Article

Implications of the Progression to Sustainable Public Transportation: An Insight into Modern Jeepney Shift from the Philippines

Tricia Mae T. Zulueta [1], Ardvin Kester S. Ong [1,2,*] , Josephine D. German [1] , Ma. Janice J. Gumasing [3] and Jenn Christzel D. Chico [1]

1   School of Industrial Engineering and Engineering Management, Mapúa University,
    658 Muralla St., Intramuros, Manila 1002, Philippines
2   E.T. Yuchengo School of Business, Mapúa University, 1191 Pablo Ocampo Sr. Ext., Makati 1204, Philippines
3   Industrial Engineering Department, De La Salle University, Manila 1004, Philippines
*   Correspondence: aksong@mapua.edu.ph; Tel.: +63-(2)-8247-5000 (ext. 6202)

Abstract: Modern jeepneys represent a notable step forward in the Philippines' modernization efforts. However, there is a need for further study since this has caused a lot of criticism in the country, and no studies have established its service quality and the behavioral intentions among passengers. This study assessed the factors influencing passengers' intention to use modern jeepneys, employing a higher-order reflective construct using partial least square structural equation modeling. An online questionnaire gathered data from 502 commuters using modern jeepneys, employing convenience sampling for a diverse sample. Significant relationships (p-value < 0.05) were found between service quality (β: 0.559), attitude (β: 0.169), perceived behavioral control (β: 0.183), and behavioral intentions (β: 0.160), with assurance emerging as the most influential factor for higher-ordered constructs (β: 0.869). Meanwhile, satisfaction's significant influence on behavioral intention was highest for lower-ordered constructs (β: 0.673). The study underscored the importance of building trust with passengers, prioritizing safety and security, and integrating modern jeepneys with traditional designs to enhance commuter experiences and promote modernized and sustainable transportation alternatives. It highlights the critical role of providing high-quality service in fostering positive intentions toward using modern jeepneys and its utilization. Despite the backlash of the majority on the redevelopment of traditional jeepneys, results presented that passengers are more inclined to use public transportation based on travel experiences rather than societal approval. The study offers theoretical and practical implications for future works and government organizations, transportation management, and modern jeepney manufacturers, emphasizing the importance of improving service quality.

Keywords: higher-order structural equation modeling; modern jeepney; public transportation; service quality; theory of planned behavior

1. Introduction

Public transportation is one of the most widely used commuter services by people within a community when going somewhere. It can accommodate more passengers than private cars, and, due to its evidently wide availability, it has contributed to an increase in carbon footprints. However, in the U.S., only 1.7% of population use public transportation, increasing by just 0.3% from 2001 to 2009. This proved that only a few people use public transportation compared to other transportation modes [1]. Consequently, Ong et al. [2] indicated that public transportation such as jeepneys are more frequently utilized among developing countries due to economic concerns. It was added that common modes of transport for people in the Philippines are jeepneys, buses, light rail transits, and ride-hailing applications. The 2020 UNSDG Reports highlighted that despite the increased

worldwide attention on sustainable transportation, findings from 2019 data across 610 cities in 95 countries revealed that merely half of the world's urban population has good and convenient access to public transportation [3].

1.1. Current State of Public Transportation

As time goes on, public transportation from the Philippines continued to gain a lot of criticism, including issues of availability, safety, service qualities, and even carbon emissions. Many commuters have expressed concerns about the safety and security of public transportation [4,5]. The higher number of passengers in one vehicle makes it less safe, and this problem is more significant in developing countries due to a lack of well-coordinated measures—similar to those from Indonesia [6]. In another context, it takes hours for commuters to reach their destination most of the time, which is why comfort in public transportation is essential. In the study of Çelebi and İmre [7], it was revealed that overcrowding inside of the vehicle can lead to the discomfort of the passengers, especially during rush hours where people need transportation. This is evident in the Philippines since traffic congestion has risen recently [8], which is why some people are willing to pay a large amount of money to have a comfortable travel experience [9]. Similarly, the service qualities of traditional public transportation could be posited to have been widely covered in the literature [9]. However, the development and modernization of public transportation have yet to be fully established, and the lack of literature is evident.

Embracing modernization offers the advantage of global competitiveness. Staying abreast of emerging technologies is crucial, as it can enhance efficiency and provide people with high-quality experiences or products. With technology advancement, many countries in the world have embraced the modernization of public transportation. Faye [10], in Dakar, for instance, has addressed urban transportation systems, indicating that they are essential. It was explained that, considering the need for modern and sustainable solutions, international standards should be observed. Introducing the AFTU minibus is a noteworthy step towards modernization in Dakar. In Indonesia, factors including economic considerations, geographical aspects, political and security considerations, technological advancement, competition, and external influences contributed to the development of modernizing their transportation system [11]. It has been explained that great involvement of the government is crucial to ensure the development of a public transportation system that is efficient, comfortable, and economical.

1.2. Issues in the Philippines

For the Philippines, where public transportation is widely utilized [2], it was seen that they ranked 58th of the 60 countries with the poorest public transportation systems. The country is the 13th most populated country globally, with 108 million people in 2019 [12], due to which many Filipinos struggle to commute because of a lack of public transportation and traffic [9]. Fallaria et al. [13] highlighted insufficient public utility services as causing problems mainly because of government operations, traffic jams, and high demand for these vehicles (especially during rush hours). There is not enough public transportation to accommodate thousands or millions of Filipinos, which could lead to long waiting times or long queues from terminals. In addition, the high volume of cars in the Philippines dramatically contributes to the traffic congestion in the country, which is why commuters may find it take hours to reach their destination.

Regarding different problems, the Philippines' Public Utility Modernization Program (PUVMP) had the goal of revolutionizing public transportation by introducing environmentally friendly and safer vehicles for commuters [14]. From 2007 to 2012, car ownership in the Philippines increased by 16%, while it increased by 69% for motorcycle ownership, making the Philippines the fastest-growing market for automobiles and motorcycles by 2014. Despite this, traditional jeepneys continued to maintain high ridership levels. However, because of how expensive modern jeepneys are, traditional jeepney drivers are not in favor of them, with this opinion gaining support from commuters as well. Based on

the interview, the driver has no problem with modernizing public transportation, but the program is said to be anti-poor and profit-oriented [15].

On 19 July 2017, the Duterte government administration initiated the PUVMP, with the goal of replacing outdated jeepneys with modern vehicles [16]. In 2018, the modernized jeepney routes have begun and operation administration gave permission to introduce modern jeepneys to more than 80 routes from different parts of the Philippines [17]. The modern jeepney also has a higher ceiling where passengers can stand, and it has 30-passenger capacity (including the standing passengers) compared to the lower ceiling traditional jeepneys where passengers have to bend in order to move and can only accommodate 12 to 14 passengers (Figure 1). It also has technology that provides comfort and safety to passengers, such as air-conditioning and CCTV, which were not available before. On 27 February 2023, the Land Transportation Franchising and Regulatory Board (LTFRB) announced that 30 June 2023 would be the consolidation deadline, but extended it on 31 December 2023 after traditional jeepney drivers took part in transportation strikes and protests [18].

