PLANNING MALAYSIA:
Journal of the Malaysian Institute of Planners
VOLUME 22 ISSUE 1 (2024), Page 283 – 295

THE EFFECTS OF PASSENGER BEHAVIOUR ON PUBLIC BUS TRANSPORT SELECTION DECISION-MAKING

Ery Sugito[1], Diana Mohamad[2], Ruhizal Roosli[3]

[1,2,3]*School of Housing, Building, and Planning,*
UNIVERSITI SAINS MALAYSIA (USM)

Abstract

While the quality of a public transportation system is determined by its sustainability, as well as the regulations governing its operations, the decision-making process of an individual, in terms of his/her selection of a transportation option, is highly influenced by issues related to behaviour. This research delves into the manner in which cultural (CLT), social (SCL), psychological ((PLG) and personality (PLS) issues, affect passenger preference for a transportation mode. The findings, derived through the employment of the SMART partial least squares structural equation modelling (SmartPLS-SEM) approach, clearly indicate that PLS factors, including age and lifecycle stage (PLS1), economic situation (PLS2) and lifestyle (PLS3), significantly influence an individual's public transportation selection (TS). As such, during their efforts to enhance the quality of public bus services, it is essential that transportation operators and policymakers take into consideration the passengers' PLS traits, along with all other influencing factors, and utilize them as the primary guideline for the crafting of policies, aimed at achieving public transportation sustainability.

Keywords*:* Public Bus Transportation, Passenger Behaviour, Decision-Making, Urban Transportation Planning

[1] Corresponding Author Email: ery_sugito@hotmail.com

INTRODUCTION

Sustainable urban development is highly dependent on an efficient public transportation system. Recent studies indicate a growing worldwide emphasis, on the promotion of public transport use, through the development of an efficient and reliable public transportation system (Ismael & Duleba, 2022). The Theory of Planned Behaviour (TPB) serves as a useful means, for understanding and predicting the behaviour of passengers, with regards to transportation services (Ajzen, 1991). A good perception of passenger behaviour, paves the way towards the development of effective strategies, for the promotion of public transportation use, which consequently contributes towards the sustainable development of urban areas (Zeithaml et al., 1996).

In urban areas, public transportation operators often disregard the declining use of public buses as a travel option. Such a situation can hamper efforts directed at achieving sustainable urban development. During the formulation of public transportation policies, the government should include the participation of residents in the decision-making process, as these policies will have a significant impact on their daily lives. A questionnaire survey is considered an effective approach for the gathering of public opinion regarding the use of public transportation (Asah Nasrudin et al., 2023). The questionnaire survey should also cover issues related to the public transportation selection (TS) process (Duleba & Moslem, 2018).

LITERATURE REVIEW

Public Bus Transportation

In the urban transportation system, public bus transportation represents an efficient, comfortable, and cost-effective travel option (Saleem et al., 2023). In developing countries such as Africa, Asia, and Latin America, bus rapid transit (BRT) systems provide low-income groups with support in the form of time savings, cost savings, easy accessibility, as well as safety and health benefits. A comprehensive bus transportation performance assessment should cover all aspects of the service, user perspectives, and user behaviour (Bakar et al., 2022).

The Effect of Passenger Behaviour on Public Transportation Selection (TS)

The high number of studies focusing on passenger behaviour, particularly in the context of management and engineering (Sweis et al., 2013), is attributed to the wide-ranging implications of passenger behaviour, on the performance of the transportation industry. The efforts of transportation companies, aimed at boosting customer loyalty by identifying and meeting their demands (Lai & Chen, 2011), has led to a better understanding of passenger preferences, and their decision-making process, with regards to their public TS (Liu et al., 2023). Several methodological approaches have been employed (Hadi et al., 2023), to explain the manner in which factors such as perceived value, service disruptions,

public image and changing costs, influence passenger behaviour. According to Peter and Oslon (2010), several issues influence the decision-making behaviour of passengers. These include the culture (CLT) issue, which emphasizes on the sub-culture and social class; the social (SCL) issue, which emphasizes on reference groups, family roles and status; the personality (PLS) issue, which emphasizes on age and lifecycle stage, economic situation, and lifestyle; as well as the psychological (PLG) issue which emphasizes on motivations/perceptions, education, and beliefs/attitudes with regards to public bus transportation in terms of satisfaction, safety/security, service and accessibility (Asah Nasrudin et al., 2023; Peter & Oslon, 2010).

