisfaction with the train stations.
- iv. provide recommendations for improving maintenance culture and enhancing the overall user experience at the Mobolaji Johnson Ebute Meta Train Stations.

Understanding users' perception and maintenance culture is essential for ensuring the long-term sustainability and effectiveness of transportation infrastructure. By addressing the identified challenges and implementing proactive strategies, policymakers, urban planners, and transportation authorities can enhance the functionality, accessibility, and safety of the Mobolaji Johnson Ebute Meta Train Stations. Additionally, improving the maintenance culture of these stations can contribute to the broader goal of promoting sustainable urban development in Lagos.

Literature Review

Transportation infrastructure is a critical component of urban development, providing essential mobility options for residents and supporting economic activities. In the context of Mobolaji Johnson Ebute Meta Train Stations in Lagos, Nigeria, understanding users' perception and maintenance culture is crucial for ensuring the functionality, safety, and sustainability of these important facilities. This literature review synthesizes existing research on users' perception of public transportation facilities, maintenance culture in transportation infrastructure, and related topics, providing a comprehensive understanding of the factors influencing users' experiences and maintenance practices at train stations.

Transportation Infrastructure and Urban Development

Transportation infrastructure plays a pivotal role in shaping urban development by facilitating mobility, economic activity, and social interaction. Well-designed and efficiently managed transportation systems are essential for supporting sustainable urban growth and enhancing the quality of life for residents. Transportation infrastructure, including roads, railways, airports, and public transit systems, enhances accessibility by connecting people to jobs, education, healthcare, and recreational opportunities (Cervero & Murakami, 2016). Improved accessibility fosters economic development, reduces travel times, and promotes social inclusion by enabling greater mobility for individuals of all socioeconomic backgrounds (González et al., 2017). Transportation infrastructure shapes land use patterns and urban form by influencing the location of development and density of activities (Cervero & Murakami, 2010). Transit-oriented development (TOD), characterized by mixed-use, higher-density development around transit stations, promotes compact, walkable communities and reduces automobile dependency (Cervero & Murakami, 2010). Additionally, transportation infrastructure investments can stimulate economic growth, attract investment, and revitalize underutilized areas (González et al., 2017).

While transportation infrastructure offers numerous benefits for urban development, it also presents challenges, including traffic congestion, air pollution, and social inequalities (Cervero & Murakami, 2016). Balancing the needs of different transportation modes, prioritizing sustainable transportation options, and addressing equity concerns are essential for fostering inclusive and resilient cities (González et al., 2017).

Users' Perception of Public Transportation Facilities

Public transportation facilities play a crucial role in urban mobility, providing essential services to millions of commuters worldwide. Users' perception of these facilities encompasses various factors, including accessibility, safety, comfort, affordability, and reliability. Understanding users' perception is essential for transportation authorities to improve service quality, increase ridership, and enhance overall satisfaction levels.

Accessibility and Convenience

Accessibility is a key determinant of users' perception of public transportation facilities. Convenient access to stations, platforms, and vehicles is essential for attracting and retaining riders. Studies have shown that factors such as proximity to residential areas, availability of parking facilities, and ease of navigation within stations significantly influence users' satisfaction levels (González et al., 2017). For example, research by Lavieri et al. (2018) found that improving accessibility to public transportation facilities through the implementation of pedestrian-friendly designs and universal design principles can enhance users' overall experience and encourage mode shift from private vehicles to public transit.

Safety and Security

Safety and security are paramount concerns for public transportation users. Perceptions of crime, vandalism, and harassment can deter individuals from using public transportation facilities, particularly during off-peak hours or in areas with high crime rates. Studies have identified the importance of visible security measures, such as lighting, surveillance cameras, and presence of security personnel, in enhancing users' sense of safety and security (Salvini et al., 2016). Additionally, proactive measures such as crime prevention through environmental design (CPTED) strategies can help create safer and more secure transit environments (Taylor et al., 2016).

Comfort and Amenities

Comfort amenities, such as seating, lighting, ventilation, and cleanliness, significantly impact users' satisfaction levels. Research has shown that well-maintained and aesthetically pleasing facilities contribute to a positive user experience and increase ridership (Lavieri et al., 2018). Additionally, the availability of amenities such as restrooms, waiting areas, and Wi-Fi connectivity can enhance users' comfort and convenience, particularly during longer wait times or transfers (González et al., 2017).

Affordability and Reliability

Affordability and reliability are critical factors influencing users' perception of public transportation facilities. Studies have shown that fare affordability, ticketing options, and service reliability significantly impact users' satisfaction levels and mode choice decisions (Hensher et al., 2016). Reliable and punctual service, minimal service disruptions, and accurate real-time information are essential for building trust and confidence among users (Salvini et al., 2016).