Figure 1. Traditional jeepney versus modern jeepney in the capital of the Philippines.

The fact that the world is experiencing population growth, an increase in incomes, and having different travelling options, both the U.S. and developing countries such as the Philippines are having a hard time promoting transit use [19]. It was also highlighted that countries are struggling to control the growing use of private cars. The study of Sinha [19] also suggested that the government should focus on comprehensive measures to promote transit use such as land-use policies, substantial improvements of transit services, and economic incentives. This is because the modernization of public transportation has a lot of benefits to the environment and the economy. In relation to this, many developed countries have already adopted modernization, particularly those with greater access to advanced technology.

1.3. Modernization Initiatives

In Germany, Beul-Leusmann et al. [20] identified that modernizing and improving the image of public transportation is necessary to attract more passengers or commuters. The study highlighted that innovation in public transport such as applications for online passenger information containing reliable content about public transit would help increase ridership in the country. In the Philippines, where the crime rate is high, ensuring safety and security is crucial, especially regarding transportation. According to Ong et al. [2], safety is one of the top priorities for people when choosing jeepneys as their mode of transportation. It is not just about being protected from crimes, but also about reaching the destination safely, taking into account the drivers' skill in ensuring a smooth ride. Chuenyindee et al. [5] identified that passengers do not feel safe from crimes inside Public

Utility Vehicles (PUV) and in loading and unloading areas. Moreover, passengers are not satisfied with how drivers operate regarding the speed and smoothness of their travel. Gatarin [16] also highlighted some challenges of modernizing public transportation, such as the PUVMP being a threat to most transport drivers. The government's initial plan was to phase out the traditional jeepney, an anti-poor approach, because of the expensive costs of modern units and the takeover of modernized vehicles by corporations. With almost 5 years in the implementation of modernized jeepneys in different routes, the service quality should be assessed for satisfaction and behavioral intention so governing bodies would know the insights among commuters prior to the full implementation and traditional jeepney phase-out.

1.4. Theoretical Frameworks

Several frameworks could be utilized to holistically assess the different problems and intentions for people to use modernized public transportation. One method is the SERVQUAL 5 dimensions of Parasuraman et al. [21]. The original framework was categorized into five dimensions of service quality—reliability, assurance, tangibility, empathy, and responsiveness. It assesses the discrepancy between customers' expectations and perceptions, highlighting the most significant gaps in the areas where customers perceive the lowest service quality [22]. Sam et al. [23] used the SERVQUAL to discover and assess the customers' expectations on buses. It was indicated in the study that the anticipated quality of service is also higher once the expectation subscale score is higher. On the other hand, a positive perception of the service quality is presented when there is a higher score on the perception subscale, leading to customer satisfaction.

In another context, the behaviors among public transportation users were analyzed using the theory of planned behavior (TPB) [4]. The TPB suggests that intentions strongly influence behavior [24]. Additionally, these intentions are shaped by attitude, subjective norm, and perceived behavioral control (PBC). Ambak et al. [25] used TPB to evaluate the behavioral intention of Malaysian people who use public buses. The result of the study showed that only the three variables of TPB were significant factors that influence passengers' use of public buses. Similarly, Cahigas et al. [4] assessed public buses in the Philippines and passenger's behavioral intentions for commuting during the pandemic.

Based on related studies, it can be seen that there are several limitations, such as being applicable when new services are being considered (SERVQUAL) [5], and that a lot of the variables are found to be insignificant, and in turn are modified by most studies [26,27]. On another note, Cahigas et al. [4] indicated that TPB alone could not holistically assess behavioral intention since the framework focuses on a generalized perspective of consumer behavior. Therefore, the need for extension or integration was suggested in their study of TPB and the social exchange theory. Following related studies on their modification and/or their integration, the current study takes into account the integration of SERVQUAL 5 dimensions and TPB, reflecting the SERVQUAL 5 dimension as higher-order constructs. According to Sarstedt et al. [28], this encompasses the limitations of insignificant latent variables due to multiple path analyses in a framework. The higher-order construct of the SERVQUAL 5 dimension was performed by German et al. [29] and showed a positive outcome, which was a more effective evaluation of the dimension. The consideration of these aspects bridges the gap between the framework and methodology, as well as being able to assess completely a modernized public transportation service quality which has not yet been established.

1.5. Objective and Significance of Study

The purpose of this study was to evaluate the factors influencing individuals' inclination to choose modern jeepneys as their transportation mode. This was achieved by integrating higher-order SERVQUAL 5 dimensions and the TPB. It also examined the relationship of variables holistically using partial least square structural equation modeling (PLS-SEM). The results of this study could be advantageous for the government, as

it can lead to enhancements in the country's public transportation services—providing commuters with a higher quality of service to encourage their use of public transportation. Likewise, this research will be valuable for modern jeepney manufacturers, offering insights into areas that can be improved to elevate the overall customer experience. Addressing these issues is expected to positively impact the environment, aligning with the goal of modern jeepneys to promote sustainable transportation.

The paper is arranged as follows: (1) Introduction, covering the background, modernization, challenges, and frameworks that could be used for assessment. (2) Related studies and conceptual framework. (3) Methodology including the participants, measure items, and statistical treatment. (4) Results. (5) Discussion and implication, where the theoretical and practical implications are discussed for the appreciation and applicability of findings. (6) Conclusion.

