International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
IJIREV
Volume 7 Issue 23 (December 2025) PP. 525-537
DOI 10.35631/IJIREV.723035

INTERNATIONAL JOURNAL OF INNOVATION AND INDUSTRIAL REVOLUTION (IJIREV)
www.ijirev.com

A CONCEPTUAL FRAMEWORK FOR PUBLIC TRANSPORT SATISFACTION AMONG UNIVERSITY STUDENTS: ADAPTING SERVQUAL TO RAPID KL

Rayyan Cheong Tian Ming [1*], Nur Haffiza Rahaman [2], Liley Afzani Saidi [3], Wan Su Emi Yusnita Wan Yusof [4], Siti Nurhafizah Saleeza Ramlee[5]

[1] Department of Management, National Defence University of Malaysia
Email: rayyanming@upnm.edu.my
[2] Department of Management, National Defence University of Malaysia
Email: nurhaffiza@upnm.edu.my
[3] Department of Management, National Defence University of Malaysia
Email: liley.afzani@upnm.edu.my
[4] Department of Management, National Defence University of Malaysia
Email: wansuemi@upnm.edu.my
[5] Department of Management, National Defence University of Malaysia
Email: saleeza@upnm.edu.my
[*] Corresponding Author

Article Info:

Article history:
Received date: 20.10.2025
Revised date: 05.11.2025
Accepted date: 15.12.2025
Published date: 24.12.2025

To cite this document:

Ming, R. C. T., Rahaman, N. H., Saidi, L. A., Yusof, W. S. E. Y. W., & Ramlee, S. N. S. (2025). A Conceptual Framework for Public Transport Satisfaction among University Students: Adapting SERVQUAL to Rapid KL. *International Journal of Innovation and Industrial Revolution, 7* (23), 525-537.

DOI: 10.35631/IJIREV.723035

Abstract:

Public transportation systems play a crucial role in sustainable urban development; however, ridership rates in Malaysia remain below optimal levels, despite significant infrastructure investments. University students represent a key demographic for public transport utilization, but their satisfaction levels and usage patterns remain understudied in the Malaysian context. This study examines the perception of public transport services and customer satisfaction among National Defence University Malaysia (NDUM) students specifically regarding Rapid KL bus services, addressing critical gaps in understanding how service quality dimensions influence student satisfaction and subsequent usage patterns. A conceptual framework based on the adapted SERVQUAL model is proposed, focusing on six key dimensions: reliability and punctuality, tangible service environment, accessibility and convenience, safety and security, information and communication, and staff service quality. A quantitative research design is proposed to investigate relationships between perceived service quality and customer satisfaction. Reliability and accessibility are expected to emerge as primary determinants of student satisfaction, while safety concerns and service frequency are anticipated to significantly influence usage decisions. The study will contribute to the theoretical understanding of public transport customer satisfaction in a public

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 23 (December 2025) PP. 525-537
DOI 10.35631/IJIREV.723035

university. The research provides practical recommendations for service improvement, including enhanced reliability, improved information systems, and targeted strategies to increase public transport adoption among young adults. Policy implications encompass institutional and governmental levels, supporting sustainable mobility practices and social equity objectives. This conceptual study presents a comprehensive framework for understanding public transport customer satisfaction among university students, offering valuable insights for transportation planners, policymakers, and service providers seeking to enhance the effectiveness of public transport in Malaysia.

Keywords:

Public Transport, SERVQUAL, Bus Service Quality, Customer Satisfaction, University Students

Introduction

Public transport is the lifeblood of sustainable urban futures, a critical enabler of social equity, and the primary mobility solution for millions of university students worldwide. In rapidly urbanizing metropolitan areas like Malaysia's Klang Valley, the efficiency and quality of bus services are not merely operational concerns but are central to managing traffic congestion, reducing carbon emissions, and shaping the long-term travel behaviors of the next generation of commuters (Sogbe et al., 2025). University students represent a uniquely strategic segment of public transport users; they are a captive audience with high travel frequency, significant price sensitivity, and a growing reliance on digital tools to navigate their daily lives. Their satisfaction with public transport services, such as those provided by Rapid KL, is a key determinant of their current and future modal choices. However, a gap often exists between the provision of public transport infrastructure and the perceived quality of the service delivered, which can undermine ridership and policy objectives. This article addresses this gap by developing a conceptual framework specifically tailored to understand and evaluate public transport satisfaction among university students in the context of Rapid KL. By adapting the widely used SERVQUAL model, this study aims to provide a nuanced and context-sensitive tool for operators and policymakers to move beyond simple capacity metrics and towards targeted service quality enhancements that resonate with the specific needs and expectations of the student population.