The Effect of Decision-making on Public Transportation Selection (TS)

In the context of public bus TS decision-making, a comprehensive evaluation of goals, effects, benefits, costs, risks and obstacles is necessary, for arriving at well-informed choices (Henke et al., 2020). During the decision-making process, the upholding of decision consistency is essential for the exclusion of contradictions, as well as for the appropriate assessment of available alternatives. This entails a good comprehension of the physical characteristics involved, and the relevant options (De Andreis et al., 2023). The optimization of the decision-making process by an organization requires the establishment of clear definitions, the identification of alternatives, the use of evaluation methodologies, the recognition of the limitations of the decision-maker, as well as the identification of potential errors. An all-inclusive approach is required to address existing conceptual shortcomings, and to deliver a more accurate explanation regarding the interconnected issues influencing public bus transportation decision-making. Decision-makers are in agreement, that passenger behaviour needs to be taken into consideration, during efforts to enhance the urban public transportation system (Hashimah et al., 2023).

The Effect of Transportation Planning on Public Transportation Selection (TS)

The significant and complex challenges encountered, during the planning phase of an urban public transportation system, can be overcome through a well-organised integration of various transportation modes, including trams, metros, railways and buses. This will also serve to improve the passengers' travel experience. Additionally, with proper planning, transportation companies can deliver high-quality passenger services, while minimizing overall operational costs (Perumal et al., 2022). However, during their efforts to formulate an effective public transportation plan, it is imperative that city government officials and urban transport managers include measures, aimed at the preservation of human health, as well as the health of the environment (Wafa et al., 2023).

METHODOLOGY

A quantitative method, utilizing SMART partial least squares-structural equation modelling (SmartPLS-SEM), was employed for this study, to identify the relationships among interrelated variables, as well as to derive insights regarding the structure and dynamics within the data.

Research Sample

The questionnaire was designed for the measurement of behaviour-related factors associated with (a) CLT, covering sub-culture (CLT1) and social class (CLT2), (b) SCL, covering reference group (SCL1), family (SCL2), role and status (SCL3), (c) PLS, covering age and lifecycle stage (PLS1), economic situation (PLS2), and lifestyle (PLS3), (d) PLG, covering motivation and perception (PLG1), education (PLG2), and beliefs and attitudes (PLG3), and lastly (e) TS, covering satisfaction (TS1), safety and security (TS2), service (TS3), and accessibility (TS4). All 15 items were measured using a Likert scale ranging from 1 to 5, with 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, and 5 = strongly agree. Random sampling was used for the recruitment of public bus transportation passengers, at the minimum sample size recommended by Barclay, which is 10 times the number of constructs (Barclay & Thompson, 1995). Consequently, 250 respondents were recruited for this survey.

Research Location

This study is limited to users of public buses (Trans-Batam) managed by the transportation department of Batam City. Figure 1 depicts the Trans-Batam bus transportation routes, comprising seven active routes operated by Trans-Batam, including Sekupang-Batam Centre (green), Tanjung Uncang-Batam Centre (red), Sekupang-Jodoh (purple), Jodoh-Batam Centre (light brown), Tanjung Piayu-Batam Centre (brown), Nongsa-Batam Centre (yellow), and Pungkur-Jodoh (light green).