2. Related Studies and Conceptual Framework

The integration of the SERVQUAL 5 dimensions and the theory of planned behavior (TPB) were used for this study as presented in Figure 2. A total of 10 latent variables were adopted during the integration of two models. To which, nine hypotheses were created to evaluate the passengers' behavioral intentions in considering modern jeepneys as their mode of transportation.
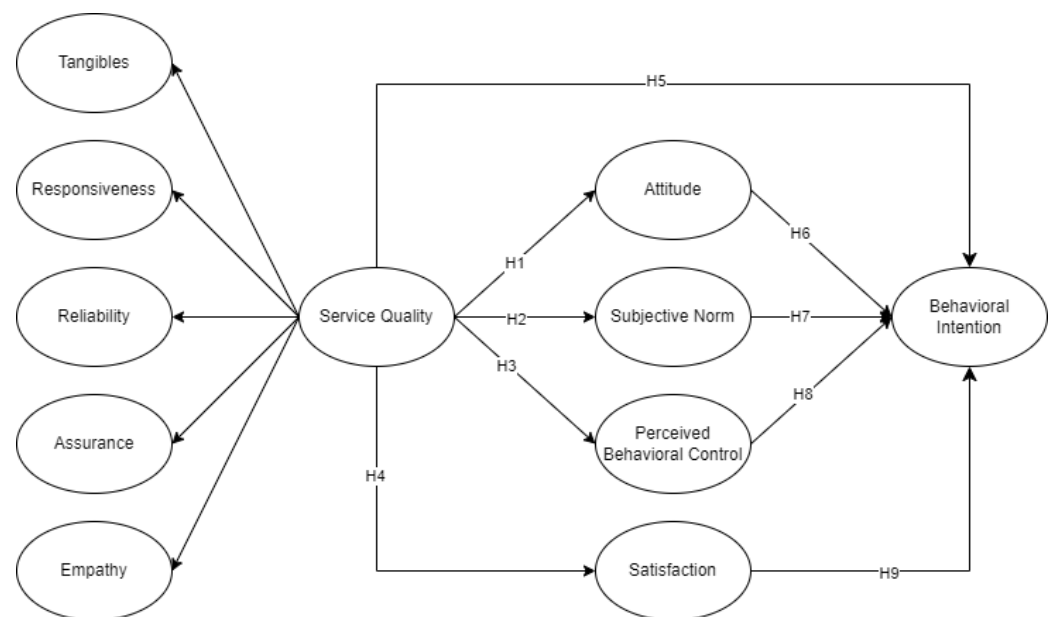

Figure 2. Conceptual framework.

2.1. SERQUAL 5 Dimensions

Under different studies, Randheer et al. [30] revealed that in order to improve the service quality of public transportation, its services need to consistently prioritize and assess its responsibility of offering reliable services to the commuters. In the study of Chuenyindee et al. [5], the findings indicated that tangible factors and assurance were deemed significant, while responsiveness, reliability, and empathy were considered insignificant. These three variables suggested dissatisfaction among passengers or commuters with the customer care provided by public transportation in the Philippines during the pandemic. On the other hand, Sam et al. [23] found that the service quality has a significant effect on the intention of passengers in Ghana. It revealed that all dimensions, except for empathy, have a significant impact. On the other hand, empathy has a strong correlation with other service elements not directly related based on their study, causing insignificance. In Brazil, a study by da Silva et al. [31] found that the majority of elements has reached a satisfactory quality level, but responsiveness and empathy were identified to have lower

quality. However, the services provided were considered ideal, except for the tangible factors variable which was not significant since it did not meet the ideal quality standard. In another study from the Philippines, German et al. [29] covered package carriers or delivery services and used a higher-order SERVQUAL 5-dimension model integrated with Pro-Environmental TPB. This was performed because the relative significance level could be determined more easily using the SERVQUAL 5-dimension model and it had higher accuracy.

Focusing on the effect on behavior, Gelaidan et al. [32] revealed that the service quality has a significant effect on the attitudes of individuals especially as the study is in the context of e-sustainable travelling behaviors. It was emphasized that in order to uphold the positive attitude among individuals, the importance of fast, secure, reliable, and cost-effective e-transportation services must be acknowledged. The study of Saeidi et al. [33], which was conducted in Tehran, highlighted that the service quality significantly impacted both attitude and satisfaction. The study explained that these variables may increase when public transportation companies or authorities want to achieve better interactions with passengers, which includes aspects such as respectfulness, politeness, and adaptation of better services to meet the challenges posed by pandemics. It was also mentioned that the necessity for public transportation companies or authorities to enhance services and adapt a service-oriented approach should be considered.

Zou et al. [34] also indicated that the service quality does not directly influence subjective norms, as well as PBC, but it showed to have significance with attitude. It was highlighted that factors like punctuality and convenience and speed of public transport vehicles increased the competitiveness of public transportation. When these variables showed improvement, individuals in Shanghai, China, were more inclined to opt for, or transition to, using public transportation. On the other hand, Zhang et al. [35] showed that the service quality has a positive relationship with subjective norm and PBC. During the outbreak of COVID-19, people in China were more inclined to use public transport vehicles when they had safety measures to control the spread. This included testing body temperature and maintaining cleanliness or hygienic requirements for transport equipment or facilities, highlighting passenger control and their decision to choose public transportation. Moreover, a group of commuters supports and encourages others to choose public transportation, particularly when it provides great assurance, responsiveness, and reliability to commuters through the enforcement of such safety measures. Once public transportation shows a great quality of services, especially in times of unexpected circumstances, individuals are more likely to use public transportation.

Borhan et al. [36] revealed that service quality significantly shapes car users' attitude towards opting for public transport. It also highlights the positive relationship between service quality and behavioral domains. The study implied that as the service quality of public transport increases, passenger's attitudes and intentions will also improve. The involvement of authorities and the Putrajaya Corporation in enhancing the quality of their public transport services in order to improve passenger's attitude and intention to use it posed great influence. It could be posited that, from the related studies, the service quality of public transportation should generally adhere with the system and its policies and have overall good reliability to meet passengers' expectation. As is indicative of the findings from related studies, if it could be fast, secure, reliable, and cost-friendly, as well as if drivers could be respectful, polite, and adaptive, then a higher service quality would be related. In accordance, other people could be influenced by this and could lead to overall societal acceptance. Since the backlash is evident among the redevelopment and improvement of traditional public transportation in the Philippines like jeepneys to modern ones, the government may need to consider service quality factors to influence positive behavior among passengers in the Philippines, leading to the intention to consider the redevelopment of jeepneys.

In order to satisfy the passenger, it is important to provide a good passenger service quality. However, according to de Oña [37], the service quality does not directly influence

the behavioral intention since satisfaction acts as a mediator between these two variables. Subsequently, Sumaedi et al. [38] found a noteworthy impact of service quality on both the behavioral intention and satisfaction of the passengers in Jakarta, Indonesia. Similar to other previous studies presented, their study also emphasized that the outcomes highlight the substantial impact of service quality. It is said that, to ensure passenger satisfaction, passengers must feel that they receive a good quality of service that is worthy of the fare they are paying [39]. de Oña et al. [40] further emphasized the service quality as having a significant effect on the satisfaction of passengers in Italy. With the SERVQUAL 5 domains being an established theory since its development [21], the current study hypothesized the following:

H1. *SERVQUAL 5 dimensions have a significant effect on attitude.*

H2. *SERVQUAL 5 dimensions have a significant effect on subjective norm.*

H3. *SERVQUAL 5 dimensions have a significant effect on PBC.*

H4. *SERVQUAL 5 dimensions have a significant effect on satisfaction.*

H5. *SERVQUAL 5 dimensions have a significant effect on behavioral intention.*

2.2. Theory of Planned Behavior

The TPB has been proven to link individual attitudes, subjective norms, and PBC with underlying beliefs about a specific behavior [41]. These three latent variables have been widely evaluated in the field of transportation studies and in evaluating passengers' behavioral intentions for choosing public transportation. In the Philippines, Cahigas et al. [4] revealed that, despite the pandemic, passengers' intention to use public utility buses (PUBs) showed positive influence from passenger behavior. From their findings, attitude presented as the most significant factor, followed by PBC and subjective norm. In the designated region of Batu Pahat and Kluang, Ambak et al. [25] presented that attitude significantly contributed to the behavioral intention to use public transportation. It was presented as the most significant impact on users' decisions to use PUBs compared to the influence of subjective norms and PBC—similar to the Philippine study output [4]. However, Bandyopadhyaya and Bandyopadhyaya [42] discovered that the attitudes of individuals in India do not have a significant influence on their intention to use public transportation; rather, a subjective norm was deemed significant. It was seen that despite public transportation in India being more convenient, safe, and timesaving compared to private transportation, commuters would only utilize public transport only if others would use it. It was mentioned in the study that user intention is affected by social norms since the pressure from society has great significance in influencing the choices of people in India and China.

A subjective norm occurs when an individual relies on the beliefs of other people's attitudes, especially those who are important to them. Zailani et al. [43] found that a subjective norm does not have a significant relationship with individuals' intention to use public transportation in Malaysia, especially for different travel purposes such as going to school, work, shopping, and leisure. Using Pearson's correlation coefficients, Forward [44] discovered that the subjective norm is significantly associated with individuals' intentions; however, it is not strongly related compared to other behavioral domains. This is due to the fact that behavior was more ingrained as a habit, and it might also be the case that using public transport is generally approved by most people even if they do not personally engage in it. On the other hand, Chen and Chao [45] revealed that subjective norm has the most significant effect compared to other TPB variables on the intention of users to switch to public transportation in Taiwan. It was mentioned in order to encourage people to use public transportation, the transit authorities should work on improving personal beliefs and fostering positive feelings in people about using public transportation.

In addition, Donald et al. [46] discovered that when predicting commuters' intentions in the UK, PBC is the most crucial factor because it exerts a more powerful influence on commuters' intentions to opt for public transportation over using a private car. Ali et al. [47] also found that PBC has a significant relationship with passengers' intentions in choosing public transportation in Kanazawa, Japan. The study revealed that passengers are less likely to choose public transportation when travel and waiting times are longer, infrastructure is inadequate, and there are no discounts or incentives for passengers. However, Sumaedi et al. [48] revealed that PBC does not significantly influence passengers' intention to reuse public transportation. This could be because of the specific features of public transportation services in Indonesia and the traits of the passengers using them.

In relation to the current scenario for modern jeepneys in the Philippines, despite backlash, the comfort of air conditioning and the availability of modern jeepneys could be some of the reasons for their continued usage. It could be seen that people are considering this as an available option since rush hour may prompt them to consider previously ruled-out transportation. As explained by Zhang et al. [49], social media may play a significant role in the adoption of transportation services, by prompting people to attempt to achieve desired goals (e.g., normative and hedonic goals), and it may be promoted by media platforms. This not only highlights the intention to create a positive mediating relationship, but may also have a positive impact due to environmental concerns. It was, however, suggested that regions may have differing outputs and that external factors may be accounted for in the overall assessment of travel behavior.

Reflecting on the related studies, since the community is seen to utilize modern jeepneys, other people are led to also utilize them. This brings higher positive behavioral intention to people. In addition, with recent prices for petrol being high, the reflection on why others would consider using public transportation leads to a more positive attitude towards it and PBC, as evidenced from related studies discussed. Encompassing the behavioral domains as a benchmark framework, the development of current modern jeepney has yet to be fully implemented and have only limited deployment. Thus, to assess behavioral intention for usage among passengers, the current study hypothesized the following:

H6. *Attitude has a significant effect on behavioral intention.*

H7. *Subjective norm has a significant effect on behavioral intention.*

H8. *PBC has a significant effect on behavioral intention.*

2.3. Passenger/Commuter Satisfaction

According to Söderlund et al. [50], satisfaction is a judgement that consumers make based on their experiences. In order to experience satisfaction, personal encounters must be aligned with individuals' expectations. When satisfaction is attained, it encourages the individuals to develop a positive intention to continue consuming or using a certain product. A study of Fu and Juan [51] found that satisfaction does not directly impact behavioral intention. It was shown in the study that satisfaction has a more significant effect on attitude because passengers are more likely to use public transportation if they enjoy, or they are content with, using it. In Rome, Italy, Mugion et al. [52] found that satisfaction does not translate into greater intention to use public transportation because a negative relationship between the two variables were seen. The study explained that when service quality is considered, satisfaction does not seem to matter in understanding the inclination of passengers to use public transport. As a reflection, the Philippines' government may need to holistically provide the better implementation of modern jeepneys for drivers and passengers to have overall satisfaction. That is, positive service quality and positive service delivery should be present for satisfaction to be achieved, similar to the significant factors presented among related studies. Evidenced by related studies, Ng and Phung [53] also

did not find any relationship between service satisfaction and behavioral intention. This is because there is more work to be focused on by the transport authorities and bus operators in Hanoi. However, as highlighted by de Oña et al. [54], satisfaction has a positive effect on behavioral intention. The study emphasized that satisfaction plays a crucial role as a mediator between service quality and behavioral intention. It was implied that when the high level of service quality public transport in Italy is achieved, it directly contributes to the satisfaction of the passengers subsequently influencing behavioral intention. It could be said that the Philippine transportation may need to reflect on these factors for the overall satisfaction to be achieved. Therefore, the hypothesis posited was as follows:

H9. *Satisfaction has a significant effect on behavioral intention.*

Table 1 presents the summarized related studies, encompassing their methodology, framework, main findings, and limitations to help provide insights into the research gap and relation for framework build-up.

Table 1. Summarized literature review.