The academic discourse on transit service quality has matured significantly over the past few decades, evolving from a narrow focus on engineering-based performance metrics (e.g., headway, travel time, vehicle speed) to a more holistic, user-centric understanding of service quality and passenger satisfaction (Hensher et al., 2003). The seminal work of Parasuraman et al. (1988) in developing the SERVQUAL model provided a robust framework for measuring service quality by identifying the gaps between customer expectations and their perceptions of the service delivered. This model, with its five core dimensions of reliability, assurance, tangibles, empathy, and responsiveness (RATER), has been extensively adapted and applied across various service industries, including public transportation. In the context of public transport, studies have consistently shown that certain dimensions of service quality have a disproportionately high impact on overall passenger satisfaction. For instance, reliability and punctuality are frequently cited as the most critical factors influencing passenger satisfaction and loyalty (Eboli & Mazzulla, 2007). More recent research has highlighted the growing importance of other factors, such as the availability and quality of information, especially real-time information delivered through mobile applications (Sann & Siripipattaworn, 2024). Safety

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 23 (December 2025) PP. 525-537
DOI 10.35631/IJIREV.723035

and security have also emerged as crucial determinants of service quality, with a strong influence on passenger perceptions, particularly among women and other vulnerable groups (Ibrahim et al., 2025). A 2025 systematic literature review by Sogbe et al. on bus transport systems in developing countries confirmed that safety, security, comfort, reliability, and accessibility are the most substantial determinants shaping users' views on service quality and satisfaction. This body of research underscores the need for a multi-dimensional approach to understanding and measuring public transport satisfaction, one that moves beyond traditional operational metrics to capture the full range of factors that influence the passenger experience.

Despite the extensive body of research on public transport satisfaction, there remain critical gaps in the literature that this study seeks to address. First, much of the existing research tends to treat the public as a homogenous group, failing to adequately capture the unique travel patterns, priorities, and expectations of specific user segments like university students (Stojic et al., 2020). Students, for instance, often have travel demands that are highly concentrated around class schedules, are more sensitive to fare structures, and have a greater reliance on digital information channels. Second, there is a noticeable bias in the literature towards studies conducted in developed countries, with fewer studies focusing on the specific challenges and opportunities of public transport systems in developing and middle-income countries like Malaysia (Ong et al., 2022). Third, within the public transport literature, there is a tendency to focus on rail-based systems, with bus services often receiving less attention, despite their critical role in providing first- and last-mile connectivity and serving a large proportion of student travelers (Abdullah & Talip, 2013). Finally, while the SERVQUAL model has been widely adapted, there is a need for a more nuanced and context-specific application of the model that reflects the unique cultural, social, and technological landscape of Malaysia. This study addresses these gaps by proposing a conceptual framework that is specifically designed to measure public transport satisfaction among university students using Rapid KL bus services.

Literature Review

The satisfaction of university students with public transport systems is a critical area of inquiry, particularly in rapidly urbanizing regions where sustainable mobility is a policy priority. In Malaysia, Rapid KL serves as the backbone of Kuala Lumpur’s public transport network, catering to a diverse commuter base that includes a significant proportion of university students. The literature consistently identifies reliability, punctuality, comfort, safety, and convenience as the primary determinants of satisfaction among this demographic, with socioeconomic factors such as gender, vehicle ownership, and travel habits further shaping perceptions and usage intentions. Empirical studies in Southeast Asia have employed robust quantitative methods, such as factor analysis, structural equation modeling (SEM), and partial least squares SEM, to capture the multifaceted nature of service quality and its impact on satisfaction. These approaches reveal that satisfaction is not only a function of operational attributes but is also mediated by spatial and demographic heterogeneity, underscoring the need for tailored service improvements and policy interventions that address the unique needs of university students as a distinct user group (Adriana et al., 2023; Camporeale et al., 2021; Cavana et al., 2007; Cordera et al., 2019; Kumar & Sinha, 2025; Norhisham et al., 2019; Parady et al., 2021; Shukla et al., 2021; Ueasangkomsate, 2019; Valenzo-Jiménez et al., 2019; M. Yang et al., 2015; Yusoff et al., 2022; Zacharias & Liu, 2022; Zhang et al., 2019).

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 23 (December 2025) PP. 525-537
DOI 10.35631/IJIREV.723035

A central theme in the literature is the adaptation of the SERVQUAL model, a widely used framework for assessing service quality, to the specific context of public transport and, more recently, to the needs of university students. While the original SERVQUAL dimensions (tangibility, reliability, responsiveness, assurance, and empathy) provide a useful starting point, numerous studies have highlighted the necessity of incorporating transport-specific attributes such as accessibility, security, comfort, and multimodal connectivity. In urban Asian contexts, modifications to SERVQUAL have included the addition of dimensions such as access, safety, and connection, reflecting the operational realities and heightened expectations of public transport users in densely populated metropolitan environments. For instance, research in Thailand and India has demonstrated that assurance and tangibility are particularly salient for student commuters, while in other settings, fare sensitivity and the quality of station amenities have emerged as critical factors. Despite these advances, critiques of SERVQUAL highlight its limitations in capturing the complexity of public transport services, particularly in fragmented or rapidly evolving systems. The literature calls for continuous empirical validation and contextual adaptation of the model to ensure its relevance and effectiveness in measuring satisfaction among university students (Alder, 1999; Barabino et al., 2012; Cats et al., 2015; de Oliveira et al., 2022; Della Porta et al., 2019; Ferreira et al., 2024; Ismail et al., 2017; Jomnonkwao et al., 2016; Mathong et al., 2020; Min et al., 2022; Mokhtar, 2011; Muda et al., 2013; Olivková, 2016; Prommakhot & Arreeras, 2022; Sam et al., 2019; Sann & Siripipattaworn, 2024; Tavares et al., 2021; Tevar et al., 2025; X. Yang et al., 2010).

