Understanding User Loyalty in Public Transport: A Comparative Review between Developed and Developing Countries

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Abstract

This article presents findings from a systematic comparative review of literature related to public transport user loyalty. Over the past decade, public transportation has become an essential component of urban mobility, and one of the factors that can influence the long-term viability of public transit is user loyalty. It is, therefore, necessary to understand the factors that influence user loyalty in public transportation. This review aims to provide a comprehensive summary of research on user loyalty in public transport to identify the main factors that influence public transport user loyalty. This literature review adheres to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) approach, encompassing studies conducted in various countries and further categorized into developing and developed countries. The findings of this study demonstrate that five primary factors influence public transportation user loyalty: satisfaction, service quality, perceived value, and comfort. The main difference between developing and developed countries is that developing countries are influenced by socio-economic factors, image, and suitable behavior. Meanwhile, developed countries are influenced by critical incidents, environmental attitudes, involvement, and sustainable behavior. Furthermore, this study also highlights the significance of psychological elements, including emotion, expectation, the image of public transport, and environmental attitude, in shaping user loyalty. By providing insights into the factors influencing public transport user loyalty, this article offers valuable insights into the differences between developed and developing countries in creating more sustainable urban mobility.

1.0 INTRODUCTION

In contemporary society, urban mobility has assumed heightened significance in daily routines. Among the fundamental components of urban mobility, public transit plays a pivotal role in facilitating seamless and efficient movement between locations. Despite its centrality, public transportation frequently grapples with multifaceted challenges, including heightened traffic congestion, contributions to air pollution, and various issues that diminish its appeal to potential users. In line with the principles of sustainable development, public transit emerges as a crucial mode of transportation, offering effective mobility solutions for numerous urban residents without necessitating private vehicle ownership. Nonetheless, in numerous cities, particularly those in developing nations, public transit encounters substantial challenges, notably the retention of users. To address this issue, understanding the key factors of public transportation that promote user loyalty is of utmost importance (Suaa et al., 2022).

Transportation systems in developed countries have attained the minimum service standards, reducing reliance on private vehicles. In contrast, urban areas in developing countries have experienced a growing dependence on cars. Concurrently, public transit systems are experiencing a decline in ridership. Scholars have investigated loyalty behavior in this context to identify the factors influencing user retention (Carvalho et al., 2022). Despite its individual benefits, the extensive use of private cars has significantly negative impacts on urban society, particularly in financial, social, and environmental dimensions (Filipović et al., 2009). Nevertheless, mitigating these externalities can be accomplished by retaining public transport users, which can increase ridership. Enhanced commitment to public transportation carries manifold societal and economic benefits. Dedicated public transportation users can significantly reduce marketing costs by generating new customer referrals through positive word-of-mouth endorsements. Moreover, these devoted users exhibit a decreased susceptibility to alternative modes of transportation, primarily due to elevated switching costs, including emotional attachments (Webb, 2010). Several studies have highlighted the positive impacts of public transit use on various societal and health-related dimensions. Public transit users are linked to reduced traffic congestion, lower rates of obesity, diminished emissions, and decreased healthcare expenditures. (Adler and van Ommeren 2016; Edwards 2008; Litman 2020; Loo and du Verle 2017).

Increasing the use of public transportation is recognized as a crucial element in promoting sustainable communities (De Gruyter & Currie, 2020; van Lierop, Badami, and El-Geneidy, 2018) due to its positive effects on mitigating air pollution, noise pollution, traffic congestion, and socioeconomic disparity (Davison & Knowles, 2006; de Oña et al., 2016; Eboli & Mazzulla, n.d.). Public transport operators are keenly focused on augmenting ridership, viewing it as a central objective, and this entails implementing strategies to attract new passengers alongside endeavors to enhance the commitment of current passengers (Carrel & Li, 2019). The primary challenge facing public transportation today is enhancing user loyalty, given the many factors affecting customer commitment. Consumer loyalty is typically understood to include behavioral and attitudinal dimensions, with the behavioral aspect evident in observable mode choice patterns (e.g., regular preference for public transportation compared to other modes). At the same time, the latter indicates a significant psychological dedication to public transit. Therefore, the essential strategy for strengthening user retention in public transportation and reducing shifts to alternative modes is to thoroughly understand the factors affecting the various aspects of customer loyalty within the public transport sector (Carrel & Li, 2019).

Two comprehensive review studies address the existing literature on public transport patronage. The initial study by van Lierop et al. (2018) examined how various service attributes influence user loyalty and satisfaction. The research's key takeaway was that enhancing satisfaction should concentrate on improving the immediate experiential dimension. In contrast, loyalty is bolstered by progressively enhancing perceptions of different service attributes over time. The subsequent review study, conducted by Carvalho et al. (2022), addresses the conceptualization and operationalization of loyalty construction and examines the factors influencing loyalty within this context. The review study identified service quality, satisfaction, and perceived value as critical factors influencing public transport user loyalty. However, the study lacked a detailed exploration of additional factors impacting loyalty among public transport users. Furthermore, it did not delve into the distinctions in user loyalty between advanced and emerging economies countries, an aspect crucially influenced by variations in the quality of public transportation services. This research, therefore, undertook a comprehensive examination of pertinent literature on user loyalty and public transportation. It analyzed the variations between developed and developing countries, providing a systematic overview of current public transportation user loyalty research. The research also carefully investigated the factors determining user loyalty in public transport services, offering an in-depth analysis of key factors and a comparative assessment of variations among these factors across developed and developing countries.

2.0 METHODS

The present research adopts the systematic literature review methodology. Littell et al. (2008) define a systematic literature review as seeking to thoroughly identify and integrate relevant studies related to a specific research question, applying a meticulous, clear, and replicable approach throughout each process phase. The systematic literature review (SLR) approach is especially suitable for addressing a clearly defined research question (Petticrew & Roberts, 2006). The systematic review in question adheres to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework, as Moher et al. (2009) outlined. Following the principles, the review is structured into distinct phases, encompassing planning, execution, and reporting, in line with the guidance provided by Kitchenham et al. (2009), Moher et al. (2009), and Tranfield et al. (2003).

This study focuses on investigating the formation of user loyalty in public transport. For inclusion, studies had to fulfill a defined set of eligibility criteria: (1) The research must focus on public transit user loyalty and its influencing factors, and (2) it must have been published in an English-language, Scopus-indexed journal between 2013 and 2023. Following this, an analysis will be performed to extract information from the article's content, offering insights that will help address the research questions. The systematic literature review (SLR) process, as illustrated in Figure 1, comprises several essential stages. Initially, the author defines the scope of the research topic, identifies key issues, and sets clear objectives. Next, a comprehensive literature search is carried out using the Scopus and Google Scholar databases, employing relevant keywords "User Loyalty," "User loyalty in Public Transport," and "User loyalty in public transit. A total of 157 journal articles were obtained from Q1 to Q4. After careful review, we identified 46 duplicate articles and removed them. Additionally, a review of the abstracts revealed 36 articles that only addressed user satisfaction, excluding loyalty factors, and therefore needed to be removed. With the remaining 75 articles, we extracted and filtered the articles' contents, resulting in 32 articles relevant to the factors influencing public transport user loyalty.

In our investigation's final stage, we manually identified and analyzed 32 relevant articles, starting by coding them from [S1] to [S32], corresponding to studies numbered 1 to 32. Furthermore, the investigation focuses on authorship, year of publication, research location, and factors influencing public transport user loyalty. Through a systematic literature review, this study explores the factors, dimensions, methods, and contextual nuances shaping user commitment to public transportation in developed and developing countries. The findings of this analysis will be presented and discussed in the subsequent results and discussion section.
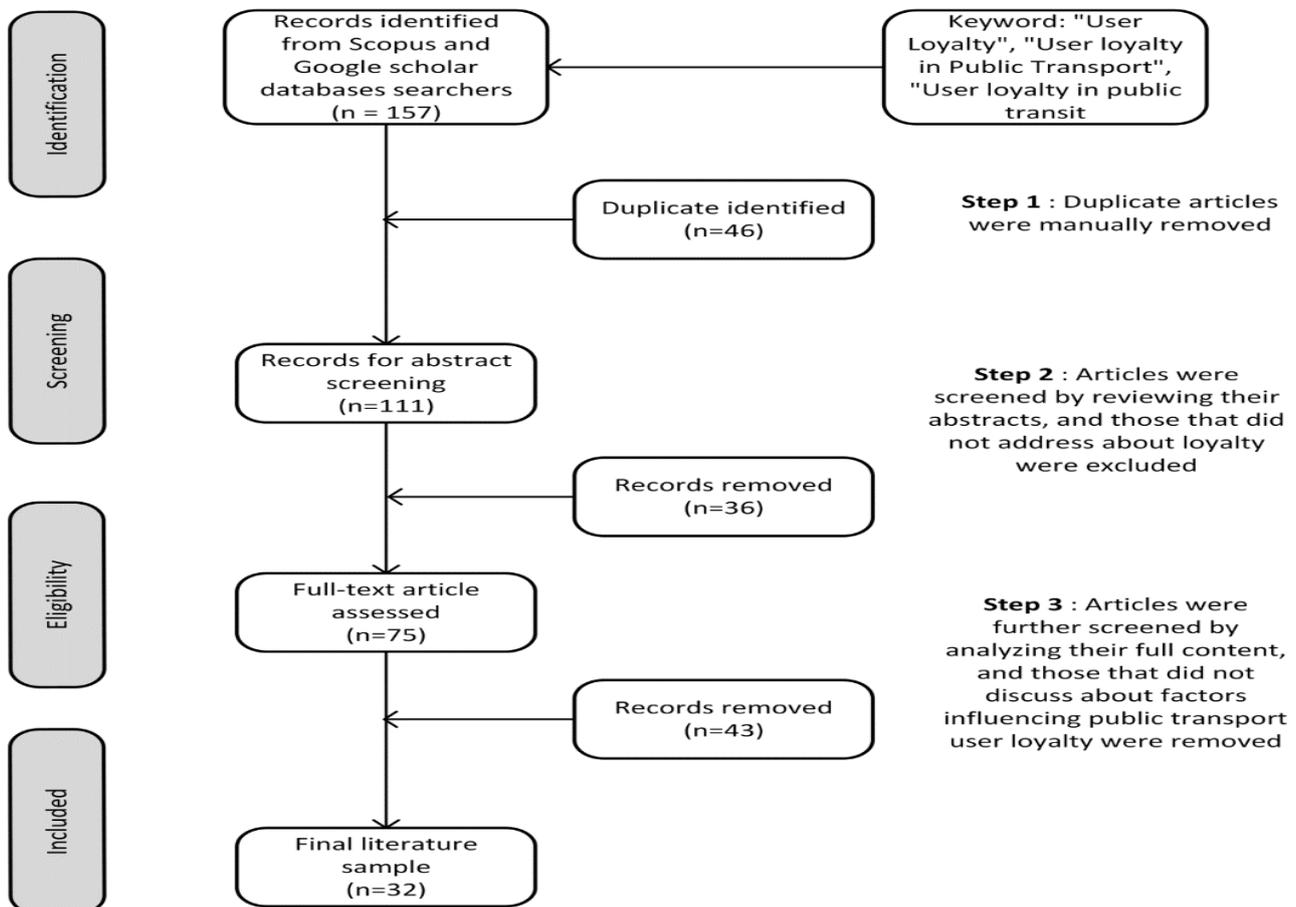

Figure 1. The systematic literature review process (adapted from Moher et al. (2009)).