Author	Framework	Methodology	Purpose	Findings	Limitations
Randheer et al. [30]	SERVQUAL	Factor analysis	To measure and evaluate commuter perceptions of service quality, using the SERVQUAL scale of Parasuraman et al. [21], which also takes cultural aspects into account.	- The primary order of importance was determined to be responsiveness, assurance, reliability, culture, and empathy. - This underscores the crucial role of maintaining consistent and dependable service to meet commuter expectations effectively.	Limited to a specific public service provider, with no consideration given to other private entities operating in the same field.
Chuenyindee et al. [5]	SERVQUAL	Structural equation modeling	To investigate the PUV's service quality during the COVID-19 outbreak in the Philippines.	- COVID-19 protocols, tangibility, and assurance were seen to be significant factors. - Commuters' dissatisfaction with reliability, responsiveness, and empathy indicates the lack of customer service care in the Philippines' PUV.	- It solely assessed the service quality of tricycles, jeepneys, buses, taxis, and UV Express. - Only used the customer's perception of PUV and dimensions from the SERVQUAL approach.
Sam et al. [23]	SERVQUAL	Paired-sample *t*-test and standard multiple regression	To examine the fundamental service quality expectations and perceptions of public bus transportation's users and how they affect the overall satisfaction with public bus transport services.	- It revealed notable discrepancies in the expectations and perceptions of the quality of service in public bus transportation, suggesting general discontent with the city's service provisions. Specifically, the bus service's responsiveness and reliability were found to be significant determinants of its overall quality.	- This pertains specifically to individuals who utilize public bus transportation services at least three times per week.
da Silva et al. [31]	SERVQUAL	Descriptive statistics and SERVQUAL Analysis	To use the SERVQUAL scale to measure and determine the quality of services provided by a public transportation company.	Dissatisfaction in the reliability dimension, indicating a critical quality bottleneck that firm managers must address to avoid potential future consequences on the company's success. While one component exceeded expectations by displaying optimum quality, others, such as tangibility and responsibility, fell somewhat short but were still satisfactory. Overall, most dimensions demonstrated satisfactory quality, showing progress toward satisfying user satisfaction objectives.	Time restrictions were a common reason given by respondents for their lack of willingness to participate, which is significant given the short duration of the study. The organization manages several routes, which could have an impact on data accuracy because service quality varies throughout lines.

Table 1. *Cont.*

Author	Framework	Methodology	Purpose	Findings	Limitations
German et al. [29]	Integrated PEPB and SERVQUAL	Structural equation modeling	To investigate Filipino customers' intention to use package delivery or carrying services during the COVID-19 pandemic through the integration of the PEPB and SERVQUAL frameworks.	- Perceived environmental concern, authority support, subjective norm, attitude, service quality, customer perceived value, and satisfaction were seen to be significant factors influencing Filipino consumer's intention to choose package delivery services during COVID-19 pandemic. - Service providers should publicly demonstrate their commitment to environmental protection in order to attract and maintain customers. Furthermore, the government is responsible for monitoring and promoting green practices in the logistics industry, whereas service providers should prioritize employee and customer health and safety while preserving service quality.	- Respondents were only asked to identify their residence as rural or urban without specifying their exact locations; the influence of factors might vary, potentially affecting the outcome of the study. - In total, only 400 respondents were collected for a month. Higher number of respondents and longer period of data collection can lead to more reliable results. - Focused solely on integrating the SERVQUAL dimensions and the PEPB model.
Gelaidan et al. [32]	Integration of TPB, NAT, NEP, and VBN	Structural equation modeling—AMOS	To assess how environmental concerns and other variables influence people's willingness to continue adopting sustainable travel options.	Environmental concern, perceived behavior control, service quality, perceived benefits, social influence, and attitude all play important roles in converting travelers' transportation preferences to ecologically friendly modes of transportation. As a result, in order to maintain the vitality of civic life, business, and government, efficient, environmentally friendly, and socially sustainable transportation services are critical.	- It focused on specific characteristics to assess the intention to continue utilizing the Qatar Metro. - This study neglected the non-use of public transportation in favor of focusing on the intention to continue utilizing the Metro, a type of public transportation. - This study employed cross-sectional data and self-reporting to measure consumer attitudes, PBC, social influence, service quality, environmental concerns, and intentions to continue using Qatar Metro services. Other measurements could be used instead of self-reporting because it is potentially deceptive and unreliable.

Table 1. *Cont.*

Author	Framework	Methodology	Purpose	Findings	Limitations
Saeidi et al. [33]	TAM and TPB	PLS-SEM	To model the key factors influencing the use of public transportation systems during pandemic conditions, utilizing the Technology Acceptance Model (TAM) and theory of planned behavior (TPB) frameworks.	Passenger satisfaction is greatly influenced by both expectation and service quality. Several factors like behavioral control, subjective norm, attitude, and how useful and easy to use people perceive the service (PU and PEU) all play a big role in shaping their intention to use it. Moreover, service quality, as well as how useful and easy the service is perceived to be, strongly influence people's attitude towards it. Finally, expectation, intention, how useful and easy the service is perceived to be, all have a significant impact on whether people actually use the public transportation system.	- The sample size is confined to Tehran citizens, the generalizability of the findings may be limited, and the data are self-reported.
Zou et al. [34]	TPB	Order logit model	To improve the competitiveness of public transportation by investigating the psychological influences on the behavior of users of public transportation according to the planned behavior theory (TPB).	The study discovered that people's decisions to use public transit are highly influenced by factors such as attitude and subjective norm. However, the model did not consider perceived behavioral control or descriptive norm. This suggests that public transportation competitiveness can be significantly increased by fostering a more positive attitude toward buses and encouraging inhabitants to use public transportation through family guidance or government policy. Additionally, the analysis demonstrated that boosting public transportation's competitiveness requires enhancing its ease, speed, and timeliness rather than cutting expenses.	- The findings may not be as broadly applicable as they could be due to the study's very small sample size. - The study did not consider potential interactions between psychological components and environmental variables, which could provide further insight into the dynamics of public transportation usage behavior.
Zhang et al. [35]	Integration of TPB, customer satisfaction theory, and policy factor.	PLS-SEM	To investigate how multiple psychosocial factors affect persons' intentions to use public transportation facilities during the COVID-19 pandemic.	Policies implemented during the COVID-19 pandemic have been found to increase commuters' intentions to use public transport, mainly through factors like subjective norms, perceived behavioral control, perceived service quality, and customer satisfaction. These findings shed light on how passengers adapt their travel intentions regarding public transport during the COVID-19 era.	- Public transportation service quality is assessed as a whole rather than individually based on specific features, which may have limited effects on travel intentions. - Different regional circumstances may influence how the constructs operate in the integrated framework. - COVID-19 entails a high deal of uncertainty, hence the results obtained during this pandemic are likely to differ widely.