The case of Rapid KL provides a compelling context for examining the intersection of service quality measurement and user satisfaction among university students. Studies focusing on Rapid KL have documented persistent gaps between expected and experienced service quality, particularly in areas such as service frequency, station accessibility, and the adequacy of passenger facilities. Station amenities, multimodal transfer convenience, and the inclusivity of access features are repeatedly cited as significant determinants of satisfaction, especially for student commuters who often rely on seamless intermodal connections and affordable fares. Methodologically, research on Rapid KL has leveraged large-scale surveys and advanced statistical techniques to validate adapted SERVQUAL models, yet notable gaps remain in the empirical literature, particularly regarding the integration of student-specific attributes and the use of qualitative insights to complement quantitative findings. The evolving consensus is that a contextually adapted SERVQUAL framework, enriched with dimensions such as comfort, connection, and time accessibility, holds promise for more accurately capturing the satisfaction of university students with Rapid KL. However, further research is needed to empirically validate these adaptations and to explore the interplay between service quality dimensions and the unique travel behaviors of university students in Malaysia (Abenoza et al., 2019; Adamos et al., 2025; Alomari et al., 2023; Bakti et al., 2018; Cats et al., 2015; Della Porta et al., 2019; Dong et al., 2023; Lin, 2018; Mikhaylov et al., 2015; Mohd Masirin et al., 2016; Mokhtar, 2011; Mouwen, 2015; Ojo, 2019; Roberts et al., 2021; Saldaña et al., 2025; Sam et al., 2019; Sari et al., 2023; Tevar et al., 2025; Tyrinopoulos & Antoniou, 2015; Vega Camacho et al., 2017). This direction not only advances academic understanding but also provides actionable insights for policymakers and transport operators seeking to enhance the public transport experience for university students.

Theoretical Frameworks for Public Transport Customer Satisfaction

The theoretical foundation for understanding public transport customer satisfaction draws from multiple disciplines, including service marketing, transportation planning, and consumer

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 23 (December 2025) PP. 525-537
DOI 10.35631/IJIREV.723035

behavior. The Expectation-Confirmation Theory, originally developed by Oliver (1980), provides a fundamental framework for understanding the formation of customer satisfaction. According to this theory, satisfaction results from comparison between pre-consumption expectations and post-consumption perceptions of performance. The Theory of Planned Behavior, developed by Ajzen (1991), provides another important theoretical lens for understanding public transport usage decisions. This theory suggests that behavioral intentions are influenced by attitudes toward the behavior, subjective norms, and perceived behavioral control. In public transportation contexts, attitudes are shaped by perceptions of service quality and satisfaction levels, while subjective norms reflect social influences and cultural factors. Recent research has attempted to integrate multiple theoretical perspectives to develop more comprehensive models of public transport customer satisfaction and usage behavior. Studies have combined the Theory of Planned Behavior with customer satisfaction theory and personal norm theory to examine word-of-mouth behavior among public transportation users (Chen & Chao, 2011). These integrated models provide richer explanations of the complex decision-making processes involved in public transport adoption and continued usage

Conceptual Model Development

The theoretical framework for this study integrates multiple established theories to provide comprehensive understanding of relationships between service quality perceptions, customer satisfaction, and behavioral outcomes among university students using Rapid KL bus services. The proposed conceptual model primarily draws on the SERVQUAL framework, Expectation-Confirmation Theory, and the Theory of Planned Behavior, while incorporating contextual factors specific to the Malaysian public transport environment and the university student population. The foundation of the theoretical framework rests on the premise that customer satisfaction with public transport services results from a complex evaluation process involving multiple service quality dimensions, individual characteristics, and contextual factors. This evaluation process involves cognitive and affective responses influenced by past experiences, social norms, and situational constraints (Fornell et al., 1996). The adapted SERVQUAL model serves as the primary structure for conceptualizing service quality in the public transport context. Recognizing the unique characteristics of bus services and specific needs of university students, the traditional five dimensions have been modified and expanded to better reflect public transport service delivery realities. The modified dimensions include: (1) Reliability and Punctuality, encompassing service frequency, on-time performance, and schedule adherence; (2) Tangible Service Environment, including vehicle condition, cleanliness, comfort, and facility quality; (3) Accessibility and Convenience, covering route coverage, stop locations, and ease of access; (4)4Safety and Security, addressing both physical safety and personal security concerns; (5) Information and Communication, involving service information provision, digital services, and customer communication; and (6) Staff Service Quality, including driver behavior, courtesy, and helpfulness. Integration of Expectation-Confirmation Theory provides the mechanism for understanding how service quality perceptions translate into satisfaction outcomes. In public transport contexts, expectations are formed through various sources, including past experiences, word-of-mouth communications, marketing communications, and social comparisons (Spreng et al.,1996). The confirmation or disconfirmation of these expectations through actual service experiences leads to satisfaction or dissatisfaction outcomes, which subsequently influence future usage intentions and behaviors. The Theory of Planned Behavior contributes to the framework by explaining how satisfaction outcomes influence behavioral intentions and actual usage behaviors. According to this theory, behavioral intentions are determined by attitudes toward the behavior (influenced