3.0 RESULTS AND DISCUSSION

The systematic literature review (SLR) conducted to identify the 32 most relevant articles on public transport user loyalty is shown in Figure 1 above. The final set of selected articles will undergo analysis, involving the extraction of data and findings, which will subsequently be systematically visualized. Reviewing this topic to understand the construct of public transport loyalty and the various factors that influence it in developed and developing countries is crucial.

3.1 Analysis and investigation of metadata

Table 1 presents the final list of selected existing research related to public transport user loyalty, categorized according to the following criteria: author, article title, year of publication, and Scopus quartile indexing. The findings are illustrated in Figure 2, which indicates that most of the articles (29 in total) are classified within the Q1 category, whereas only three articles fall under the Q2 classification. Notably, the Q2 articles were published in 2017, 2020, and 2023, while the Q1 articles span a publication period from 2013 to 2023. The quartile classification is used to ensure the relevance and credibility of the articles, which also supports the selection process for review. By prioritizing articles from highly reputable journals (e.g., Q1 or Q2), researchers can ensure that the data utilized is relevant and derived from credible sources, strengthening the foundation of arguments in the SLR study.

Table 1. Distribution of articles by author, title, year, and Scopus indexing quartile.

Id	Author	Title	Method	Sample Size	City Location
[S1]	(Allen, et al., 2019a)	"The role of critical incidents and involvement in transit satisfaction and loyalty"	SEM	2,500	Madrid
[S2]	(Allen et al. 2020)	"Effect of critical incidents on public transport satisfaction and loyalty"	SEM	96,763	Hinterland of Milan
[S3]	(Allen, et al., 2019b)	"Understanding public transport satisfaction: using maslow's hierarchy of (transit) needs"	SEM	10,688	Santiago de Chile, Mexico City, Brazil
[S4]	(Alomari et al. 2023)	"Evaluation of public transport among university commuters in rural areas"	SEM	572	Irbid, Jordan
[S5]	(de Oña 2022)	"Service quality, satisfaction and behavioral intentions towards public transport from the point of view of private vehicle users"	SEM	1,030	Madrid & Lisbon
[S6]	(de Oña 2021)	"Understanding The Mediator Role of Satisfaction in Public Transport: A Cross-country Analysis"	SEM	2579	Madrid, Rome, Berlin, Lisbon, and London
[S7]	(de Oña 2020)	"The role of involvement with public transport in the relationship between service quality, satisfaction and behavioral intentions"	SEM	2,531	Berlin, Lisbon, London, Madrid, and Rome
[S8]	(de Oña et al., 2023)	"Is it possible to attract private vehicle users towards public transport? Understanding The Key Role of Service Quality, Satisfaction and Involvement on Behavioral Intentions"	SEM	507/ city	Madrid, Rome, Berlin, Lisbon, and London
[S9]	(Esmailpour et al. 2022)	"Has COVID-19 changed our loyalty towards public transport? Understanding the moderating	SEM	790	Tehran

Id	Author	Title	Method	Sample Size	City Location
		role of the pandemic in the relationship between service quality, customer satisfaction and loyalty"			
[S10]	(Xue mei Fu, Zhang, and Chan 2018)	"Determinants of Loyalty to Public Transit: A Model Integrating Satisfaction-Loyalty Theory and Expectation-Confirmation Theory"	SEM	429	Suzhou
[S11]	(Xuemei Fu and Juan 2017)	"Drivers of transit service loyalty considering heterogeneity between user segments"	Factor Analysis & Order Probit model	6,837	Shaoxing
[S12]	(Gao, Shao, and Sun 2019)	"Roles of psychological resistance to change factors and heterogeneity in car stickiness and transit loyalty in mode shift behavior: a hybrid choice approach"	Hybrid choice model	525	Shanghai
[S13]	(Gholi, Kermanshah, and Reza Mamdoohi 2022)	"Investigating the sources of heterogeneity in passengers' preferences for transit service quality"	Mix Logit model	360	Tehran
[S14]	(Huan, Hess, and Yao 2022)	"Understanding the effects of travel demand management on metro commuters' behavioural loyalty: a hybrid choice modelling approach"	Hybrid choice model	852	Guangzhou
[S15]	(Ittamalla and Srinivas Kumar 2019)	"The impact of social cues on passengers' travel experience"	SEM	339	Hyderabad & Gachibowli
[S16]	(Kawabata et al. 2020)	"Time-series analysis of the causal effect among perceived quality, satisfaction, loyalty, and frequency of public transportation use"	Vector auto regressive (VAR) analysis	66,874	Stockholm, Oslo, Helsinki, and Copenhagen
[S17]	(Li et al. 2018)	"Public transportation competitiveness analysis based on current passenger loyalty"	SEM	337	Shanghai
[S18]	(Losada-Rojas et al. 2019)	"Exploring intercity passengers' attitudes and loyalty to intercity passenger rail: Evidence from an on-board survey"	Order Probit model	908	Indianapolis, Indiana, and Chicago, Illinois
[S19]	(Machado-León et al. 2017)	"Railway transit services in Algiers: priority improvement actions based on users' perceptions"	IPA & Decision tree model	1,454	Algiers
[S20]	(Mugion et al. 2018)	"Does the service quality of urban public transport enhance sustainable mobility?"	SEM	114	Rome

| Id	Author	Title	Method	Sample Size	City Location
[S21]	(Nguyen-Phuoc et al. 2021)	"Investigating the complexity of perceived service quality and perceived safety and security in building loyalty among bus passengers in Vietnam – A PLS-SEM approach"	SEM	870	Ho Chi Minh & Danang
[S22]	(Nguyen-Phuoc et al., 2022a)	"The roles of physical and social environments on the behavioural intention of passengers to reuse and recommend bus systems"	SEM	910	Ho Chi Minh & Danang
[S23]	(Nguyen-Phuoc et al., 2022b)	"How do Social Cues from Other Passengers Affect Word-of-mouth and Intention to Continue Using Bus Services?"	SEM	872	Ho Chi Minh & Danang
[S24]	(Park, Farb, and Chen 2021)	"First-/last-mile Experience Matters: The Influence of The Built Environment on Satisfaction and Loyalty Among Public Transit Riders"	Descriptive Analysis	445	Utah
[S25]	(S. Sun and Duan 2019)	"Modeling Passengers' Loyalty to Public Transit in A Two-dimensional Framework (attitudinal And Behavioral Dimension)"	Factor Analysis	664	Xiamen
[S26]	(S. Sun et al. 2021)	"Investigating the determinants to retain spurious-loyalty passengers"	SEM	664	Xiamen
[S27]	(Suryani, Mutiawati, and Faisal 2023)	"The influence of service performance and passenger satisfaction on public transport loyalty in a small city in a developing country"	Multiple Linear Regression	363	Banda Aceh
[S28]	(Tao, Corcoran, and Mateo-Babiano 2017)	"Modelling loyalty and behavioural change intentions of busway passengers: A case study of Brisbane, Australia"	Multiple Linear Regression	469	Brisbane
[S29]	van Lierop & El-Geneidy, 2016	"Enjoying loyalty: The relationship between service quality, customer satisfaction, and behavioral intentions in public transit"	SEM	11,938	Montreal census metropolitan area (CMA)
[S30]	Vicente et al., 2020	"Factors influencing passenger loyalty towards public transport services: does public transport providers' commitment to environmental sustainability matter?"	SEM	1,166	Metropolitan area of Lisbon
[S31]	Yilmaz et al., 2021	"Measuring service quality of the light rail public transportation"	SEM	360	Eskisehir
[S32]	Zhang et al., 2019	"Evaluating passenger satisfaction index based on PLS-SEM model: evidence from Chinese public transport service"	SEM	5,294	Changchun, Shenyang, Jinan, Qingdao, Suzhou.
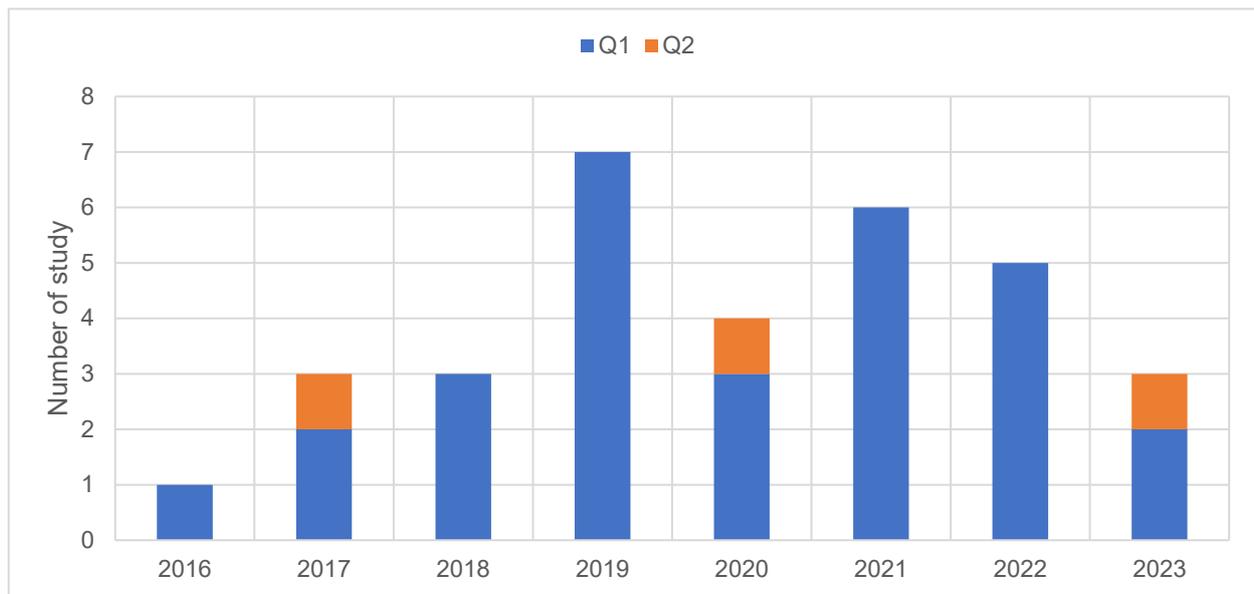
Figure 2. The distribution of articles is based on the year published and the Scopus indexing quartile.