Table 1. *Cont.*

Author	Framework	Methodology	Purpose	Findings	Limitations
Borhan et al. [36]	Multiattribute approach	SEM	- To develop a foundational framework and a set of techniques for improving public transportation access in Putrajaya by persuading private car users to switch to public transit. - Develop a relationship model based on the conceptual framework, including variables influencing private car users' desire to use public transportation, and investigate their impact on behavioral intentions.	- The results show that service quality and attitude have been shown to have a beneficial effect on the behavioral intention of using public transportation. - This study also demonstrates that service quality and environmental impact have a beneficial affect on attitudes toward using public transportation. However, environmental impact has no significant, positive, or direct influence on behavioral intention.	- The sample size was relatively small, potentially limiting the generalizability of the findings.
de Oña [37]	Confirmatory factor analysis	SEM, multi-group analysis, multiple-indicator and multiple-causes approach.	- The study finds critical characteristics of public transportation services that influence the quality perception of private vehicle customers. - It demonstrates that, like public transportation users, satisfaction mediates the relationship between service quality and behavioral intentions. - It seeks to examine whether the associations discovered may be generalized or if differences exist based on respondent geography or sociodemographic variables.	Regular private car users in both cities see punctuality, regularity, information, and intermodality as critical service quality features. Madrid residents place a premium on speed, whereas Lisbon residents emphasize service hours. In both locations, contentment serves as a complete mediator between service quality and behavioral intentions.	The absence of views toward public transportation in the structural equation models used to assess service quality, satisfaction, and behavioral intentions. This exclusion may cause bias in parameter estimates, known as omitted variable bias.

Table 1. *Cont.*

Author	Framework	Methodology	Purpose	Findings	Limitations
Sumaedi et al. [38]	Behavioral intention concepts	SEM	To investigate the determinant factors of public transportation passengers' behavioral intentions using structural equations modeling (SEM).	The findings indicate that passengers' behavioral intention is significantly influenced by both perceived value and service quality. Additionally, perceived value is notably impacted by service quality and perceived sacrifice.	- This study used cross-sectional data, thus it is difficult to determine the time series link between variables. - Sample size limitations and convenience sampling methods implied that the findings cannot be extended to all paratransit riders in Jakarta, Indonesia.
Lai and Chen [39]	Multi-attribute approach	Exploratory factor analyses and SEM	To create a relationship model that integrates the primary factors influencing public transit passengers' behavioral intentions and investigates their impact on those intentions.	The findings revealed a considerable effect of passenger satisfaction on behavioral intentions, which are impacted by the service quality and perceived value. Notably, specific service features such as vehicle safety and facility cleanliness were discovered to have a considerable impact on passenger behavioral intentions, highlighting the necessity of addressing these factors for quality development. Furthermore, the study found a favorable influence of passenger participation on behavioral intentions, implying that enhancing passenger involvement through successful marketing methods could boost ridership.	The study advises developing a comprehensive and reliable scale for measuring passenger involvement that can be applied to a variety of public transportation services. Furthermore, further research is needed to determine how to develop and implement marketing tactics that effectively engage passengers in order to attract more riders. Finally, while involvement was discovered as a factor influencing passenger behavioral intentions in this study, more investigation of its significance and ramifications is advised.
de Oña et al. [40]	Theoretical framework of SERVQUAL, CS, and BI	SEM	To explore the relationship between perceived service quality, consumer satisfaction, and behavioral intentions in Seville Metro (Spain).	Eight components of service quality perceptions were discovered, with tangible factors service equipment being the most important factor. The study discovered strong correlations between service quality, customer satisfaction, and behavioral intentions across the entire sample; however, there were variances between captive and non-captive users. While non-captive users demonstrated strong correlations among all three variables, captive users did not exhibit a substantial direct association between the service quality and behavioral intentions.	The study cautions against generalizing these findings to other modes of transportation or circumstances, highlighting the importance of case-by-case verification. The limitation is the need for additional research into the impact of service quality perceptions on other characteristics of customer loyalty among captive users.

Table 1. *Cont.*

Author	Framework	Methodology	Purpose	Findings	Limitations
Cahigas et al. [4]	Integration of social exchange theory and TPB	Confirmatory factor analysis—SEM	To analyze the behavior of PUB passengers during the COVID-19 pandemic using the integration of SET and TPB.	Accessibility, safety, economic benefit, and crisis management positively influenced passengers' trust, which in turn had a positive effect on attitude, subjective norm, and perceived behavioral control. These factors, along with perceived behavioral control, positively influenced the intention to use PUB. Additionally, perceived behavioral control positively impacted perceived passenger behavior, while the intention to use PUB positively influenced perceived passenger behavior.	Future studies should look at passenger behavior in several Filippino cities, assessing differences in PUB systems. Comparing travel behavior before, during, and after the pandemic may provide information into COVID-19's impact on travel. Analyzing demographic characteristics as moderating factors in SEM may improve knowledge. Furthermore, including service quality variables would improve the theoretical framework.
Ambak et al. [25]	TPB	Correlation and regression analysis	- To determine the factors that encourage and influence people to take public transportation in the Batu Puhat and Kluang areas. - Determine which factor is most prominent based on theory of planned behavior (TPB).	In comparison to subjective norm and perceived behavior control, users' attitudes toward public transportation have the biggest influence on their decision to take the bus. Due to its low cost and the scarcity of other modes of transportation, the majority of respondents preferred taking the public bus.	While the sample size of 282 respondents is acceptable for multivariate statistical analysis, it may not fully represent the diversity of public transportation users in Batu Pahat and Kluang. Furthermore, the study's focus on a specific route and bus operators may not reflect all of the factors driving public transportation use in the two cities as a whole.
Bandyopadhyaya and Bandyopadhyaya [42]	TPB	SEM	To assess public transportation utilization intention among regular commuters under 45 years old in India following COVID-19, with a focus on anticipated behavioral alterations as transportation infrastructure advances using theory of planned behavior framework.	The findings show that annual family income and education level have a substantial influence on intentions to use public transportation, while family size and gender do not. Social norms influence intentions more than individual attitudes. Furthermore, current use of public transportation is favorably correlated with future intent to use it. Interestingly, people with greater incomes and education levels have more intentions to use public transportation.	- The survey was only conducted in two cities, Patna and Kolkata, thus it may not reflect the diversity of commuting behaviors and preferences across India. - The study only included people up to 45 years old, which may not represent the overall commuting population.