International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
IJIREV
Volume 7 Issue 23 (December 2025) PP. 525-537
DOI 10.35631/IJIREV.723035

by satisfaction levels), subjective norms (social pressures and cultural factors), and perceived behavioral control (availability of alternatives and situational constraints) (Fishbein & Ajzen,2010).

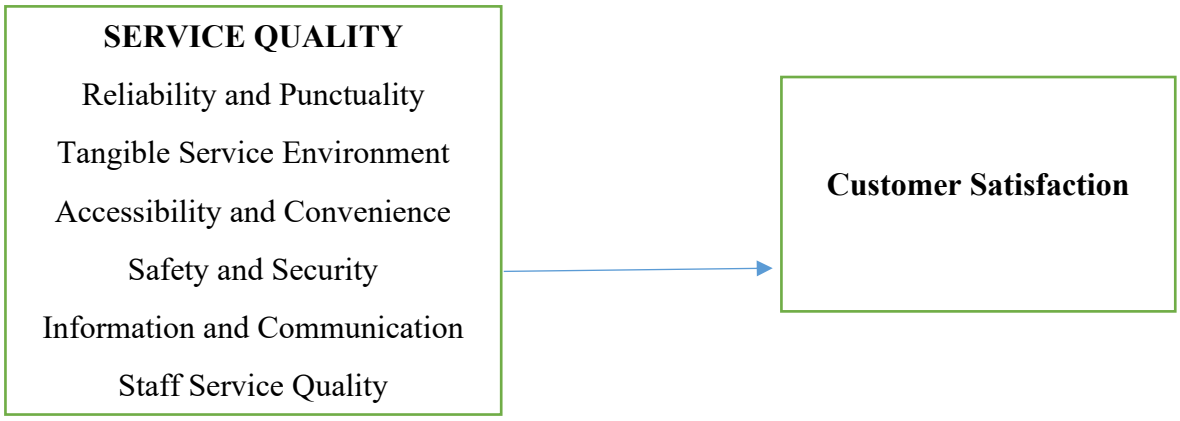

Figure 1: Proposed Conceptual Framework

Expected Findings and Theoretical Contributions

Based on the proposed theoretical framework and existing literature, several key findings are anticipated that will contribute to both theoretical understanding and practical knowledge in public transport customer satisfaction research. The study is expected to reveal significant relationships between the identified service quality dimensions and customer satisfaction among NDUM students, while uncovering unique patterns specific to the university student demographic and Malaysian cultural context. Reliability and Punctuality are anticipated to emerge as the strongest predictors of customer satisfaction, consistent with findings from international studies on public transport service quality (Van Lierop et al., 2018). University students, with their structured academic schedules and time-sensitive commitments, are expected to place particular emphasis on service dependability. The study anticipates revealing that students express significant frustration with irregular service frequency and unpredictable arrival times, which create uncertainty in journey planning and may result in tardiness for classes or other commitments. Safety and Security concerns are expected to be particularly prominent among female students and international students who may be less familiar with local conditions. The research anticipates finding significant gender differences in safety perceptions, with female students expressing greater concerns about personal security during evening hours and at isolated bus stops (Loukaitou-Sideris & Fink, 2009). These findings are expected to align with broader research on gender differences in public transport usage patterns and safety perceptions. The study is expected to make significant contributions to theoretical development in several areas. First, the adaptation of the SERVQUAL model to the specific context of university students and Malaysian public transport services is anticipated to provide insights into the cultural and demographic specificity of service quality dimensions (Donthu & Yoo,1998). The integration of multiple theoretical perspectives is expected to provide more comprehensive understanding of the satisfaction formation process and its relationship to behavioral outcomes.

Practical Implications for Service Improvement

The anticipated findings are expected to provide specific, actionable recommendations for Rapid KL and other public transport operators seeking to improve customer satisfaction among

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 23 (December 2025) PP. 525-537
DOI 10.35631/IJIREV.723035

university students and similar demographic groups. Reliability Enhancement strategies are expected to be identified as the highest priority for service improvement, including investments in fleet management systems, real-time monitoring technologies, and operational procedures that can improve service punctuality and frequency consistency (Vuchic, 2005). Safety and Security Improvements are expected to be identified as critical for increasing ridership among female students and evening travelers. Anticipated recommendations include enhanced lighting at bus stops, the installation of security cameras in vehicles and at stations, the implementation of emergency communication systems, and the deployment of security personnel during high-risk periods (Ceccato, 2013). Service Coverage Optimization recommendations are expected to focus on route planning that better serves the diverse travel needs of university students. This may include extending service hours to accommodate evening classes and social activities, providing express services during peak academic periods, and ensuring connectivity to key destinations such as shopping centers, employment hubs, and recreational facilities (Nielsen et al., 2006).