Figure 2, presented above, illustrates the distribution of articles by year of publication, highlighting the trends and patterns observed over time. 2019 had the highest quantity of articles, totaling 7. From 2016 to 2023, more articles about user loyalty in public transit existed.

Regarding the countries examined in the research, China emerged as the most frequently studied nation, accounting for eight articles. This was followed by a collective grouping of multiple European countries, contributing four articles to the body of literature. Additionally, Vietnam was represented with three articles, while Iran, Italy, Spain, and the USA each contributed two articles to the overall research landscape. The remaining articles were researched in various countries, specifically Algeria, Australia, Canada, India, Indonesia, Jordan, and a collective of multiple countries in Latin America, Portugal, and Turkey. The countries listed in Table 2 represent the various subjects of studies focusing on user loyalty within the context of public transportation.

Table 2. Distribution of articles by country of study.

Country	Number of articles
China	8
Multi Country in Europe	4
Vietnam	3
Iran, Italy, Spain, USA (each country)	2
Algeria, Australia, Canada, India, Indonesia, Jordan, Multi Country in Latin America, Portugal, Turkey (each country)	1

Analyzing the distribution of articles between developing and developed countries reveals that 18 articles are centered on developing nations, whereas a smaller total of 14 articles represent developed countries. This distribution indicates that public transportation loyalty issues remain prominent in developing countries. This can be attributed to variable service quality resulting from limited budgets and insufficient investment in public transportation services. This trend is also evident in the distribution of transport modes, where a comparatively limited number of modes are explored concerning user loyalty in developing countries. The bus mode is the most frequently studied, with ten documented cases in these nations. In numerous developing countries, buses are often perceived as the most viable option for public transportation development, primarily due to the comparatively lower capital investment required for their implementation when contrasted with alternative systems such as trains or trams, which typically demand significantly higher financial resources (Nguyen-Phuoc et al., 2021).

In stark contrast, developed countries have engaged in comprehensive research on multimodal transport, as evidenced by the dedication of eight articles specifically to this topic, highlighting the increasing emphasis

on integrated transportation systems that combine various modes of transport to enhance efficiency and accessibility. These findings suggest that the transportation supply and service system in developed countries is already well-established and resilient, primarily due to its effective promotion of integration among various modes of transport, thereby facilitating a more cohesive and efficient transportation network. Developed countries have long implemented strategies involving physical integration, service integration, and financial integration, which collectively enhance the efficiency and effectiveness of their transportation systems by fostering seamless connections among different modes of transport (Solecka, 2013).
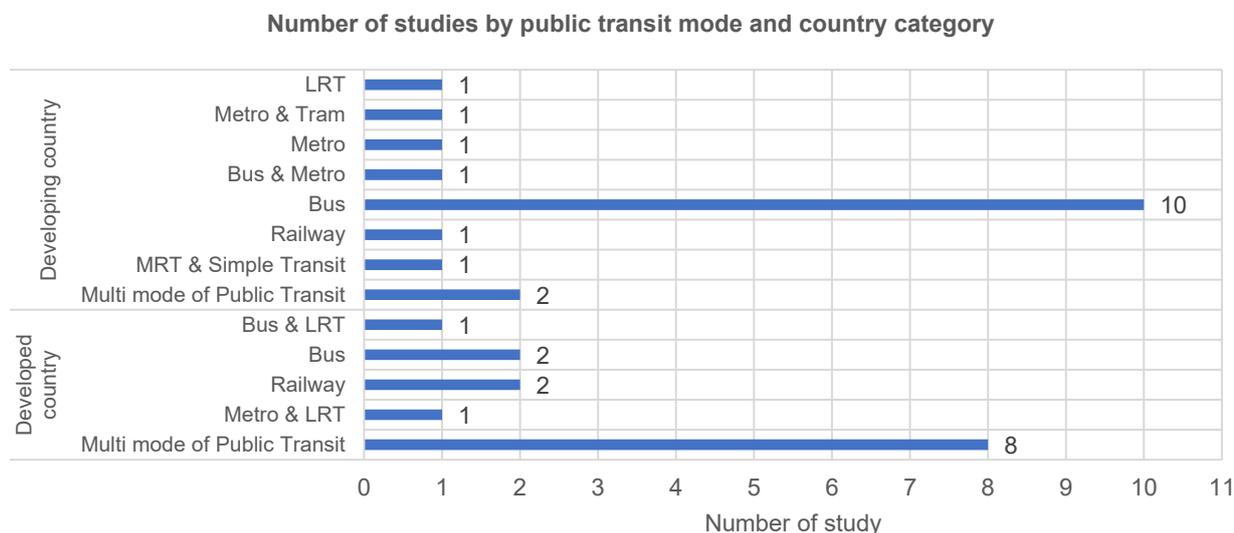
Number of studies by public transit mode and country category

Figure 3. Distribution of articles based on a cross-classification of country categories and types of transport modes.

3.2 Analysis of Study Methodology

The review indicates that the Structural Equation Model (SEM) is a widely employed analysis method for scrutinizing the factors influencing the loyalty of public transport users, having been utilized in 21 research studies. Structural Equation Model (SEM) is a well-established model encompassing a range of standard statistical analyses, including multiple regression, factor analysis, path analysis, analysis of variance (ANOVA), analysis of covariance, and simultaneous equations model, among others (Bowen & Guo, 2012). SEM is a multivariate statistical approach applied to empirical data within this framework. SEM is a frequently adopted methodology in studies focusing on user loyalty in public transportation due to its ability to assess how exogenous and mediating factors affect endogenous variables, with a particular emphasis on users (Hair et al., 2016; Minser & Webb, 2010).

Three articles use factor analysis as a methodological approach in addition to SEM. Factor analysis, commonly known as measurement models, thoroughly examines how one or more latent constructs are measured or represented by a series of observable factors, thereby providing insights into the relationships between these constructs and their manifestations in measurable variables. This conceptual and hypothetical model cannot be observed or measured directly through a single process due to the potential introduction of measurement errors (Bowen & Guo, 2012). The observable factors may manifest as responses to survey questions and various questionnaire items, reflecting the underlying constructs researchers seek to measure and analyze (Bollen, 1989).

Furthermore, various analytical methods are employed to investigate user loyalty within public transportation. These methods include the Hybrid Choice Approach/Model, Multiple Linear Regression, Ordered Probit Model, Cluster Analysis, Mixed Logit Model, Vector Autoregressive (VAR) Analysis, Descriptive Analysis, Ordinal Probit Model, Multi-Attribute Attitude Model (MAM), Index Performance Analysis (IPA), and Decision Tree Model, each contributing unique insights to the understanding of user loyalty. The analytical methods employed in studies concerning user loyalty in public transportation are comprehensively detailed in Figure 4, providing a thorough overview of the various approaches utilized in this area of research.
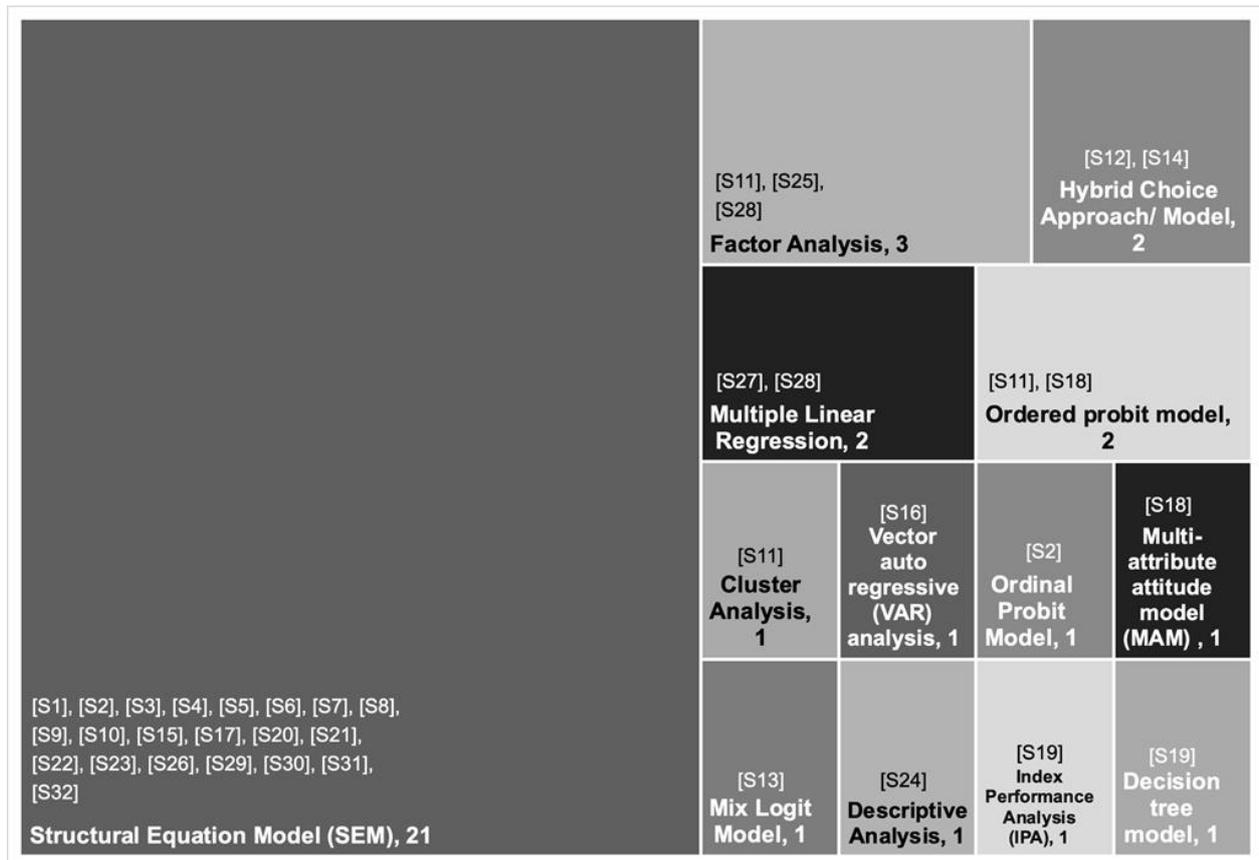
Figure 4. Methods of analyzing user loyalty in public transport research based on selected articles.