Table 1. *Cont.*

Author	Framework	Methodology	Purpose	Findings	Limitations
Zailani et al. [43]	Extended TPB	PLS-SEM	To investigate the psychological factors influencing the inclination to utilize public transportation for three different purposes: commuting to work or school, shopping, and leisure activities.	The significant roles in determining the intention to use public transportation for different purposes such as work or study, shopping, and leisure are attitude, perceived behavioral control, overall image, and past behavior. Particularly, individuals express a stronger inclination to utilize public transportation for work or study purposes in comparison to shopping and leisure activities because of such factors like peak hour traffic congestion and the convenience of managing items during travel.	While attitude, subjective behavioral control, and overall image were found to have a substantial influence on the intention to utilize public transportation, the motivations for these psychological elements are unknown. Other determinants, such as car access, descriptive norms, attitudinal factors, habits, personal resources, and environmental factors, may provide a deeper understanding of the intention to take public transportation.
Forward [44]	TPB	Regression analysis	- To identify the important factors that influence and predict PT. - To provide a deeper understanding of what motivates people to use PT.	The study found that people who did not ride buses had negative attitudes toward this mode of transportation. Unpleasant travels, slow travel time, and a perceived loss of freedom discouraged car-only customers from taking buses. Attitudes and perceived behavioral control were critical, showing the importance of a favorable attitude toward public transportation and its ease of use. Providing free transit passes to habitual automobile users had a positive impact on attitudes and, in some cases, modified travel behaviors, demonstrating that personal experience could challenge preconceived ideas about public transportation.	The study lacked full measurements from the theory of planned behavior (TPB), explaining only a tiny percentage of the variance in bus usage. Demographic disparities and a low response rate also hindered generalization. Furthermore, the small number of individuals who received free travel permits and the short usage duration limited the findings.
Chen and Chao [45]	Integration of TPB and TAM	Confirmatory factor analysis and SEM	to investigate the intentions of private vehicle users, including both car and motorcycle users, to switch to public transit employing an integrated model that combines the theory of planned behavior (TPB) with the Technology Acceptance Model (TAM).	The findings show that, when compared to the TPB variables, an individual's regular usage of private vehicles reduces their intention to transition from a car or motorcycle to public transit. It was revealed that subjective norm has the most significant effect compared to other TPB variables on the intention of users to switch to public transportation in Taiwan. It was mentioned that, in order to encourage people to use public transportation, the transit authorities should work on improving personal beliefs and fostering positive feelings in people about using public transportations.	The model of this study only measure intentions to switch to public transit, not actual behaviors. A suitably designed intervention, such as providing participants with free public transit passes for a limited time period, may be a viable way to collect data on real behaviors following such an intervention, and this could be an avenue for future research provided adequate resources are available.

Table 1. *Cont.*

Author	Framework	Methodology	Purpose	Findings	Limitations
Donald et al. [46]	TPB	SEM	To explore the psychological aspects that influence commuters' decisions between using a personal car and public transportation.	Car use was predominantly motivated by intention and habit, with perceived behavioral control (PBC) playing a supporting role. On the other hand, the choice to take public transportation was purely driven by intention. The study discovered that variables from the theory of planned behavior (TPB), such as attitude, subjective norm, and PBC, had an indirect impact on the use of both forms of transportation by influencing intention and habit.	The study chose to measure past behavior rather than judge it in advance. However, because perceived behavioral control (PBC) is influenced by previous experiences, they anticipate a stronger rather than a weaker impact when employing such a measure.
Ali et al. [47]	Extended TPB	Explanatory factor analysis	To investigate the psychological factors that influence public transportation usage, with a focus on service accessibility and trip cost in a small Japanese city. The theory of planned behavior serves as the theoretical foundation for this inquiry.	The findings for personal norm and environmental concern show that respondents firmly believe in their moral commitment to safeguard the environment and prefer to use public transportation. The attitude towards public transport measure has a positive and substantial relationship with the public transport behavior variable. Furthermore, the findings on journey and cost concern indicate that travelers' awareness of cost and journey time variables has a substantial influence on their travel decisions.	The findings are based solely on the survey responses. It would be beneficial to seek input from government, city hall, and service providers in order to gain a more complete picture of how to encourage more people to use public transportation in the city.
Sumaedi et al. [48]	Integrated model of TPB, value, and image	Multiple regressions	To explore how the variables of the theory of planned behavior, perceived value, and image affect public transport users' intention to reuse.	This study discovered that public transportation users' intention to reuse is influenced by their attitude, subjective norm, and image, although perceived value and perceived behavioral control have no significant impact. The findings show that public transportation service providers should successfully control passengers' attitudes, subjective norms, and public transport's image. Furthermore, attention should be placed on marketing and operational initiatives to improve these aspects.	The study used convenience sampling and only collected data in Tangerang, Indonesia, which limits the findings' generalizability. Furthermore, it focused on only five attributes as predictors of public transportation riders' intention to reuse, implying that other factors may be impacting this decision.
Zhang et al. [49]	Goal-framing theory	SEM	- Analyze the subjective environmental concern with media as mediating variable for green travel behavior.	Social media could have a considerable impact on the uptake of transportation services by encouraging the achievement of desired goals, such as normative and hedonic ones. This implies that social media platforms not only facilitate beneficial relationships, but also have a favorable impact, particularly on environmental concerns.	Different regions may provide different outcomes, and external factors must be considered when evaluating travel behavior holistically.

Table 1. *Cont.*

Author	Framework	Methodology	Purpose	Findings	Limitations
Söderlund et al. [50]	Open-ended questionnaire	Multiple-item/single-item approach	- To investigate the relationship between satisfaction and intention empirically and conceptually using three alternative intention constructs.	Satisfaction has no association with these three aims. This implies that researchers examining satisfaction should pay attention to which specific intention indicator they use, because it can lead to differing conclusions about the importance of pleasure in determining intentions.	The researchers classified the entities based on their ownership levels. They did not, however, conduct an empirical assessment of how much satisfaction and intention differed in the thoughts of respondents.
Fu and Juan [51]	Integration of TPB and Customer Satisfaction theory	Exploratory factor analysis and confirmatory factor analysis	- To combine customer satisfaction theory with the theory of planned behavior (TPB) in order to explain the psychological mechanisms underlying the behavior of people who use public transportation.	The main factor influencing behavioral intention is subjective norm. Prioritizing attitude, satisfaction acts as a mediator in the relationship between behavioral intention and perceived quality. It is impacted by a number of factors, including perceived behavioral control, subjective norms, transportation information availability, and service quality. Information has no direct effect on satisfaction; instead, habit—which is both directly and indirectly influenced by intention—emerges as the best predictor of public transportation usage behavior.	While acknowledging geographical differences in the predictive potential of components, the study promotes the merging of TPB and customer satisfaction theory. It is advised that more detailed service attriutes be included in future studies, as well as the interactions between perceived behavioral control and other cognitive dimensions.
Mugion et al. [52]	Integration of service quality, service loyalty, and intention	PLS-PM	To investigate how users perceive the quality of service provided by urban public transportation and determine whether these views influence people to choose sustainable mobility options over private vehicle use, such as carpooling, bike sharing, and car sharing.	The intention to use public transit more often is strongly impacted by service quality, which also has an impact on the intention to use fewer personal vehicles and the tendency to use more environmentally friendly modes of transportation like carpooling.	The primary limitations consist of the narrow emphasis on a single city and the limited sample size. Using the theory of practice could also provide more in-depth understanding of the social and cultural settings for encouraging long-lasting behavioral changes. In order to take into consideration various urban environments and socioeconomic issues, future study could investigate cross-country analysis.