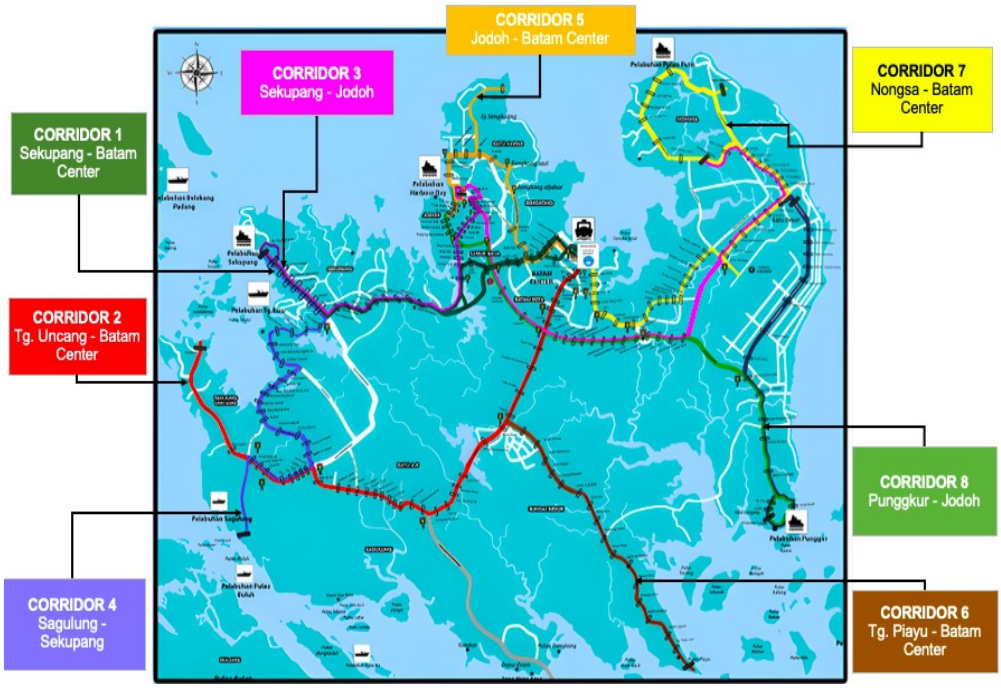

Figure 1: Transport Map of Batam City
Source: Dinas Perhubungan Pemerintah Kota Batam, (2020)

Analysis Analysis Method

The measurement model in PLS-SEM was employed to identify the factor loading (λ), which describes the extent to which the observed variables (χ) contributed, to the latent constructs they represent. Two types of measurement approaches were used; reflective and formative. With the reflective measurement, the relationship between χ and the constructed latent variables (ξ) was established. The λ measured the extent to which the χ contributed to the ξ, which was measured through the χ, while ε represents the unexplained error factor.

The formative measurement assumes that ξ are generated by χ. In this case, the ξ are a linear function of χ, plus the error term (δ). The corresponding weights for each χ are denoted *W*. The structural model describes the direction and strength of the relationships, between the ξ defined in the model. The structural model includes paths connecting ξ, which depict both direct and indirect influences among the variables. In this context, the ξ are the variables in the structural relationship, while the regression coefficient (β) describes the strength and direction of the relationship between ξ and the other latent variables (ς), which act as independent variables in the structural relationship. The error, or residual variance (η), is the unexplained variation unaccounted for by the model. In this study, the model proposed was tested with a significance level of 5%. The

minimum sample size for this study, in compliance with the Barclay rule, is 10 times the number of variables in the model.

RESULT

This section focuses on the identification of the key factors, influencing the TS decision-making process of passengers, using public transportation in the city of Batam.