Policy Implications and Recommendations

The study's anticipated findings are expected to have important implications for transportation policy at both institutional and governmental levels. For universities, the research may recommend developing comprehensive transportation demand management strategies that integrate public transport promotion with campus planning and student services (Tolley,1996). Institutional Policies that may be recommended include providing subsidized public transport passes for students, negotiating with transport operators for enhanced service to campus areas, implementing car-free campus initiatives that encourage public transport use, and integrating transportation considerations into student orientation and support programs (Balsas,2003). Government Policy implications are expected to include recommendations for targeted public transport subsidies for students, integration of university transportation needs into regional transport planning, and development of regulatory frameworks that ensure adequate service quality standards for public transport operators (Pucher & Kurth, 1995). The research may also recommend policy initiatives that address broader barriers to public transport adoption in Malaysia, including fuel subsidy reforms that level the playing field between public and private transport, land use planning policies that support public transport accessibility, and public awareness campaigns that promote the social and environmental benefits of public transport use (Litman,2021).

Social and Environmental Implications

The research is expected to contribute to broader discussions about sustainable transportation and social equity in urban mobility. By understanding the factors that influence the adoption of public transport among university students, the study may provide insights that support broader sustainability goals and social inclusion objectives (Banister, 2008). The environmental benefits of increased public transport adoption among university students include reduced greenhouse gas emissions, decreased air pollution, and reduced pressure on urban infrastructure. The study may quantify these potential benefits and provide evidence for the environmental case for public transport investment (Litman, 2021). Social Equity implications include ensuring that public transport services provide adequate access to educational, employment, and social opportunities for students from diverse socioeconomic backgrounds. The research may identify barriers that disproportionately affect certain student groups and recommend strategies for ensuring equitable access to quality public transportation services (Martens, 2012).

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 23 (December 2025) PP. 525-537
DOI 10.35631/IJIREV.723035

Innovation and Technology Implications

The anticipated findings regarding information and communication services are expected to provide insights into the role of technology in enhancing customer satisfaction in public transport. University students, as digital natives, may provide valuable feedback on the effectiveness of current technological solutions and their preferences for future innovations (Prensky, 2001). Digital Service Development recommendations may include implementing mobile-first service interfaces, integrating social media platforms for customer communication, developing gamification strategies that encourage public transport use, and exploring emerging technologies such as artificial intelligence for personalized service recommendations (Deterding et al., 2011). Smart City Integration implications may include recommendations for integrating public transport services with broader smart city initiatives, developing data sharing protocols that enable seamless multimodal journeys, and implementing Internet of Things technologies that enhance service monitoring and customer information provision (Batty et al., 2017)

Limitations and Future Research Directions

The study acknowledges several limitations that provide opportunities for future research. The cross-sectional design limits the ability to establish causal relationships between variables, suggesting the need for longitudinal studies that can track changes in satisfaction and usage patterns over time. The focus on a single university and single transport operator limits generalizability, suggesting the need for comparative studies across different contexts (Cook & Campbell,1979). The reliance on self-reported data may introduce response bias and social desirability effects, suggesting opportunities for future research to employ objective measures of service quality and behavioral outcomes. This could include studies that combine customer survey data with operational data, GPS tracking, and other objective measures of service performance and usage patterns (Webb et al., 2000). Future research directions include expanding the study to multiple universities and transport operators, conducting longitudinal studies to track changes in satisfaction over time, integrating objective service quality measures with subjective perceptions, and exploring the application of the framework to other demographic groups and cultural contexts. These extensions would enhance the generalizability and theoretical contributions of the research while providing broader practical insights for public transport improvement initiatives.

Conclusion

This conceptual study provides a comprehensive framework for understanding public transport customer satisfaction among university students in the Malaysian context, specifically focusing on the perceptions of National Defence University Malaysia students regarding Rapid KL bus services. The research addresses significant gaps in the existing literature by examining a specific demographic group in a developing country context, with a focus on bus services that have received relatively less research attention compared to rail-based systems. The theoretical contributions of this study include the adaptation and extension of the SERVQUAL model to better reflect the specific characteristics of public bus services and the unique needs of university students. The comprehensive framework developed in this study provides a model for future research in public transport customer satisfaction, demonstrating the value of integrating multiple theoretical perspectives and methodological approaches to understand complex social phenomena. The findings and recommendations emerging from this research have the potential to contribute to improved public transport services, enhanced customer

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 23 (December 2025) PP. 525-537
DOI 10.35631/IJIREV.723035

satisfaction, and more sustainable urban mobility patterns, ultimately supporting the broader goals of sustainable urban development and social equity in transportation access.