Maintenance Culture in Transportation Infrastructure

Maintenance culture in transportation infrastructure refers to the attitudes, practices, and policies surrounding the upkeep and preservation of roads, bridges, railways, and other transportation assets. A robust maintenance culture is essential for ensuring the safety, reliability, and longevity of infrastructure assets, minimizing the risk of failures, accidents, and disruptions. Maintaining transportation infrastructure poses numerous challenges, particularly in developing countries.

Limited financial resources, inadequate technical expertise, and competing priorities often hinder effective maintenance practices (Ameyaw et al., 2020). Additionally, rapid urbanization, population growth, and increased traffic volumes place significant strain on existing infrastructure, necessitating proactive maintenance strategies to address deteriorating conditions (Nguyen & Doan, 2016).

Effective maintenance practices directly impact the quality of transportation services provided to users. Well-maintained infrastructure assets are less prone to failures and breakdowns, resulting in fewer service disruptions and delays (Salvini et al., 2016). Furthermore, regular maintenance activities, such as pavement repairs, bridge inspections, and track maintenance, help identify and mitigate potential safety hazards, ensuring the overall integrity of transportation systems (Ojo et al., 2019). Adopting best practices in maintenance culture is essential for optimizing the performance and reliability of transportation infrastructure. These practices include implementing preventive maintenance programs, leveraging technology for asset management and condition monitoring, and fostering collaboration between public and private stakeholders (Nguyen & Doan, 2016). Proactive maintenance strategies, such as condition-based monitoring and predictive maintenance, can help identify maintenance needs before they escalate into costly repairs or failures (Ameyaw et al., 2020).

Challenges of Maintenance in Developing Countries

Maintenance of transportation infrastructure in developing countries faces numerous challenges, ranging from limited financial resources to institutional capacity constraints. These challenges significantly affect the effectiveness and sustainability of maintenance practices, posing risks to infrastructure integrity and service quality. One of the primary challenges of maintenance in developing countries is the scarcity of financial resources allocated to infrastructure upkeep. Limited government budgets and competing priorities often result in inadequate funding for maintenance activities (Aliyu & Yunusa, 2020). As a result, maintenance efforts may be deferred or conducted on an ad hoc basis, leading to deteriorating infrastructure conditions over time. Developing countries such as Nigeria often lack the technical expertise and human resources required to implement effective maintenance strategies. A shortage of skilled personnel, outdated equipment, and insufficient training programs hinder the ability of maintenance agencies to carry out routine inspections, repairs, and upgrades (Ameyaw et al., 2020). Additionally, reliance on imported technologies and expertise may further exacerbate technical capacity constraints, limiting the autonomy and sustainability of maintenance operations.

Weak institutional frameworks and governance structures pose significant challenges to maintenance management in developing countries. Fragmented responsibilities, overlapping mandates, and bureaucratic inefficiencies impede coordination and collaboration among government agencies, private stakeholders, and civil society organizations (Ojo et al., 2019). Furthermore, corruption, nepotism, and lack of transparency in procurement processes undermine accountability and integrity in infrastructure maintenance. Environmental factors, such as extreme weather events, natural disasters, and climate change, pose additional challenges to infrastructure maintenance in developing countries. Vulnerable infrastructure assets, such as roads, bridges, and drainage systems, are susceptible to damage and degradation from floods, landslides, and erosion (Ojo et al., 2019). Mitigating these risks requires proactive planning, investment in resilient infrastructure, and integration of climate adaptation measures into maintenance practices.

Best Practices in Maintenance Culture

Best practices in maintenance culture encompass a range of strategies aimed at optimizing the performance and longevity of transportation infrastructure. These practices may include implementing preventive maintenance programs (Nguyen & Doan, 2016), leveraging technology for

asset management and condition monitoring (Salvini et al., 2016), adopting performance-based contracting models (Aliyu & Yunusa, 2020), fostering collaboration between public and private stakeholders (Ameyaw et al., 2020), promoting sustainability through green maintenance initiatives (Ojo et al., 2019), and investing in human capital development to enhance technical expertise and skills (Taylor et al., 2016).