Preliminary Test

The correlation between ξ was analysed to identify the relationship among related variables. The variance-covariance matrix between beliefs and attitudes (PLG3) was observed to be high, with a correlation coefficient (R) of 0.78 with economic situation (PLS2). The R of social class (CLT2), with sub-culture (CLT1), was also recorded as high (0.76). Additionally, a significant correlation (0.74) was detected between economic situation (PLS2) as well as age and lifecycle stage (PLS1). A multicollinearity test was conducted to examine the existence of issues influencing collinearity among the independent variables. Consequently, the existence of such issues was ruled out, as the inner variance inflation factor (VIF) of all the variables is ≤ 5, which is the threshold, recommended by Hair. In terms of impact, the inner VIFs were recorded as CLT–TS = 1.99, SCL–TS = 2.98, PLS–TS = 2.82, and PLG–TS = 2.23. Data bias, stemming from common method bias in the questionnaire, was ruled out following a scrutiny of the pathological collinearity factors, which revealed a value of ≤ 3.3, an indication that the data is free from common method bias. All values of the outer variables were recorded as < 3.3 (Table 1), indicating that this undertaking is not affected by data bias (Kock, 2015).

Table 1: Multicollinearity Inner Result

Correlation	Result
Culture --> Public Bus Transport	1.994
Social --> Public Bus Transport	2.982
Personality --> Public Bus Transport	2.828
Psychologist --> Public Bus Transport	2.233

Measurement Model Assessment

Testing for validity and reliability involved the use of composite reliability (CR), which includes Cronbach's alpha (α) and Rho. A, to determine internal consistency, with the recommended values > 0.70, and average variance extracted (AVE), to assess the convergent validity of each variable, with the recommended average value for constructs set as > 0.50 (Hair et al., 2019). The results deriving from Cronbach's α, CR, and AVE are registered as follows: CLT (CA = 8.866, CR = 0.918, AVE = 0.789), SCL (CA = 0.875, CR = 0.923, AVE = 0.800), PLS

(CA = 0.888, CR = 0.931, AVE = 0.817), PLG (CA = 0.847, CR = 0.907, AVE = 0.766), and TS (CA = 0.874, CR = 0.913, AVE = 0.725). As can be observed, the loading factors were recorded as > 0.70, an indication of data reliability; the Cronbach's α was recorded as > 0.70, an indication of sound data; and the AVE for the variables was recorded as > 0.50, an indication that all convergent validity requirements are met.

The Fornell-Larcker Criterion is utilized, to scrutinize the square root of the AVE on the diagonal axis, for an assessment of discriminant validity (Wong Kay, 2015). The values on the diagonal axis in the Fornell-Larcker Criterion were recorded as > 0.5, with CLT = 0.889, PLS = 0.904, PLG = 0.875, SCL = 0.894, and TS = 0.852, an indication of the reliability of all the values. The next step involves the calculation of the heterotrait-monotrait (HTMT) ratio, with < 0.9 as the recommended value. Consequently, the HTMT ratios were recorded as PLS–CLT = 0.743, PLG–PLS = 0.886, SCL–PLG = 0.784 and TS–SCL = 0.723 (Table 3). Based on the results obtained, discriminant validity is established, and all measurement models can be considered reliable and valid.

Structural Model Assessment

Following the verification of the validity and reliability, the structural model was measured with the utilization of the bootstrapping technique. Five hundred subsamples were used to obtain average values among the constructs, for the average geometric correlation value for items that measure the same construct, indicating a threshold value of 0.90 for the structural model. The relationship between the dependent (endogenous) and independent (exogenous) variables is made clear, through the significance level of the path coefficients (β values).