3.3 What makes public transport users loyal?

Over the past 10 years, researchers have used a variety of factors to investigate loyalty. The most frequently encountered variables are service quality, satisfaction, and perceived value. This section provides an overview of how these and other variables have been studied and operationalized, and their influence on loyalty. In this section, we categorize the findings into four main factors, and the subsequent section provides a detailed breakdown of these into 47 specific factors.

Satisfaction

Satisfaction shapes user loyalty and long-term engagement, particularly in service-oriented industries. Defined as the degree to which user expectations are met or exceeded, satisfaction reflects the perceived quality of service and the alignment of service outcomes with user needs (Oliver 1999). In public transportation, for example, factors such as reliability, convenience, safety, and accessibility significantly affect passenger satisfaction levels (Eboli and Mazzulla, 2007). High satisfaction increases user retention and fosters positive word-of-mouth and trust in the service provider, further strengthening its reputation (Zeithaml et al., 1996).

The literature highlights a significant relationship between user satisfaction and loyalty, shaped by perceived service quality and safety requirements (Lai & Chen, 2011; D.N. et al., 2019). A thorough review of existing studies reveals that overall satisfaction is the most widely studied determinant, with a consistently positive impact on user loyalty. This conclusion is supported by findings from 23 studies (Allen et al., 2019; Alomari et al., 2023; de Oña, 2022; Xue et al., 2018; Xuemei et al., 2017; Kawabata et al., 2020; Nguyen-Phuoc et al., 2021; Ittamalla & Srinivas Kumar, 2019). This finding is unsurprising, given that satisfaction is the outcome of service utilization and wields significant influence over sustained usage patterns.

Service quality

Service quality is a critical factor influencing user satisfaction and loyalty in public transportation systems, shaping individual preferences, and contributing to overall system performance. High-quality public transport services are defined by key attributes such as reliability, punctuality, comfort, safety, and accessibility, all of which significantly impact user perceptions and behaviors (Parasuraman et al., 1988). Studies indicate that

enhancing service quality boosts user satisfaction and promotes increased public transportation usage, thereby reducing traffic congestion and supporting environmental sustainability (Eboli L and Mazzulla G, 2007). Effectively addressing these factors can create positive user experiences and ensure the long-term sustainability of public transport systems.

Public transport service quality is the second most extensively studied factor for its critical role in shaping user satisfaction and loyalty. A total of 22 studies has demonstrated the positive impact of service quality on public transport user loyalty (Sun & Duan, 2019; van Lierop & El-Geneidy, 2016; Suryani et al., 2023; Vicente et al., 2020; Park et al., 2021; Li et al., 2018; Mugion et al., 2018). Furthermore, the elements of public transport services that directly affect service quality, user satisfaction, and, as a result, user loyalty encompass several key factors, specifically safety, comfort, accessibility, reliability, cleanliness, and on-time performance (OTP), respectively highlighting the significance of these components in shaping the overall user experience (Gao et al., 2019; Huan et al., 2022; Machado-León et al., 2017; de Oña, 2022).

Perceived value

Perceived value is one of the elements of understanding user behavior and decision-making in public transportation, as it reflects the balance between the benefits received and the sacrifices made by passengers (Zeithaml et al., 1996). Four studies have specifically examined perceived value and its impact on user loyalty. These studies highlight the indirect influence of perceived value on loyalty, mediated by user satisfaction. The findings consistently reveal that perceived value positively influences loyalty through its effect on satisfaction, underscoring the critical role of satisfaction as an intermediary in this relationship (Fu et al. 2018; Sun and Duan 2019; Yilmaz et al. 2021; Zhang et al. 2019).

Fu et al. (2018) conducted a study investigating the relationship between perceived value and loyalty, focusing on two mediating variables: satisfaction and image. The findings of this study revealed a positive relationship between perceived value and loyalty, mediated by both satisfaction and image. Notably, the study emphasized that the mediating effect of image was stronger than satisfaction, suggesting how perceived value and image of public transportation play a more significant role in fostering loyalty than their immediate satisfaction. This finding highlights the importance of cultivating a positive and trustworthy image for public transport providers, as it has a more pronounced impact on long-term user commitment. Moreover, the study underscores the multifaceted nature of loyalty formation, where satisfaction and image interact to shape user behavior and preferences.

Other factors

In addition to satisfaction, service quality, and perceived value, various alternative and psychological factors have also been explored, albeit in a limited number of studies. Factors like customer complaints, user involvement, and environmental attitudes were analyzed in three articles, thereby facilitating a more profound comprehension of how these elements influence user perceptions and behaviors within the context of public transportation (de Oña, 2022; 2020; Allen et al., 2020). Two articles explore the role of amenities, critical incidents, socio-economic factors, image, and emotions in shaping public transport user loyalty. Specifically, these aspects are examined in the studies conducted by Allen et al. (2019a), Kawabata et al. (2020), and Huan et al. (2022). The critical incident factor has a negative effect on loyalty, which explains that the occurrence of a critical incident will reduce the loyalty of public transportation users (Allen et al. 2019a). The remaining factors are addressed in a single article that examines their influence on the loyalty of public transport users, including aspects such as word-of-mouth intention, service hours, user interaction, and hedonic value, among others (Vicente et al., 2020; Tao et al., 2017; Quy et al., 2022; Gholi et al., 2022).

The five main factors of user loyalty, as identified in the articles analyzed in this study, are satisfaction, service quality, safety, cost, and comfort. These factors remain technical issues in public transport services. In contrast, social psychological factors have been minimally researched in the context of influencing public transport user loyalty. We present a detailed explanation of the factors that influence loyalty comprehensively in Table 3.

Table 3. The factors that influence public transport user loyalty were analyzed in selected articles.

No	Factor	Number	Article Study	Influence on loyalty
1	"Overall Satisfaction"	23	"[S1], [S2], [S3], [S4], [S5], [S6], [S7], [S8], [S9], [S10], [S11], [S15], [S16], [S17], [S20], [S21], [S22], [S25], [S26], [S27], [S30], [S31], [S32]"	Positive direct effect
2	"Overall Service Quality"	22	"[S1], [S2], [S4], [S5], [S6], [S7], [S8], [S9], [S10], [S12], [S13], [S14], [S16], [S17], [S20], [S21], [S22], [S25], [S26], [S27], [S29], [S30]"	Positive direct & Indirect effect
3	"Safety"	15	"[S1], [S2], [S3], [S4], [S7], [S9], [S11], [S18], [S19], [S21], [S22], [S24], [S25], [S29], [S32]"	Positive direct & Indirect effect
4	"Perceived Cost"	11	"[S4], [S7], [S9], [S11], [S12], [S14], [S17], [S18], [S22], [S25], [S28]"	Positive direct & Indirect effect
5	"Comfort"	10	"[S1], [S2], [S3], [S7], [S9], [S11], [S18], [S19], [S22], [S32]	Positive indirect effect
6	"Information"	8	[S2], [S4], [S7], [S9], [S11], [S19], [S22], [S29]"	Positive indirect effect
7	"On Time Performance"	5	"[S12], [S18], [S19], [S22], [S32]"	Positive indirect effect
8	"Reliability"	5	"[S3], [S4], [S9], [S18], [S32]"	Positive direct & Indirect effect
9	"Behavioral Intention"	5	"[S5], [S6], [S7], [S8], [S20]"	Positive direct & Indirect effect
10	"Perceived Value"	4	"[S10], [S25], [S31], [S32]"	Positive direct & Indirect effect
11	"Security"	4	"[S7], [S21], [S22], [S24]"	Positive indirect effect
12	"Cleanliness"	4	"[S2], [S7], [S22], [S29]"	Positive indirect effect
13	"Accessibility to PT"	4	"[S2], [S7], [S19], [S22]"	Positive indirect effect
14	"Staff aspect"	4	"[S2], [S3], [S19], [S22]"	Positive indirect effect
15	"Convenience"	4	"[S9], [S18], [S25], [S32]"	Positive indirect effect
16	"Expectation"	4	"[S10], [S25], [S31], [S32]"	Positive indirect effect
17	"Attitudinal"	4	"[S14], [S20], [S26], [S28]"	Positive direct & Indirect effect
18	"Frequency"	3	"[S7], [S16], [S22]"	Positive indirect effect
19	"Experience Quality"	3	"[S23], [S28], [S31]"	Positive direct & Indirect effect
20	"Customer complaint"	3	"[S4], [S31], [S32]"	Negative direct effect
21	"Involvement"	3	"[S1], [S6], [S8]"	Positive direct & Indirect effect
22	"Environmental Attitude"	3	"[S20], [S28], [S30]"	Positive direct & Indirect effect

No	Factor	Number	Article Study	Influence on loyalty
23	"Amenities"	2	"[S18], [S25]"	Positive indirect effect
24	"Critical Incidents"	2	"[S1], [S2]"	Negative indirect effect
25	"Socio economic"	2	"[S13], [S14]"	Positive & Negative effect
26	"Image"	2	"[S10], [S21]"	Positive direct & Indirect effect
27	"Ease of Use"	2	"[S18], [S22]"	Positive direct & Indirect effect
28	"Emotions"	2	"[S12], [S15]"	Positive direct effect
29	"Temperature"	1	"[S7]"	Positive indirect effect
30	"Individual space"	1	"[S7]"	Positive indirect effect
31	"Intermodality"	1	"[S7]"	Positive indirect effect
32	"Service Hours"	1	"[S7]"	Positive indirect effect
33	"Economy"	1	"[S9]"	Positive indirect effect
34	"Proximity"	1	"[S7]"	Positive indirect effect
35	"Flexibility"	1	"[S18]"	Positive indirect effect
36	"Travel Characteristic"	1	"[S13]"	Positive & Negative effect
37	"Service atmosphere"	1	"[S23]	Positive direct & Indirect effect
38	"Confirmation"	1	"[S10]"	Positive indirect effect
39	"Impression"	1	"[S14]"	Positive direct effect
40	"Physical Appearance"	1	"[S15]"	Positive indirect effect
41	"Car captivity"	1	"[S28]"	Negative direct effect
42	"Hedonic value"	1	"[S26]"	Positive indirect effect
43	"Suitable behavior"	1	"[S23]"	Positive indirect effect
44	"Word of mouth intention"	1	"[S23]"	Positive indirect effect
45	"Cues from other passenger"	1	"[S23]"	Positive indirect effect
46	"Cognitive Rigidity"	1	"[S12]"	Positive effect
47	"Passenger Interaction"	1	"[S22]"	Positive direct effect

3.4 Theoretical Framework of Public Transport Loyalty Determinants

A systematic literature review (SLR) identified 47 public transport user loyalty determinants. These factors can be categorized into four main dimensions based on their nature and characteristics (Figure 5). The first is service quality, which covers the direct operational aspects of public transport operations, including reliability, comfort, amenities, and punctuality (van Lierop et al., 2018). The factors in this group are objective and can be measured quantitatively by service operators. The second dimension is user perceptions, consisting of subjective factors based on user evaluations, including satisfaction, perceived value, and expectation confirmation (Sun, 2018). These factors are cognitive-evaluative in nature. The third is external/individual, which includes factors outside the control of the transportation operator, such as socio-demographic characteristics (socioeconomic status), and travel characteristics (Figler et al. 2011). Finally, the psychological/social dimension includes psychosocial aspects such as social interaction between passengers, subjective norms, and behavioral tendencies (Ittamalla and Kumar, 2019).