Acknowledgements

The research has been conducted under the department of Management, National Defence University of Malaysia.

References

Abenoza, R. F., Cats, O., & Susilo, Y. O. (2019). Determinants of traveler satisfaction: Evidence for non-linear and asymmetric effects. *Transportation Research Part F: Traffic Psychology and Behaviour, 66*, 339–356.

Abdullah, A. A., & Talip, R. M. (2013). RapidKL bus service in city center, Kuala Lumpur, Malaysia: An epitome of good service? *International Journal of Academic Research in Business and Social Sciences, 3*(6), 1–18.

Adamos, E., Nathanail, E., & Nikolaraizi, M. (2025). Measuring the accessibility and connectivity of the University of Thessaly campuses in Volos. In *Lecture Notes in Intelligent Transportation and Infrastructure* (Part F155, pp. 41–57). Springer Nature.

Adriana, M. C., Situmorang, R., & Aji, B. J. (2023). Exploring the transport mode choice of university students in Jakarta: A case study of Universitas Trisakti. *Spatium, 49*, 20–29.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211.

Alomari, A. H., Khedaywi, T. S., Jadah, A. A., & Marian, A. R. O. (2023). Evaluation of public transport among university commuters in rural areas. *Sustainability (Switzerland), 15*(1).

Bakar, M. F. A., Norhisham, S., Fai, C. M., & Baharin, N. L. (2021). Comparison of service quality and stakeholder perception on bus services for urban transportation in Klang Valley. *International Journal of Academic Research in Business and Social Sciences, 11*(2), 1352–1362.

Bakti, I. G. M. Y., Rakhmawati, T., Damayanti, S., Sumaedi, S., & Yarmen, M. (2018). Testing and extending P-Transqual public transport service quality model: A causal approach. In *2018 IEEE International Conference on Industrial Engineering and Engineering Management* (pp. 1563–1567).

Balsas, C. J. (2003). Sustainable transportation planning on college campuses. *Transport Policy, 10*(1), 35–49.

Banister, D. (2008). The sustainable mobility paradigm. *Transport Policy, 15*(2), 73–80.

Barabino, B., Deiana, E., & Tilocca, P. (2012). Measuring service quality in urban bus transport: A modified SERVQUAL approach. *International Journal of Quality and Service Sciences, 4*(3), 238–252.

Camporeale, R., Caggiani, L., & Ottomanelli, M. (2021). Equity and accessibility in sustainable mobility planning. *Territorio, 99*, 32–39.

Cats, O., Abenoza, R. F., Liu, C., & Susilo, Y. O. (2015). Evolution of satisfaction with public transport and its determinants in Sweden: Identifying priority areas. *Transportation Research Record, 2538*, 86–96.

Cavana, R. Y., Corbett, L. M., & Lo, Y. L. G. (2007). Developing zones of tolerance for managing passenger rail service quality. *International Journal of Quality & Reliability Management, 24*(1), 7–31.

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 23 (December 2025) PP. 525-537
DOI 10.35631/IJIREV.723035
Chen, C. F., & Chao, W. H. (2011). Habitual or reasoned? Using TPB, TAM, and habit to examine switching intentions toward public transit. *Transportation Research Part F: Traffic Psychology and Behaviour, 14*(2), 128–137.

Cordera, R., Nogués, S., González-González, E., & dell'Olio, L. (2019). Intra-urban spatial disparities in user satisfaction with public transport services. *Sustainability (Switzerland), 11*(20).

de Oliveira, M. L., de Andrade Mairinque, L., dos Santos, J. B., & Lima, J. P. (2022). Multivariate analysis of public transport quality: A case study in a medium-sized Brazilian city. *Production, 32*.

Della Porta, A., Migliori, S., Paolone, F., & Pozzoli, M. (2019). Integrated transport planning: The "rehabilitation" of a contested concept in UK bus reforms. *Journal of Cleaner Production, 232*, 1297–1308.

Donthu, N., & Yoo, B. (1998). Cultural influences on service quality expectations. *Journal of Service Research, 1*(2), 178–186.

Dong, Y., Sun, Y., Wang, D., Waygood, E. O. D., Naseri, H., & Jiang, Y. (2023). How daily mobility and public transport use affect travel satisfaction: Evidence from Hangzhou, China. In *Proceedings of the 27th International Conference of HKSTS: Transport and Equity* (pp. 105–114).

Eboli, L., & Mazzulla, G. (2007). Service quality attributes affecting customer satisfaction for bus transit. *Journal of Public Transportation, 10*(3), 21–34.

Ferreira, M. C., Peralo, G., Dias, T. G., & Tavares, J. M. R. S. (2024). Analyzing quality of service and defining marketing strategies for public transport: The case of Metropolitan Area of Porto. In *Lecture Notes in Networks and Systems* (Vol. 802, pp. 153–161). Springer.

Fishbein, M., & Ajzen, I. (2011). *Predicting and changing behavior: The reasoned action approach*. Psychology Press.