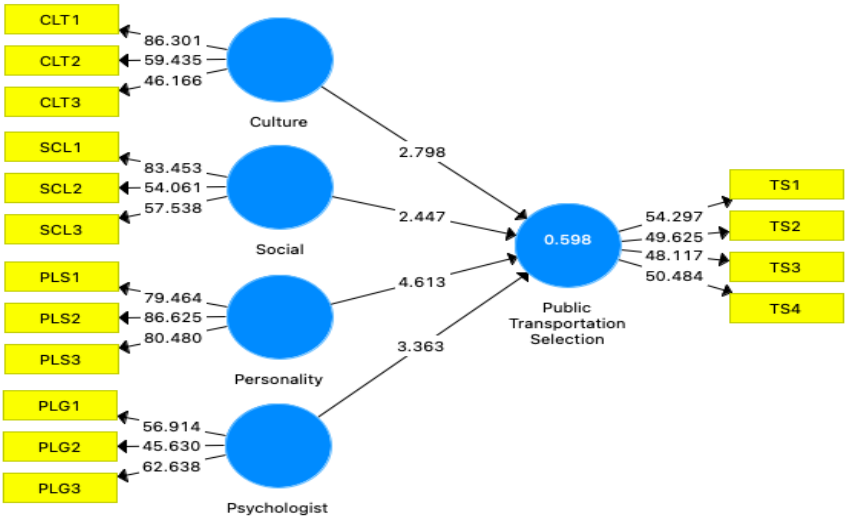

Figure 2: Model Structural

As shown in Figure 2, TS has a strong relationship (59.8%) with a moderate coefficient of determination (R^2) = 0.598. The structural estimation for H1 (CLT–TS) was recorded as β = 0.183, t = 2.798 and p = 0.005, indicating that CLT has a significant and positive impact on TS, with an effect size (f^2) of 0.183 and $p < 0.05$. A similar trend was observed for H2 (SCL–TS), where β = 0.145, t = 2.447, and p = 0.015; H3 (PLS–TS), where β = 0.319, t = 4.613, and p = 0.000; and H4 (PLG–TS), where β = 0.235, t = 3.363, and p = 0.001; all of which have significant and positive effects. As such, all the hypotheses are verified acceptable. The f^2 represents the effect sizes of the independent variables on the endogenous variables, where 0.002 = small, 0.15 = medium, and 0.35 = large. Although the f^2 obtained falls within the small effects range for TS, it nevertheless correlates with decision-making as CLT = 0.042, SCL = 0.023, PLS = 0.085, and PLG = 0.049. At a 95% confidence level, the impact of CLT on TS is estimated to be between 0.057 – 0.302. This is an indication that a change in the level of CLT, in urban areas, can increase its influence on TS up to 0.302. Similarly, in terms of the SCL, PLS, and PLG factors, their influence is estimated to range between 0.028 – 0.255, 0.181 – 0.455, and 0.101 – 0.377 respectively. These intervals represent the potential influence ranges for each factor on TS, at the specified confidence level.

Predictive Accuracy Assessment

The interpretation of R^2 serves as a measure of the predictive power of the research model (Sarstedt & Danks, 2022). In this study, the accuracy of the relevance test, according to the R^2, fits into the moderate range (0.598), which is > 0.33. Thus, based on relevant literature, predictive relevance (Q^2) > 0 is an indication of predictive relevance between endogenous attributes. As the Q^2 in this study is verified positive (0.427), the predictive relevance of our proposed model can be considered adequate.

Goodness of Fit (GoF) Assessment

The Goodness of Fit (GoF) is used to evaluate the adequacy of the model (Wetzels et al., 2009). Between covariance-based structural equation modelling (CB-SEM) and PLS-SEM, PLS-SEM is considered more effective for determining the GoF, as it is more reliable with regards to the testing and verification of theories (Westland, 2015). While researchers generally favour the use of PLS-SEM for the GoF, it is important to exercise caution regarding issues associated to the recommended threshold values, the standardized root mean square residual (SRMR), and the chi-square (Hair et al., 2019, 2021). The GoF is ascertained through the utilization of the AVE, obtained from the average measurement of R^2. The formula for this process is as follows: GoF = $\sqrt{(\mathbf{AVE \times R^2})}$ with recommended thresholds of GoF_{small} = 0.1, GoF_{medium} = 0.25 and GoF_{large} = 0.36 (Wetzels et al., 2009). Based on this equation, the GoF index

of this study was determined as 0.682. This value derives from the AVE of each variable: CLT (0.789), SCL (0.800), PLS (0.817), PLG (0.766), and TS (0.725). The value average of 0.779 is an indication that the predictive strength and significance of our conceptual model can be deemed adequate.