The integration of behavioral psychology in transportation loyalty research remains a critical yet under-explored area. Psychological factors like cognitive rigidity (the tendency to refuse alternatives) and hedonic value (emotional satisfaction from the service experience) can be important mediators in the relationship between service quality and loyalty (Gao et al., 2019), yet are less researched. Previous studies tend to focus on traditional satisfaction-loyalty structural models, without considering how cognitive biases and affective responses dynamically shape passenger loyalty, particularly in the context of habits of decision-making (e.g., daily commuters). Research on dynamic loyalty shifts, driven by critical incidents and social influences, also has high novelty potential. Temporal analysis of "loyalty shocks" (sudden declines or strengthening due to negative word-of-mouth or observational lessons) is still less common, despite their significant implications for loyalty recovery strategies. On the other hand, the role of social observation theory in transportation loyalty has also not been widely explored. Quantifying how interactions between passengers (e.g., peer choice copying) or environmental cues (e.g., perceived crowding) influence loyalty decisions in real-time or time series data could transform. Like the research conducted Kawabata et al. (2020), who investigate the causal and non-simultaneous relationships between quality, satisfaction, loyalty, and frequency of use of public transport, they used data from the Benchmarking of European Public Transport Services survey conducted in four European cities between 2001 and 2015 and applied vector autoregressive (VAR) analysis. This approach would shift the paradigm from static survey-based loyalty metrics to an adaptive framework that considers social and contextual aspects of passenger behavior.
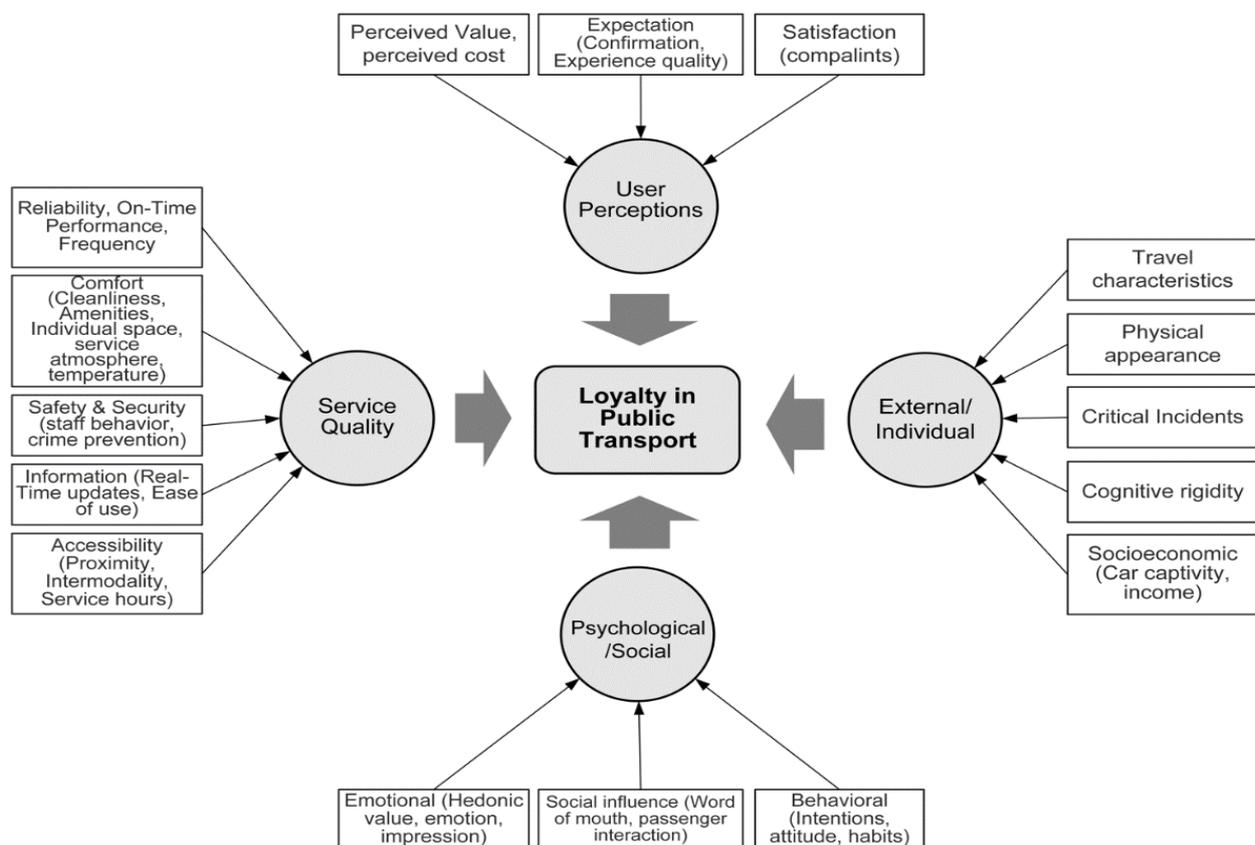

Figure 5. Proposed Theoretical Framework of Public Transport Loyalty Determinants

This study reveals that the conventional factors, such as security and satisfaction, dominate the literature (15 and 23 studies, respectively). On the other hand, our analysis also reveals less researched but potentially transformative psychological and social factors. For example, cognitive rigidity and hedonic value (1-2 studies, respectively) suggest that loyalty is not only transactional, but also influenced by cognitive biases (e.g., status quo bias) and emotional rewards. These findings are consistent with the behavioral economics theory (Gigerenzer 2018), but have limited application in transportation contexts. Similarly, the limited focus on passenger interactions and observational cues (one study each) suggests that loyalty may be socially influenced and therefore requires examination through the lens of social identity theory (Hogg 2016). This gap confirms the critical need to expand the loyalty framework beyond individualistic-statistical models towards a more dynamic and contextualized approach. Meanwhile, critical incidents (e.g., service failures) are only found in 2 literatures despite their potential to trigger nonlinear loyalty shifts. This phenomenon can be explained through catastrophe theory (Liu et al. 2001). From a methodological perspective, overreliance on cross-sectional surveys may fail to capture behavioral dynamics. Integrating smartcard data or adopting a mixed-methods approach may help to bridge the gap between attitudes and behaviors (Caruana et al., 2016), aligning intentions with actual patterns. These findings call for context-intuitive theoretical approaches and methodological innovations to advance loyalty research towards academic and practical breakthroughs.

The results also reveal different patterns in the direction and nature of the influence on public transportation loyalty. The strongest direct positive influences come from satisfaction (23 studies), safety (15 studies), and perceived cost (11 studies), which have consistently been the most studied factors on loyalty. Service quality (22 studies) and reliability (5 studies) show multiple paths of influence, both direct and indirect effects through mediators like satisfaction. Significant indirect factors include convenience (10 studies), information (8 studies), and on-time performance (5 studies), which primarily increase loyalty through improved service quality. Negative influences indicate a more complex dynamic: customer complaints (3 studies) and car captivity (1 study) have a direct negative impact, while critical incidents (2 studies) work through a negative indirect path. Of particular interest are ambivalent factors such as socio-economic (2 studies) and travel characteristics (1 study) that show context-dependent positive or negative effects, hinting at the need for a market segmentation approach in public transport loyalty modeling. These findings underline the complexity of modeling public transport loyalty, where psychological (satisfaction), service quality (reliability), and individual/external (travel characteristics, socioeconomic) factors have interacted. Transport operators should optimize core services (such as on-time performance and comfort) while mitigating negative impacts through complaint management and real-time information systems. A segmentation-based approach, with different priorities for regular versus incidental users, can be key to policy effectiveness (Fu & Juan, 2017).

Finally, this study reveals the importance of bridging the disciplinary gap in public transport loyalty research by integrating behavioral science perspectives. Whereas conventional approaches focus heavily on service quality metrics and the rational choice paradigm, our analysis demonstrates the under-explored theoretical potential of applying behavioral economics (such as cognitive rigidity and hedonic valuation bias) and social identity frameworks to explain loyalty phenomena. The application of prospect theory to explain why commuters often persist with suboptimal services despite being dissatisfied is particularly innovative, challenging the assumptions of conventional rational agents (Van de Kaa 2010). Furthermore, integrating social identity theory can reveal how internal group dynamics and observational learning between users influence loyalty formation, overcoming the weakness of current models that treat loyalty decisions as purely individualistic. This interdisciplinary path offers transformative potential for theory development and practical strategies in urban mobility systems.

3.4.1 Factors influencing public transport user loyalty in developing countries

A review of 18 articles on public transport in developing countries reveals that the five main factors influencing users' loyalty are satisfaction, service quality, safety, cost, and perceived value. Of the articles reviewed, thirteen discuss satisfaction, eleven address service quality, nine focus on safety, seven examine cost, and five concentrate on perceived value. Furthermore, distinctive factors merit discussion, including emotional factors discussed in two studies exclusively in developing countries. Emotion is a significant factor

that influences the propensity of public transport users to switch modes, and it plays a crucial role in their loyalty (Gao et al., 2019). Additional evidence indicates that the emotional factors associated with the utilization of public transportation can significantly impact user loyalty, with potential influences of up to 34.9% (Ittamalla & Kumar, 2019). For a comprehensive examination of these factors within the context of developing countries, refer to Figure 6 below, which presents a thorough review and deeper insights into the factors influencing public transport user loyalty in developing countries.