Fornell, C., Johnson, M. D., Anderson, E. W., Cha, J., & Bryant, B. E. (1996). The American Customer Satisfaction Index: Nature, purpose, and findings. *Journal of Marketing, 60*(4), 7–18.

Hensher, D. A., Stopher, P. R., & Bullock, P. (2003). Service quality: Developing a service quality index in the provision of commercial bus contracts. *Transportation Research Part A: Policy and Practice, 37*(6), 499–517.

Ibrahim, M. F. (2003). Improvements and integration of a public transport system: The case of Singapore. *Cities, 20*(3), 205–216.

Ibrahim, S., Zhang, Y., & Ahmad, A. (2025). Rail-based public transportation service quality and customer satisfaction: A decade of insights and advances. *Public Transport, 17*(1), 1–25.

Ismail, I. K., Leh, O. L. H., & Zaki, Z. A. (2017). An evaluation of urban public transport route: Case study of Hop-on Hop-off, Kuala Lumpur, Malaysia. *Planning Malaysia, 6*, 109–122.

Jomnonkwao, S., Sangphong, O., Khampirat, B., Siridhara, S., & Ratanavaraha, V. (2016). Public transport promotion policy on campus: Evidence from Suranaree University in Thailand. *Public Transport, 8*(2), 185–203.

Khattak, A., Wang, X., Son, S., & Agnello, P. (2011). Travel by university students in Virginia: Is this travel different from the general population? *Transportation Research Record, 2255*(1), 137–145.

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 23 (December 2025) PP. 525-537
DOI 10.35631/IJIREV.723035
Lin, J.-H. (2018). Validate service quality measurement for city bus through simulation technique. In *2018 8th International Conference on Logistics, Informatics and Service Sciences (LISS)*. IEEE.

Litman, T. (2011). *Evaluating public transit benefits and costs*. Victoria Transport Policy Institute.

Loukaitou-Sideris, A. (2014). Fear and safety in transit environments from the women's perspective. *Security Journal, 27*(2), 242–256.

Loukaitou-Sideris, A., & Fink, C. (2009). Addressing women's fear of victimization in transportation settings: A survey of U.S. transit agencies. *Urban Affairs Review, 44*(4), 554–587.

Martens, K. (2012). Justice in transport as justice in accessibility. *Transportation, 39*(6), 1035–1053.

Mikhaylov, A. S., Gumenuk, I. S., & Mikhaylova, A. A. (2015). The SERVQUAL model in measuring service quality of public transportation: Evidence from Russia. *Quality – Access to Success, 16*(144), 78–83.

Min, K. J., Fatiah, A. A., & Ponrahono, Z. (2022). A spatial analysis of subsidised bus route catchment feasibility in an urban area in Malaysia. *Planning Malaysia, 20*(4), 95–107.

Mokhtar, S. (2011). Towards a world-class public transport system for Malaysia. *Public Transport International, 60*(4), 28–29.

Mouwen, A. (2015). Drivers of customer satisfaction with public transport services. *Transportation Research Part A: Policy and Practice, 78*, 1–20.

Muda, N., Suradi, N. R., & Mat Roji, N. S. (2013). Penalty–rewards contrast analysis (PRCA) on the KL monorail services. *AIP Conference Proceedings, 1522*, 1477–1482.

Norhisham, S., Bakar, M. F. A., Tajri, A. A., Mohamed, D., Yatuka, S., Masjuki, S. A., … Zaini, N. (2019). Statistical overview on quality bus service in Klang Valley. *International Journal of Advanced Science and Technology, 28*(10), 370–380.

Ojo, T. K. (2019). Quality of public transport service: An integrative review and research agenda. *Transportation Letters, 11*(2), 104–116.

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research, 17*(4), 460–469.

Olivková, I. (2016). Evaluation of quality public transport criteria in terms of passenger satisfaction. *Transport and Telecommunication, 17*(1), 18–27.

Ong, J. Y., Ong, W. C., Ong, A. C., & Khoo, H. L. (2022). Service quality and customer satisfaction: A study of MyRapid in Malaysia. *International Journal of Tourism, Hospitality and Asia Pacific, 5*(2), 45–58.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing, 64*(1), 12–40.

Prommakhot, S., & Arreeras, T. (2022). Exploring shuttle services satisfaction factors toward sustainable transit development. In *2022 International Conference on Decision Aid Sciences and Applications (DASA)* (pp. 1696–1700).

Rapid KL. (2023). *Digital transformation report*. Prasarana Malaysia Berhad.

Roberts, C., Grisé, E., & van Lierop, D. (2021). Evaluating public transport customer satisfaction data collection and analysis techniques. In *Advances in Transport Policy and Planning* (Vol. 8, pp. 211–242). Elsevier.

Sam, E. F., Brijs, K., Daniels, S., Brijs, T., & Wets, G. (2019). Construction and validation of a public bus passenger safety scale. *Transportation Research Part F: Traffic Psychology and Behaviour, 66*, 47–62.