DISCUSSION

A good understanding of passenger behaviour, with regards to public transport usage, is essential during research aimed at ensuring the sustainability of public transportation. Behavioural factors, such as CLT, SCL, PLS, and PLG, play a significant role in the moulding of passenger behaviour. This investigation provides insights, regarding the manner in which passenger decision-making, in terms of public TS, is influenced by passenger behaviour. The identification key community behaviour factors, which significantly influence TS, will go a long way towards enhancing the knowledge of the authorities and policymakers in the public transportation sector, regarding the manner in which public transportation users select their preferred services. This knowledge, of significant community behaviour factors, can be utilized for the formulation of effective strategies, aimed at retaining existing passengers, while attracting new ones. In practice, however, the objective of improving the quality of public transportation services is not without its challenges, particularly in the form of differing community behaviours and perspectives.

The findings derived through this investigation indicate that PLS factors most significantly influence passenger decisions regarding TS. Thus, during the formulation of policies directed at increasing the use of public transportation, it is essential that PLS factors, including age and lifecycle stage (PLS1), economic situation (PLS2), and lifestyle (PLS3) be taken into consideration. SCL factors, such as reference group (SCL1), family (SCL2), as well as role and status (SCL3), also play a crucial role in the behaviour moulding of passenger groups and individuals. In the context of PLG factors, alerting passengers through awareness campaigns, regarding the benefits to be gained from public transportation usage, carpooling, or other sustainable travel alternatives, can lead to the realization of more conscientious passengers. As for the CLT factors, these can be enhanced through improvements in the service quality (including in the areas of cleanliness, accessibility, and safety), as well as through the monitoring and curbing of environmental degradation, deriving from urban public transportation operations.

Operators in the public transportation sector need to understand the impact of the abovementioned factors, on the TS decision-making process, in order to respond effectively to each specific factor. Also required is a good grasp of the CLT of the community, which influences the sub-culture (CLT1) and social class (CLT2). Public transportation operators need to acknowledge cultural diversity, and take their underlying values into consideration. It should be noted

that the involvement of individuals from diverse cultural backgrounds, in the public transportation sector, can serve to deter cultural bias. The SCL pressures, deriving from reference group (SCL1) and family (SCL2), as well as role and status (SCL3), need to be taken into consideration as they can influence the decision-making process. The role of the PLS factors courage, caution and openness, which affect age and lifecycle stage (PLS1), economic situation (PLS2) and lifestyle (PLS3), needs to be identified, considering their significant impact on the decision-making process. And lastly, the emotional and psychological condition of individuals involved in the decision-making process, need to be recognized, so that support in the form of motivation and self-assurance can be offered if required. On the whole, public sector officials need to be well-informed about the issues which influence the decision-making process, in terms of the use of public facilities. They should also be open to differences in opinions, and take into consideration the different circumstances of individuals, engaged in the decision-making process.

CONCLUSION AND FUTURE RESEARCH PATH

This investigation delves into the influence of CLT, SCL, PLS, and PLG on passenger behaviour in relation to public bus TS in Batam City. Data gathered from public transportation users was analysed using SmartPLS-SEM. Several critical issues associated to public bus TS were highlighted. We are optimistic that the findings derived through this study will contribute towards a better theoretical and practical understanding of these issues. In terms of the relationship between various behavioural constructs and public TS, the findings derived through this undertaking can serve as a guide, during efforts to improve public bus transportation efficiency, and increase the passenger load, to consequently realize the sustainability of this public transportation mode. According to our findings the observable variables carry more weight than the unobservable variables. These findings suggest that policies aimed at raising the quality of public bus services, need to be focused on the variables with greater potential for increasing the bus passenger load. A deeper understanding, of the factors influencing the public TS decision-making process, can facilitate the designing of more effective strategies, to increase public bus transportation usage, and ensure its sustainability. In order to meet diverse community needs and preferences, it is essential that the future formulation of transportation policies and plans, take the CLT, SCL, PLS, and PLG aspects into consideration. This will serve to reduce the dependence on private vehicles, thus alleviating traffic congestion, air pollution, and other minor urban transportation problems.