The following section provides a comprehensive discussion of the influence of word-of-mouth intentions on the perception of public transport services in developing countries. As conceptualized by Bansal and Voyer (2000), word-of-mouth intention refers to the likelihood that consumers will share their experiences and opinions with others, thereby shaping perceptions of service quality and effectiveness. This factor is widely acknowledged as a potent force within a service system and holds significant sway. For instance, regular patrons often engage in positive word-of-mouth communication (Oppermann, 2000), precipitating heightened engagement in consumption activities (Lehto et al., 2004). Devoted customers, known for frequent purchases, disseminate positive word-of-mouth endorsements to their networks, positioning such recommendations as credible sources of information (Zhang et al., 2014). In the same way, positive word-of-mouth can encourage the repeated use of public transportation and foster the development of a loyal customer base. The only study exploring the relationship between word-of-mouth (WOM) and its effect on user loyalty in public transportation was conducted by Nguyen-Phuoc et al. (2022b). As a result, there is considerable scope for future research to explore further the implications of word-of-mouth on public transit user loyalty. Expanding on this topic could offer valuable insights into how word-of-mouth influences long-term engagement and commitment among passengers.

Another unique factor to be taken into consideration is the hedonic value that is associated with public transit. Hedonic value encompasses passengers' overall attitudes toward public transportation services, measuring the emotional attachment and satisfaction they derive from public transit (Babin et al., 1994). This concept provides a valuable framework for assessing the depth of emotional reliance passengers place on these services. Shiftan et al. (2015) argue that passenger satisfaction with public transit is shaped by combining hedonic and utilitarian values. This assertion is corroborated by the research of Sun et al. (2021), who assert that user psychological trust in public transit performance, denoted as hedonic value, exerts a good influence on their satisfaction and loyalty attitudes, alongside the attribute's quality of service. These results advocate for public transit operators to account for technical and psychological dimensions to augment user loyalty and satisfaction. Presently, the only study exploring the relationship between hedonic value and its effect on user loyalty in public transportation is that conducted by Sun et al. (2021). As a result, there is also considerable scope for future research to explore further the implications of hedonic value on public transit user loyalty.

Moreover, the factors of image and impression have been the subject of limited research, with only two studies addressing these factors: one by Nguyen-Phuoc et al. (2021) and another by Fu et al. (2018). Additionally, the impression factor has been investigated in a single study conducted by Huan et al. (2022). Image, in this context, pertains to how customers view a service and the features associated with that service, formulated through the analysis of information from diverse sources (Bloemer & De Ruyter, 1998). Insights from marketing research suggest that cultivating a favorable image directly enhances satisfaction and is pivotal in shaping customer behavioral loyalty (Martenson, 2007; Han et al., 2009). A favorable image within public transportation potentiates passenger satisfaction levels, encourages repeat customers, and fosters positive word-of-mouth promotion (Xue et al., 2018; Yu & Ramanathan, 2012). Consequently, public transit operators are urged to prioritize strategies that nurture profound connections between passengers and public transit services. Various approaches can be employed to encourage passengers to form a positive image of public transport services, encompassing the communication of a vision statement and the creation of an appropriate visual identity through the use of logos and other visual design elements (e.g., contributions to individual health, social engagement to environmental issues), taglines, and relations of media (Nguyen-Phuoc et al., 2021). Research by Huan et al. (2022) provides additional clarity by demonstrating that, in the context of developing countries, service quality not only exerts a positive influence on user loyalty to public transit but also indicates that the impression factor plays a significant role in shaping the loyalty of public transit users.
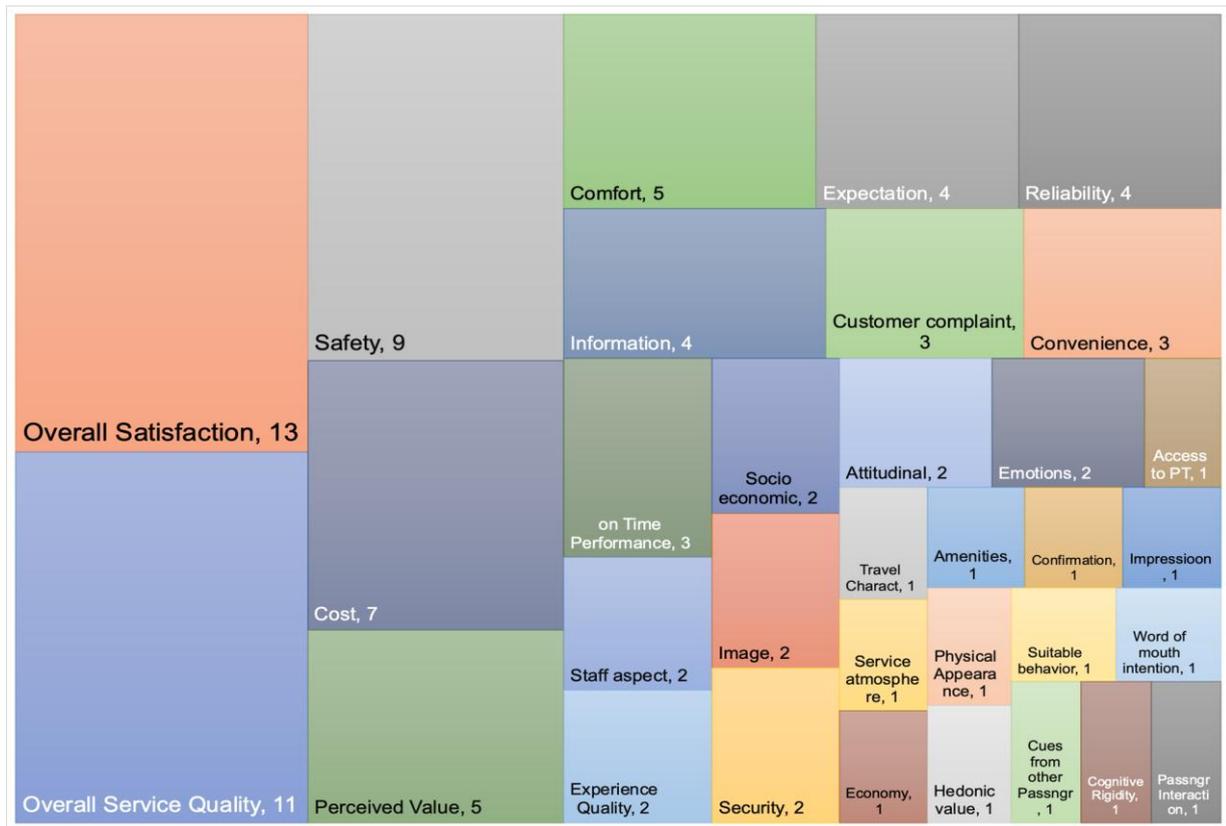
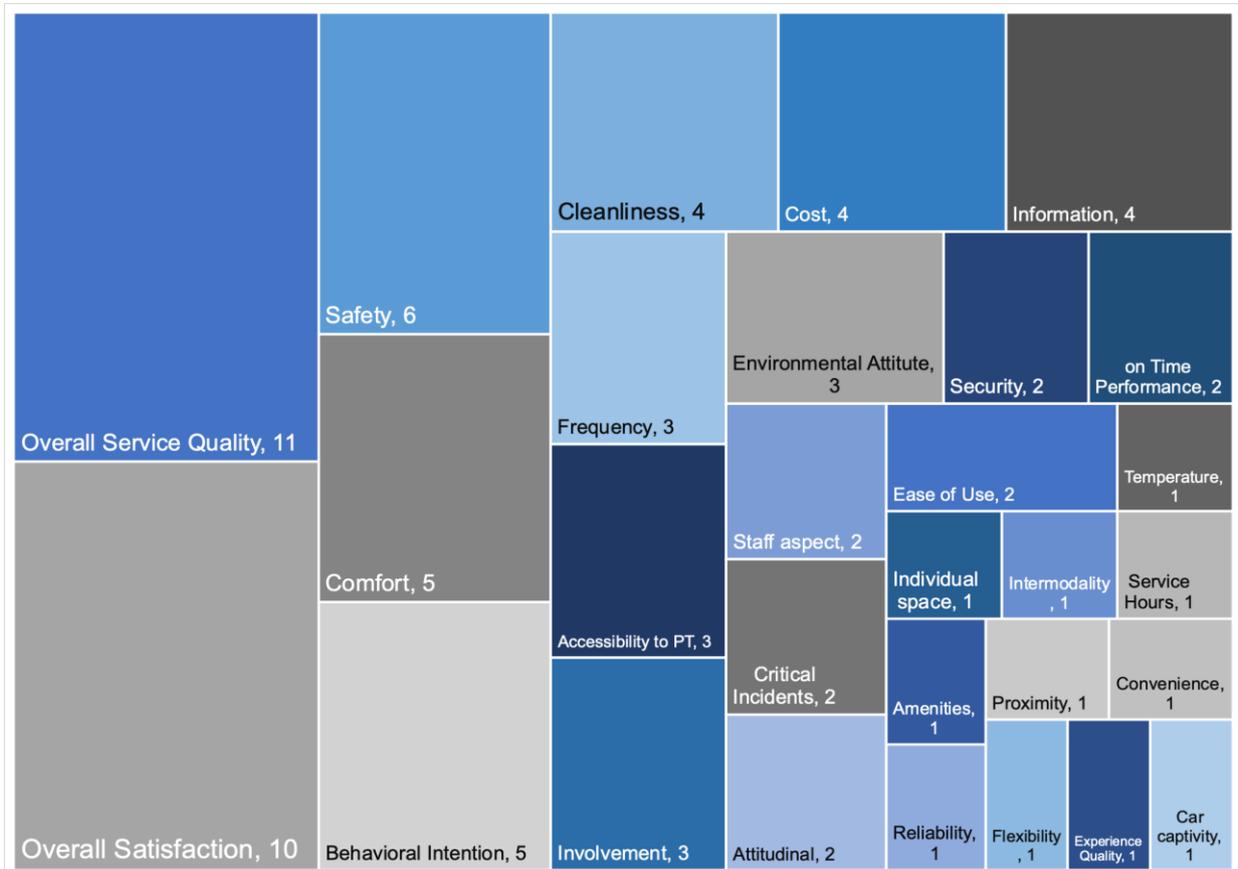**Figure 6.** Factors explored in researching public transport loyalty in developing countries.