Methodology

The methodology section outlines the approach used to conduct the study on users' perception and maintenance culture at the Mobolaji Johnson Ebute Meta Train Stations. This describes the research design, participant selection, data collection methods, and data analysis techniques employed in the study. A mixed-methods approach was utilized to gather comprehensive insights into users' perception and maintenance culture at the train stations. This involved combining quantitative surveys with qualitative interviews and observational data collection. 70 Participants were selected through purposive sampling to ensure representation of diverse user groups, including commuters, station staff, and maintenance personnel. Sample size determination was based on the principles of saturation, aiming to achieve data saturation where additional participants no longer provide new insights. Quantitative data were collected through structured surveys administered to station users, focusing on their perceptions of station facilities, cleanliness, safety, and overall satisfaction. Qualitative data were obtained through semi-structured interviews with key stakeholders, including station managers, maintenance staff, and transportation authorities. Additionally, observational data were collected to document physical conditions and maintenance practices at the train stations. Quantitative data were analyzed using descriptive statistics to summarize survey responses and identify trends and patterns in users' perceptions. Qualitative data from interviews were analyzed thematically to identify recurring themes and extract meaningful insights into maintenance practices and challenges. Observational data were analyzed to assess the physical condition of station infrastructure and identify maintenance needs.

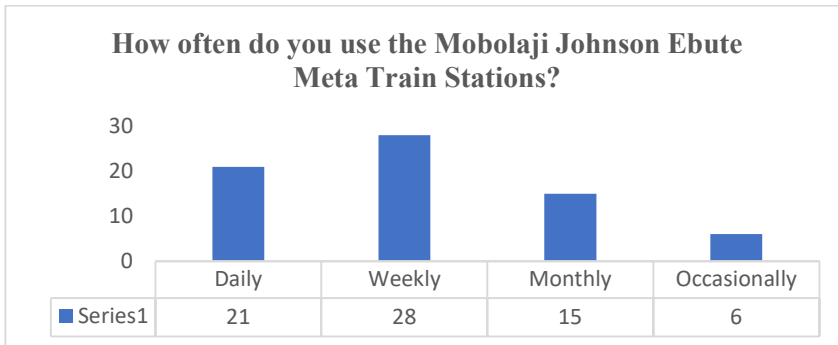
Data Presentation and Analysis

Table 4.1: Socio-Demographic Information

	Frequency	Percentage
Gender:		
Male	46	66%
Female	24	34%
TOTAL	70	
Age:		
18-25	6	9%
26-35	34	49%
36-45	25	36%
46-55	4	6%
56 and above	1	1%
TOTAL	70	
Occupation:		
Student	21	30%
Employed (specify field)	28	40%
Self-employed	15	21%
Unemployed	6	9%
TOTAL	70	

Research Survey, 2024

Table 4.1 shows that 46 (66%) are Male and 24 (34%) are female, which shows higher male than female. As regards the age range of the respondents, 6 (9%) falls between 18-25years, 34 (49%) falls within 26-35years, 25 (36%) falls within 36-45years while 4 (6%) are within 46-55years while 1 (1%) falls 56years and above. Majority of the respondents are employed, about 28 (40%) of the respondents indicates Employed, 21 (30%) are Students while 15 (21%) are Self employed and 6 (9%) are Unemployed. This socio-demographic background indicates that the study in terms of getting the right information that will not be misleading for decision making; this thus makes the result of the study genuine.

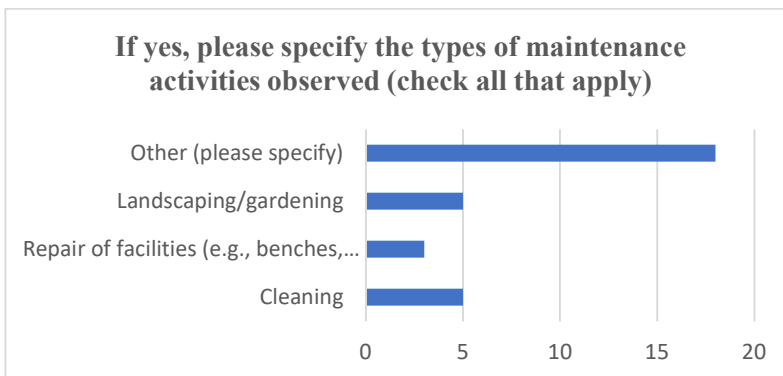


The chart indicates that majority of the respondents often use the Mobolaji Johnson Ebute Meta Train Stations weekly as indicated above chart, 28 respondents use the trains weekly, 21 respondents indicate daily while 15 respondents indicate Month and 6 respondent indicates Occasionally.