The limitations of this study calls for future research in this area. For one, the survey sample size and research area can be increased, to derive more accurate findings. While the influence of age, education, and occupation on public bus TS was highlighted, it is our recommendation that future research

delve deeper into the impact of CLT, SCL, PLS, and PLG aspects on larger groups of passengers as well as non-passengers. In the context of methodology, it is important to note that while the application of SmartPLS-SEM and multi-criteria decision-making (MCDM) differs, both can be used within the Bayesian network (BN) approach, to develop a new research framework, for discerning the relationship among the behaviour-influencing factors. In a situation where the number of respondents in a group (such as passenger and non-passenger groups) is substantial, PLS-MGA (multi-group analysis) can be employed to analyse differences in opinion among each group, regarding CLT, SCL, PLS, and PLG.

ACKNOWLEDGEMENT

The authors would like to thank the Fundamental Research Grant Scheme with Project Code: 203.PPBGN.6712097 (Establishing Economically- And Socially-Sustained Neighborhood Indicators for The Development of Penang Island's 20-Minute Neighborhood Guideline) and the School of Housing, Building and Planning, Universiti Sains Malaysia, for financially supporting this research.

REFERENCES

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Asah Nasrudin, N., Shakila Khalid, N., Abdullah, Y. A., Marzukhi, M. A., & Lim, S. B. (2023). Model of pedestrian crossing behaviour based on road traffic and human factor: A case study of Malaysia Shah Alam City. *Journal of Planning Malaysia, 21*(5), 32–47. https://doi.org/10.21837/pm.v21i29.1354

Bakar, M. F. A., Norhisham, S., Katman, H. Y., Fai, C. M., Azlan, N. N. I. M., & Samsudin, N. S. S. (2022). Service Quality of Bus Performance in Asia: A Systematic Literature Review and Conceptual Framework. In *Sustainability* (Switzerland) (Vol. 14, Issue 13). MDPI. https://doi.org/10.3390/su14137998

Barclay, D. W., & Thompson, R. (1995). The Partial Least Squares (PLS) Approach to Causal Modeling: Personal Computer Use as an Illustration. Technology Studies, 2(2), 285–309. https://www.researchgate.net/publication/242663837

De Andreis, F., Curcio, E., Maria Sottoriva, F., & Comite, U. (2023). Multi-criteria decision-making in the transport sector. Multi-Criteria Decision-Making in the Transport Sector, 1–19. https://doi.org/10.5772/intechopen.1001095

Dinas Perhubungan Pemerintah Kota Batam. (2020, August 11). Jadwal Keberangkatan Bus Trans Batam semua koridor. Dinas Perhubungan Kota Batam. https://dishub.batam.go.id/jadwal-keberangkatan-bus-trans-batam-di-semua-koridor-masa-pandemi-covid-19/

Duleba, S., & Moslem, S. (2018). Sustainable urban transport development with stakeholder participation, an AHP-Kendall model: A case study for Mersin. Sustainability (Switzerland), 10(10). https://doi.org/10.3390/su10103647

Hadi, J. A., Haslimah, A., Nayodi, P., & Nazaruddin, N. (2023). Faktor yang berhubungan dengan perilaku K3 pada sopir angkutan umum dikota Padang Sidempuan. *Media*

*Publikasi Promosi Kesehatan Indonesia, 6(*2), 254–260. https://doi.org/10.31934/mppki.v2i3

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. In *European Business Review* (Vol. 31, Issue 1, pp. 2–24). Emerald Group Publishing Ltd. https://doi.org/10.1108/EBR-11-2018-0203

Hair, Joseph. F., Ringle, Christian. M., Dank, Nicholas. P., Hult, G. T., Sarstedt, M., Bolyai, B., & Ray, S. (2021). Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R. Springer Nature Switzerland. https://doi.org/https://doi.org/10.1007/978-3-030-80519-7