Figure 7. Factors explored in researching public transport loyalty in developed countries.

3.4.2 Factors influencing public transport user loyalty in developed countries

A further review of 14 articles on public transport in developed countries revealed that the five main factors influencing user loyalty are service quality, satisfaction, security, comfort, and behavioral intention. A literature review in developed countries revealed that 11 articles addressed service quality, 10 discussed satisfaction, 6 concentrated on safety, 5 examined comfort, and 5 concentrated on behavioral intention. Additional factors that impact the loyalty of public transport users include the availability of information, the level of cleanliness, and the cost of services. These factors have been the subject of investigation in four distinct articles focused on developed countries. Collectively, these studies contribute to a more comprehensive understanding of how these elements interact to shape user loyalty in the context of public transportation systems.

In developed countries, several unique factors significantly affect user loyalty to public transportation systems. These factors encompass critical incidents that can alter perceptions, environmental attitudes that reflect users' concerns about sustainability, levels of involvement in public transport initiatives, and the concept of car captivity, which pertains to the extent to which individuals feel constrained by their reliance on personal vehicles (Tao et al., 2017; Allen et al., 2019; de Oña & de Oña, 2023; Vicente et al., 2020). These elements contribute to a complex landscape of influences shaping user loyalty within these countries. In the context of developed countries, it becomes evident that numerous in-depth factors influence individuals' decisions to utilize public transportation. These factors include a heightened concern for environmental considerations and critical incidents that may lead individuals to discontinue public transit altogether. Such complexities highlight the multifaceted nature of user behavior about public transportation systems, underscoring the importance of understanding both positive and negative influences on ridership. For a comprehensive analysis of these factors in developed countries, see Figure 7 above, which provides a detailed overview and valuable insights into the elements that influence public transport user loyalty.

Regarding developed countries, a comprehensive examination of three articles was undertaken to investigate the impact of environmental attitudes on the loyalty of public transit users (Mugion et al., 2018; Tao et al., 2017; Vicente et al., 2020). The heightened sensitivity to sustainable and environmental issues, encompassing climate change phenomena, reduction of ozone levels, and air pollution, has instigated a growing commitment to safeguarding the environment and enhancing people's standard of living. Subsequently, all the stakeholders have increased awareness of their political, social, and personal responsibilities toward environmentally sustainable durability (Vicente et al., 2020). This commitment to sustainability also extends to the transportation sector, where an individual's environmental concern may motivate the consistent use of public transportation.

Vicente et al. (2020) research revealed that dedication to environmental issues positively impacts public transit loyalty, manifesting directly and indirectly, with satisfaction as an intermediary. Tao et al. (2017) conducted a distinct study to elucidate that the favorable effects of sustainability issues associated with mode usage affirm the value of public transit utilization. Moreover, Mugion et al. (2018) revealed that individuals' attitudes toward environmental issues significantly shape their interest in utilizing public transportation more frequently. This suggests that a positive environmental outlook can enhance the likelihood of choosing public transit as a preferred mode of transport, potentially contributing to increased ridership.

As addressed in two scholarly articles, critical incidents represent another distinctive factor that significantly influences public transport patronage in developed countries. These incidents refer to specific events or occurrences that can alter user perceptions and behaviors, thereby shaping ridership and engagement with public transportation systems in developed countries (Allen et al., 2019; 2020). Critical incidents are frequently identified as a prevalent factor in research related to customer satisfaction, and this concept can be illustrated through narratives that describe the interactions between service providers and customers (Backhaus & Bauer, 2001). These incidents have been extensively documented within the contexts of hotel, airline, and restaurant services, highlighting their significance in shaping customer experiences. However, in the realm of public transportation services, examining critical incident factors still needs to be explored in existing studies, indicating a gap in the literature that warrants further investigation. A study conducted by Allen et al. (2020) found that critical incidents within the context of public transportation are associated with a decline in user satisfaction regarding that particular aspect of the service. Furthermore, this reduction in satisfaction has considerable implications for user loyalty, as it affects individuals' willingness to continue utilizing public transportation services in the future (Allen et al., 2019). This interplay emphasizes the importance of managing critical incidents to enhance user experience and foster long-term loyalty.

3.4.3 Comparative analysis between studies related to public transport user loyalty across developing and developed countries

From 18 articles with cases from developing countries and 14 with cases from developed countries, the similarities and differences of factors influencing public transport users' loyalty can be compared. The five factors similar in both countries are satisfaction, service quality, safety, cost, and comfort. These five factors are the most studied in both developed and developing countries. This explains why these five factors are the main criteria for users to continue using public transport. In addition, other factors are also similar in developed and developing countries, namely availability of information, OTP, reliability, safety, access to public transport, staff, quality of experience, convenience, attitude, and amenities (for a comprehensive list of factors, please refer to Figure 8). Although the number of studies identifying these ten factors is not as high as the five main factors above, these ten factors are also crucial in influencing the increase in loyalty of public transport users. Looking at the similarities between the factors in developed and developing countries, it is clear that the factors directly related to public transport performance are still the most critical factors influencing loyalty in each country. This is because, directly or indirectly, users feel the service provided by public transport, and if the service is poor, passengers will immediately feel uncomfortable, leading to a decrease in loyalty (Kawabata et al., 2020; Gholi et al., 2022; Park et al., 2021; C. Zhang et al., 2019; Vicente et al., 2020).
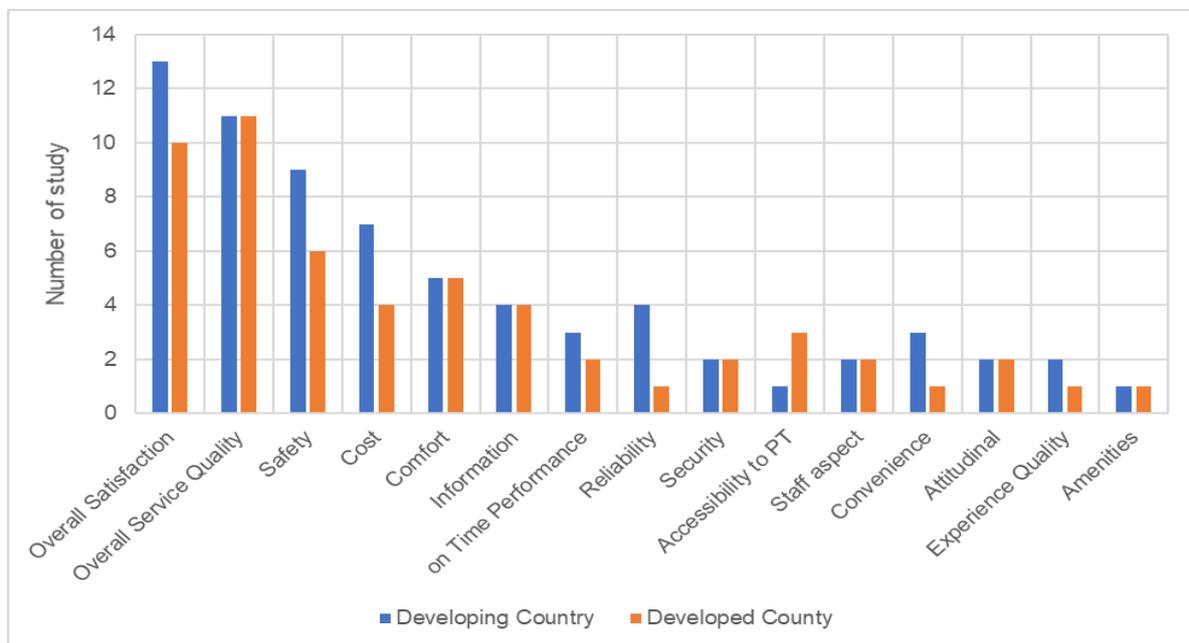

Figure 8. Similar factors influence public transport user loyalty in developing and developed countries.

Moreover, an analysis of the literature from developed and developing countries revealed significant discrepancies in the factors in these two distinct contexts. A total of 14 factors were identified as existing exclusively in developed countries and not in developing countries. These include behavioral intention, environmental attitude, critical incident, ease of use, flexibility, involvement, individual space, and others. Additionally, 18 factors are present in developing countries but absent in developed countries. These include image, emotion, travel characteristics, impression, word of mouth, complaint, cues from other passengers, hedonic value, and others (for a comprehensive list, see Figure 8). When viewed as a whole, it can be explained that most factors in developed countries still consider the technical aspects of public transportation services to be influential in determining loyalty, in contrast to developing countries, where service performance factors have less of an effect on loyalty. This is consistent with the findings of Suryani et al. (2023), which explain that service performance has a moderate impact on loyalty in Banda Aceh, Indonesia, while other factors play a greater role. Notably, there are factors unique to developed countries that are absent in developing countries. These include environmental attitudes and critical incidents, each subject of three articles. Meanwhile, examining the factors in developing countries that are absent in developed countries reveals that the majority can be classified as psychological, social, and economic factors. Additionally, there are unique factors in developing countries that are absent in developed countries, namely image and emotion. This is consistent with

research conducted by Fu et al. (2018), which concluded that image is a strong construct that contributes greatly to the loyalty of public transportation users in developing countries. The former is associated with the sentiments experienced when utilizing public transportation, whereas the latter represents an individual's perception of performance (Quy et al., 2022; Sun et al., 2021; Nguyen-Phuoc et al., 2021; Xue et al., 2018; Huan et al., 2022).

The factors of critical incidents, environmental attitudes, involvement, and sustainable behavior on public transport user loyalty vary significantly between developing and developed countries due to differences in infrastructure, socio-economic conditions, and cultural values. In developed countries, public transport systems are typically well-established and reliable, meaning critical incidents, such as delays or safety concerns, can negatively impact loyalty as users have higher service expectations (Allen et al. 2019a). Environmental attitudes play a more substantial role in developed countries, where greater awareness of sustainability and government-driven initiatives encourage users to remain loyal as part of their commitment to reducing carbon footprints (Vicente et al., 2020). In contrast, in developing countries, economic factors and necessity often outweigh environmental concerns, with users primarily motivated by affordability and availability (Nguyen-Phuoc et al. 2021). This finding is consistent with research conducted by Anh et al. (2022), which demonstrated that in developing countries, factors like perceived service quality, experience, and psychological factors play an important role in the loyalty of public transport passengers, while economic factors and concern for the environment are less influential. This is also consistent with research conducted by Punzo et al. (2022), which shows the key role played by a comprehensive set of socio-demographic, economic, and environmental factors in determining the frequency of public transit use in 3 developed European countries (Germany, Italy, and the Netherlands).