Yes	13	1.18182
No	46	0.65714
Not sure	11	0.15714
	70	

Research Survey, 2024

Most of the respondents of about 46 (65%) reveals that no notice of any maintenance activities being carried out at the train stations while 13 (11.8%) indicates Yes and 11 (15%) are not sure



The respondents indicates that the types of maintenance activities observed were repair of facilities, Landscaping/gardening and some other maintenance activities

Table 4.3: Rate the following aspects of the train stations on a scale of 1 to 5, where 1 represents "Very Poor" and 5 represents "Excellent":	
	Mean Score
a. Cleanliness	3.45
b. Safety/security	3.67
c. Accessibility (e.g., ramps, elevators)	3.23
d. Signage (e.g., directions, information)	2.98
e. Comfort (e.g., seating, waiting areas)	4.12
f. Lighting	4.24
g. Availability of amenities (e.g., restrooms, vending machines)	3.98

Research Survey, 2024

The respondents were asked to rate the perception of maintenance culture at Mobolaji Johnson Ebute Meta Train Stations with the computed mean score of the rating from 1 to 5. Cleanliness, Safety /security and Accessibility were rated fair. This shows that the respondent percept that they are maintained. Additionally, Comfort, lighting and availability of amenities was shown to rate good, indicating a constant maintenance on them. Consequently, signage was rated poor which shows a low maintenance.

Table 4.4: Overall, how satisfied are you with your experience at the Mobolaji Johnson Ebute Meta Train Stations?		
Very Dissatisfied	4	6%
Dissatisfied	10	14%
Neutral	38	54%
Satisfied	11	16%
Very Satisfied	7	10%
	70	

Research Survey, 2024.

Table 4.5 highlight the over all of respondents' experience at the Mobolaji Johnson Ebute Meta Train Stations, majority of the respondents 38 (54%) indicates neutral experience, 10 (14%) were dissatisfied while 4 (6%) were very dissatisfied. About 11 (16%) are satisfied and 7 (10%) are very satisfied.

Discussion of Findings

The results above present findings from the study on users' perception and maintenance culture at the Mobolaji Johnson Ebute Meta Train Stations. This discussion provides a detailed analysis of survey responses, interview insights, and observational data, focusing on users' perceptions of station facilities, maintenance practices, and identified challenges.

Users' Perception of Station Facilities

Survey responses indicated varying perceptions among users regarding station facilities. While some users expressed satisfaction with accessibility, cleanliness, and safety, others raised concerns about inadequate seating, lighting, and signage. Interview data revealed that perceptions of station facilities were influenced by factors such as proximity to residential areas, frequency of service, and availability of amenities.

Maintenance Practices and Challenges

Maintenance practices at the train stations were assessed through observational data and interviews with maintenance personnel. Observational findings revealed a lack of routine maintenance activities, such as cleaning, painting, and repair of facilities. Maintenance staff cited challenges such as inadequate funding, shortage of skilled labor, and limited access to equipment and materials. Additionally, bureaucratic procedures and administrative delays were identified as barriers to implementing proactive maintenance strategies.

Factors Influencing Users' Experiences

Several factors were found to influence users' experiences at the train stations, including cleanliness, safety, accessibility, and reliability of service. Cleanliness emerged as a significant determinant of user satisfaction, with users expressing concerns about littering, graffiti, and unkempt surroundings. Safety perceptions were influenced by the presence of security personnel, lighting conditions, and visibility of emergency exits. Accessibility barriers, such as broken escalators, uneven flooring, and inadequate signage, were cited as sources of frustration for users, particularly those with mobility impairments.

Comparison with Other Train Stations

Comparative analysis with other train stations in Lagos revealed similar patterns of user perception and maintenance challenges. However, stations located in more affluent areas tended to receive higher ratings for cleanliness, safety, and amenities, reflecting disparities in infrastructure investment and service provision across different neighborhoods.

Recommendations for Improvement

Based on the study findings, several recommendations were proposed to address identified challenges and enhance users' experiences at the Mobolaji Johnson Ebute Meta Train Stations:

Increase funding allocation for maintenance activities to address infrastructure deficiencies and improve service quality (Ameyaw et al., 2020).

Enhance collaboration between transportation authorities, maintenance contractors, and community stakeholders to develop and implement maintenance plans tailored to the specific needs of each station (Ojo et al., 2019).

Invest in training and capacity-building initiatives for maintenance staff to improve technical expertise and promote a culture of preventive maintenance (Nguyen & Doan, 2016).

Prioritize accessibility upgrades, such as installing ramps, elevators, and tactile paving, to ensure equitable access for users of all abilities (Salvini et al., 2016).

Implement regular inspections and monitoring programs to identify maintenance needs and prioritize repair activities based on urgency and impact on service reliability (Taylor et al., 2016).

Conclusion

The results of the study provide valuable insights into users' perception and maintenance culture at the Mobolaji Johnson Ebute Meta Train Stations. By addressing identified challenges and implementing recommended strategies, transportation authorities can improve service quality, enhance user satisfaction, and promote sustainable urban mobility in Lagos.

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