Hashimah, N., Lim, H., Tsong Teh, B., Hazwani, N., Hashim, N., Supramanian, R. K., Baharudin, U. W., & Rafee Majid, M. (2023). Factor influencing pre-and post-covid-19 transport mode shift in workplace travel. *Journal of Planning Malaysia, 21*(5), 141–154. https://doi.org/10.21837/pm.v21i29.1361

Henke, I., Cartenì, A., Molitierno, C., & Errico, A. (2020). Decision-Making in the transport sector: A sustainable evaluation method for road infrastructure. *Sustainability (Switzerland), 12*(3). https://doi.org/10.3390/su12030764

Ismael, K., & Duleba, S. (2022). A systematic review of the latest advancements on structural equation modelling (SEM) technique focusing on applications in transportation planning. *Periodica* P*olytechnica Transportation Engineering, 50*(4), 336–343. https://doi.org/10.3311/PPtr.17523

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of E-Collaboration, 11*(4), 1–10. https://doi.org/10.4018/ijec.2015100101

Lai, W. T., & Chen, C. F. (2011). Behavioral intentions of public transit passengers-The roles of service quality, perceived value, satisfaction and involvement. *Transport Policy, 18*(2), 318–325. https://doi.org/10.1016/j.tranpol.2010.09.003

Liu, C., Bardaka, E., & Paschalidis, E. (2023). Sustainable transport choices in public transit access: Travel behavior differences between university students and other young adults. *International Journal of Sustainable Transportation, 17*(6), 679–695. https://doi.org/10.1080/15568318.2022.2084656

Perumal, S. S. G., Lusby, R. M., & Larsen, J. (2022). Electric bus planning & scheduling: A review of related problems and methodologies. In *European Journal of Operational Research* (Vol. 301, Issue 2, pp. 395–413). Elsevier B.V. https://doi.org/10.1016/j.ejor.2021.10.058

Peter, J. P., & Oslon, Jerry. C. (2010). Consumer behavior & marketing strategy (Ninth Edition). McGraw-Hill.

Saleem, M. A., Afzal, H., Ahmad, F., Ismail, H., & Nguyen, N. (2023). An exploration and importance-performance analysis of bus rapid transit systems' service quality attributes: Evidence from an emerging economy. *Transport Policy*, 141, 1–13. https://doi.org/10.1016/j.tranpol.2023.07.010

Sarstedt, M., & Danks, N. P. (2022). Prediction in HRM research–A gap between rhetoric and reality. In *Human Resource Management Journal* (Vol. 32, Issue 2, pp. 485–513). John Wiley and Sons Inc. https://doi.org/10.1111/1748-8583.12400

Sweis, R. J., Al-Mansour, A., Tarawneh, M., & Al-Dweik, G. (2013). The impact of total quality management practices on employee empowerment in the healthcare sector

in Saudi Arabia: a study of King Khalid Hospital. In Int. J. *Productivity and Quality Management* (Vol. 12, Issue 3).

Wafa, W., Hamzah Sharaai, A., Mukhtar, S., Sahak, K., & Afghan, R. (2023). Urban development and waste management planning in Kabul new city, Afghanistan: A case study. *Journal of Planning Malaysia, 21*(5), 96–109. https://doi.org/10.21837/pm.v21i29.1358

Wetzels, M., Odekerken-Schröder, G., & Van Oppen, C. (2009). Using PLS Path Modeling for Assessing Hierarchical Construct Models: Guidelines and Empirical Illustration. In Source: *MIS Quarterly* (Vol. 33, Issue 1). http://www.jstor.orgStableURL:http://www.jstor.org/stable/

Wong Kay, K. K. (2015). Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS. *Marketing Buletin, 24*(1), 1–32. http://www.researchgate.net/publication/268449353

Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing, 60*(2), 31–46. https://doi.org/10.2307/1251929

Received: 30th Nov 2023. Accepted: 23rd Jan 2024