Similarly, involvement tends to be higher in developed countries, where public transport use is often integrated into lifestyle choices, compared to the more utilitarian and necessity-driven engagement observed in developing countries (Eboli and Mazzulla 2015). Sustainable behavior also differs, with developed countries benefiting from stronger policy frameworks and societal norms promoting eco-friendly travel. In contrast, in developing countries, limited infrastructure and resources often constrain the impact of such behavior on loyalty (Steg and Vlek 2009). Research conducted by Vicente et al. (2020) in the Lisbon Metropolitan Area (Portugal) confirmed that sustainable behavior is important in increasing public transport user loyalty in developed countries. The results of their research explain that the operator's commitment to sustainable behavior has a direct positive effect on passenger loyalty and an indirect positive effect on loyalty when mediated by satisfaction. These differences highlight the need for tailored strategies to improve public transport loyalty based on regional contexts.
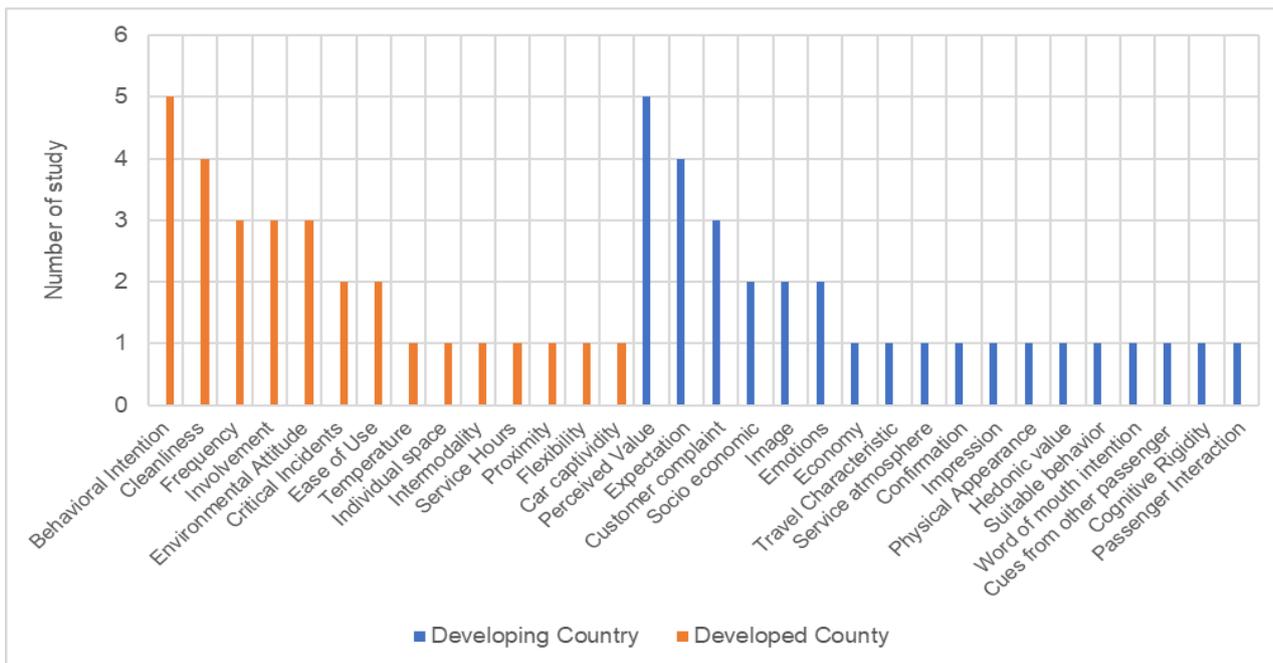

Figure 9. Differences in factors influencing public transport user loyalty in developing and developed countries.

The cases demonstrate that public transport performance factors in developed countries encourage user loyalty. Therefore, performance is crucial when aiming to maintain or increase user loyalty. Furthermore, public transport's positive environmental impact must be promoted to maintain public awareness and encourage continued use (Tao et al., 2017; Mugion et al., 2018). In contrast, social, economic, and psychological approaches should be prioritized in developing countries to enhance commitment to public transport usage. This highlights the substantial impact of these factors in shaping passenger loyalty to public transport systems in developing countries (Sun et al., 2021; Nguyen-Phuoc et al., 2021; Xue et al., 2018; Huan et al., 2022). The similarities and differences between these factors reflect the characteristics of developing and developed countries in maintaining public transportation user loyalty, thereby contributing to the sustainability of public transportation systems. Consistent with the theory proposed by Sun and Duan (2019), these factors can be further examined using a loyalty typology framework, which explores the cross-classification of attitudinal and behavioral within passenger segments.

Finally, this study provides valuable insights into the differences in loyalty factors between developed and developing countries. However, some limitations must be acknowledged. Firstly, the analysis is based on only 32 articles, which may not provide sufficient global representation. While previous studies have explored public transport loyalty, the number of relevant studies, especially in a cross-country context, is limited. Secondly, the discussion is imbalanced in terms of developed and developing countries. Developed countries tend to be discussed less due to the limited literature available. This limitation must be explicitly mentioned, emphasizing the need for further research to address this issue. To make the comparative analysis more comprehensive, future studies should: - expand the range of literature, particularly from developed countries, to ensure balanced representation. It is also important for future studies to consider the socio-economic and psychological contexts in more depth, as these factors may influence loyalty differently across country categories.

4.0 CONCLUSIONS

The collective insights from these 32 articles underscore the considerable impact of service quality and satisfaction on user loyalty, aligning with the established premise that quality of service serves as a determinant of satisfaction and subsequent loyalty (Lai & Chen, 2011; Diep et al., 2021). Other prominent factors integral to service quality includes safety, cost, comfort, and punctuality, as frequently explored in studies (Gao et al., 2019; Huan et al., 2022; Machado-León et al., 2017; Yilmaz et al., 2021; C. Zhang et al., 2019). Given their centrality to service quality, it is unsurprising that these factors feature prominently in the research landscape. However, a myriad of factors has been underexplored in the study, including word of mouth, hedonic value, flexibility, and passenger interaction, among others (Vicente et al., 2020; Tao et al., 2017; Quy et al., 2022; Gholi et al., 2022). The factors mentioned above contribute to shaping user loyalty under normal conditions. However, these factors may shift in non-normal circumstances. For instance, Norzelan et al. (2022) highlighted changes in public transportation user loyalty determinants during the COVID-19 pandemic. These factors include satisfaction with implementing COVID-19 Standard Operating Procedures (SOP), such as seat and standing area markings, adherence to social distancing guidelines, mandatory mask usage, visible hygiene practices, and online ticketing options.

In developing countries, various factors such as image, emotion, travel characteristics, and impressions are unique factors influencing loyalty to public transport. Most of the factors in developing countries are grouped into social, economic, and psychological aspects, which have been widely studied in driving public transport loyalty (Quy et al., 2022; Sun et al., 2021; Nguyen-Phuoc et al., 2021; Xue et al., 2018; Huan et al., 2022). This reflects the diversity of socio-economic conditions in developing countries. In addition, the prevalence of bus transportation as the primary mode of public transit in developing countries demonstrates a constraint in developing a fully integrated multi-modal transportation system. Buses require significantly lower investment costs than trains and trams, making them a more financially viable option for these nations (Nguyen-Phuoc et al., 2021). In contrast, in developed countries, user loyalty is primarily influenced by overall performance, as evidenced by most research articles focusing on these aspects. Unique factors, such as environmental concerns and critical incidents, also emerge in developed countries. Individual environmental awareness drives increased public transportation usage, while reducing negative critical incidents is vital for maintaining user satisfaction and loyalty (Mugion et al., 2018; Tao et al., 2017; Vicente et al., 2020; Allen et al., 2019; 2020; Allen et al., 2019). Moreover, the interaction of these factors often reflects regional and cultural dynamics. For example, critical incidents, such as service disruptions, have a more severe impact in regions with higher service expectations (Allen et al., 2019a). In contrast, users in regions with less reliable public transport systems may develop a higher tolerance for such disruptions, with loyalty influenced more by

affordability or necessity than by isolated service failures (Eboli and Mazzulla 2015). Several practical recommendations are proposed for public transport operators. In developed countries, operators should focus on enhancing the main performance of public transport to achieve high customer satisfaction. Furthermore, improvements in intermodality, service hours, frequency, passenger engagement, and avoidance of critical incidents are essential. For public transport operators in developing countries, improving main performance is also crucial to enhancing service quality. Additionally, emotional factors play a significant role in these contexts; thus, fostering a positive image, creating a pleasant service atmosphere, and enhancing perceived value are necessary to strengthen user loyalty.

Future research on user loyalty in public transport should prioritize the development of a comprehensive typology of loyalty, as existing research has primarily examined loyalty through the lens of behavioral intention. Behavioral intention is aligned with conative loyalty, also known as the stage of intention or latent loyalty. Analyzing loyalty through its typological framework identifies four distinct categories: cognitive loyalty, affective loyalty, conative loyalty, and action loyalty (Oliver, 1999). This classification offers a deeper understanding of the various dimensions that contribute to user loyalty. Few studies have explored public transport user loyalty at the action loyalty level. This indicates a gap in the research concerning this advanced stage of loyalty, where actual behavior aligns with solid intentions. Additionally, only nine studies address rider types, specifically choice and captive riders, in the context of public transport loyalty research. Of these, seven focus solely on literature reviews without offering further analysis. Li et al. (2018) briefly mention rider types in the introduction, while Tao et al. (2017) is the only study that thoroughly examines car captivity about public transit user loyalty. This indicates significant research gaps, particularly in understanding the loyalty dynamics of choice and captive riders, which warrant further exploration. Several thematic directions for future research on loyalty can be proposed: (1) Investigating changes in loyalty over time, which could provide valuable insights for understanding its dynamic nature; (2) Developing a 'Behavior-based transportation user loyalty typology model' inspired by the consumer loyalty typology model and adapted to the public transportation context; and (3) Creating a user experience-based holistic loyalty model,' which maps factors related to emotional, social, and psychological experiences that influence loyalty, drawing on findings from previous studies. These research topics have the potential to significantly contribute to the literature on public transportation loyalty by offering innovative perspectives and deeper insights.

ACKNOWLEDGEMENT

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