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 23 (December 2025) PP. 525-537
DOI 10.35631/IJIREV.723035
Sann, R., & Siripipattaworn, S. (2024). University public transportation logistics service quality and student satisfaction: Empirical evidence from Thailand. *Cogent Business & Management, 11*(1), Article 2331628.

Sari, M., Keke, Y., Mafrudhoh, L., & Morozova, O. (2023). Public transport service quality to female transport users in Jakarta. In *AIP Conference Proceedings* (Vol. 2624, Issue 1). American Institute of Physics.

Shukla, M. K., Shanu, A., & Singh, L. (2021). Service quality dimensions in urban bus transport—A case for Kolkata. In *Lecture Notes in Mechanical Engineering* (pp. 383–390). Springer.

Sogbe, E., Susilawati, S., & Pin, T. C. (2025). Scaling up public transport usage: A systematic literature review of service quality, satisfaction and attitude toward bus transport systems in developing countries. *Public Transport, 17*(1), 1–44.

Spreng, R. A., MacKenzie, S. B., & Olshavsky, R. W. (1996). A reexamination of the determinants of consumer satisfaction. *Journal of Marketing, 60*(3), 15–32.

Stojic, D., Ciric, Z., Sedlak, O., & Marcikic Horvat, A. (2020). Students' views on public transport: Satisfaction and emission. *Sustainability, 12*(20), Article 8470.

Tavares, V. B., Lucchesi, S. T., Larranaga, A. M., & Cybis, H. B. B. (2021). Influence of public transport quality attributes on user satisfaction of different age cohorts. *Case Studies on Transport Policy, 9*(3), 1042–1050.

Tevar, Ó. A., Marcos, L. D., Sebastián, M. G. D. B., & Vicente, A. T. D. (2025). Exploring university students' perceptions of public transport in Madrid. *Street Art and Urban Creativity, 11*(3), 123–136.

Tolley, R. (1996). Green campuses: Cutting the environmental cost of commuting. *Journal of Transport Geography, 4*(3), 213–217.

Tyrinopoulos, Y., & Antoniou, C. (2008). Public transit user satisfaction: Variability and policy implications. *Transport Policy, 15*(4), 260–272.

Tyrinopoulos, Y., & Antoniou, C. (2015). Analysis of passengers' perception of public transport quality and performance. In *Transportation Systems and Engineering: Concepts, Methodologies, Tools, and Applications* (Vols. 2–3, pp. 1108–1124). IGI Global.

Ueasangkomsate, P. (2019). Service quality of public road passenger transport in Thailand. *Kasetsart Journal of Social Sciences, 40*(1), 74–81.

Valenzo-Jiménez, M. A., Lázaro-López, D. A., & Martínez-Arroyo, J. A. (2019). Application of the SERVQUAL model to evaluate the quality in the transportation service in Morelia, Mexico. *DYNA (Colombia), 86*(211), 64–74.

Van Lierop, D., Badami, M. G., & El-Geneidy, A. M. (2018). What influences satisfaction and loyalty in public transport? A review of the literature. *Transport Reviews, 38*(1), 52–72.

Vega Camacho, O. H., Rivera-Rodríguez, H.-A., & Malaver Rojas, N. (2017). Contrasting between expectations and perceptions of service quality in the public bus transport system in Bogotá. *Espacios, 38*(43).

Vuchic, V. R. (2017). *Urban transit: Operations, planning, and economics*. John Wiley & Sons.

Whalen, K. E., Páez, A., & Carrasco, J. A. (2013). Mode choice of university students commuting to school and the role of active travel. *Journal of Transport Geography, 31*, 132–142.

Yavuz, N., & Welch, E. W. (2010). Addressing fear of crime in public space: Gender differences in reaction to safety measures in train transit. *Urban Studies, 47*(12), 2491–2515.

Yang, M., Zhao, J., Wang, W., Liu, Z., & Li, Z. (2015). Metro commuters' satisfaction in multi-type access and egress transferring groups. *Transportation Research Part D: Transport and Environment, 34*, 179–194.

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 23 (December 2025) PP. 525-537
DOI 10.35631/IJIREV.723035
Yang, X., Zhang, D., An, J., & Liu, H. (2010). Passengers' perception-based public transportation service quality evaluating methodology. *IET Conference Publications, 573 CP*, 155–160.

Yee, F. M., Fah, L. K., Yee, N. K., Shuen, A. N. H., & Quan, H. J. (2024). Customer satisfaction towards public transportation: A case of the Malaysian transport industry. *Journal of Global Business and Social Entrepreneurship, 10*(28).

Zacharias, J., & Liu, X. (2022). The role of the access environment in metro commute travel satisfaction. *Sustainability (Switzerland), 14*(22).

Zhang, C., Liu, Y., Lu, W., & Xiao, G. (2019). Evaluating passenger satisfaction index based on PLS-SEM model: Evidence from Chinese public transport service. *Transportation Research Part A: Policy and Practice, 120*, 149–164.

Zhou, J. (2012). Sustainable commute in a car-dominant city: Factors affecting alternative mode choices among university students. *Transportation Research Part A: Policy and Practice, 46*(7), 1013–1029.