Table 1. *Cont.*

Author	Framework	Methodology	Purpose	Findings	Limitations
Ng and Phung [53]	Integration of TPB, service satisfaction and environmental concern	PLS-SEM	To examine the user's intention to use public transportation such as BRT in Hanoi.	Behavioral intention is influenced by a variety of factors, including attitude, perceived behavioral control, personal standards, and descriptive norms. Subjective norms have less of an impact in this combined model when personal and descriptive norms are taken into account. Furthermore, the efficacy of this integrated TPB model is reinforced by the indirect effects of environmental concern on behavioral intention through attitude, perceived behavioral control, and personal standards. Nonetheless, the transition from private automobiles to public bus networks is not substantially influenced by service satisfaction.	The only data used in the study came from surveys that respondents on public roadways filled out. They ignored suggestions from other significant parties, such as law enforcement or transportation organizations. Furthermore, although the study examined people's intentions to utilize public transportation, it did not monitor people's actual behavior, which may have an impact on the validity of the results.
de Oña et al. [54]	Extended TPB	Explorative factor analysis and confirmative factor analysis	To propose a model that will investigate the effects of variables like customer satisfaction and service quality on passengers' behavioral intentions toward transit services.	Important variables include attitudes about transit, perceived benefits, costs, and service quality and satisfaction. Notably, behavioral intentions are influenced by service quality both directly and indirectly; comfort, accessibility, and punctuality are important factors in this regard. After taking into account sentiments about transit and perceived costs, perceived benefits had the biggest impact on intentions. Furthermore, behavioral intentions are negatively impacted by how appealing other forms of transportation are. The report emphasizes the necessity of specialized tactics to raise ridership by addressing passenger perceptions and enhancing the quality of transit service.	The study's focus on a single city and transit mode, as well as the requirement to validate results in various contexts and transit services, are some of its limitations.

3. Methodology

3.1. Participants

A convenience sampling method was utilized in this study, and we conducted an online survey of commuters who use modern jeepneys. Convenience sampling is a type of non-probability sampling that involves choosing volunteers who are willing to take part in this study [55]. It was also utilized in order to include a large number of respondents since it is crucial to generalize the results of this study for accuracy and credibility. German et al. [29] utilized the Yamane Taro formula to determine the sample size of Filipinos, with a 95% accuracy. In relation, this study obtained a total of 502 respondents, reflecting the needed 400 respondents to generalize the output.

There was a total of 54.2% females and 45.8% males. The majority identified as students, 65.7%, followed by employees or self-employed (29.5%), unemployed (3.4%), and employers or business owners (1.4%). Since most of the respondents were students, the majority fell within the 18–25 age range (77.5%), with a monthly salary/allowance below Php 5000 (36.7%), and undergraduate (45%) and high school graduates (20.9%). One of the qualifications of the survey was that the respondents must ride a modern jeepney at least once a week. It was revealed that most respondents were using a modern jeepney at least once a week (47.2%), followed by riding a modern jeepney 2–3 times a week (30.1%). Presented in Table 2 are the collected demographic characteristics.

Table 2. Respondents' descriptive characteristics (*n* = 502).

Characteristics	Category	N	%
Gender	Male	230	45.8
	Female	272	54.2
Age	Below 18 years old	12	2.4
	18–25 years old	389	77.5
	26–35 years old	78	15.5
	36–45 years old	19	3.8
	46–55 years old	3	0.6
	Above 55 years old	1	0.2
Occupational status	Student	330	65.7
	Employee or self-employed	148	29.5
	Employer or business-owner	7	1.4
	Unemployed	17	3.4
Educational background	No schooling completed	3	0.6
	High school graduate	105	20.9
	College graduate	145	28.9
	Undergraduate	226	45
	Graduate studies	23	4.6
Monthly salary/allowance	Below Php 5000	184	36.7
	Php 5001–Php 10,000	120	23.9
	Php 10,001–Php 20,000	71	14.1
	Php 20,001–Php 30,000	62	12.4
	Php 30,001–40,000	24	4.8
	Php 40,001–50,000	16	3.2
	Above Php 50,001	25	5
How often do you ride a modern jeepney	Once a week	237	47.2
	2–3 times a week	151	30.1
	4–5 times a week	68	13.5
	6–7 times a week	46	9.2

Since the study of Ong et al. [2] presented how jeepney passengers encompass students and young working adult class, the majority of the respondents are within this age group. In accordance, the study of Baluyot et al. [56] reflected on the ergonomic aspect of jeepney passengers. They concluded that the need for readjustment on the overall space is needed

to encompass all age groups since most passengers are of the working class and are of the younger generation. That is, to provide comfort, a spacious and comfortable area should be available. The gathered response underwent the Shapiro–Wilk test to identify the normality of the responses. As evidenced by Hair [57], the value should be within ± 1.96 for this to be achieved. The current dataset was within the threshold, as well as gaining an overall total variance of 22.435%. Reflecting on the discussion of Podsakoff et al. [58], the total variance should be less than 50% so no common method bias would be evident.

3.2. Measure Items

The online survey was conducted to determine the factors that influence the individual's intention to consider modern jeepneys. The questionnaire had two sections: the demographics and the TPB and SERVQUAL 5 dimensions (integrated) model. There were ten sub-sections for the second section, and each variable had several adapted constructs from related studies. Tangibles and assurance had six constructs each, reliability and responsiveness had seven constructs each, and empathy had five constructs. On the other hand, attitude, subjective norm, and perceived behavioral control had five constructs each, while satisfaction had six constructs and four constructs for behavioral intention. The questionnaire used the 5-point Likert scale (5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree) to evaluate the constructs. There was a total of fifty-six (56) measured items presented in Appendix A.

3.3. Higher-Order PLS-SEM

This study used a higher-order PLS-SEM to assess the factors affecting individuals' intention to choose modern jeepneys as a mode of transportation. A Structural Equation Model (SEM) identifies the unobserved features of the service and determines how these aspects relate to the overall service quality [59]. Compared to regression analysis, SEM has more benefits, such as the ability to manage multiple dependent variables simultaneously; it can overlook measurement errors in both independent and dependent variables, and it allows latent variables to contain one or more observable factor [60]. It was also highlighted that SEM consists of a measurement model that includes developing hypothetical relationships among various variables and then evaluating the validity of these assumptions. Using higher-order constructs has a lot of benefits, such as summarizing the independent constructs by reducing the number of connections between the dependent and independent variables [28]. The SERVQUAL variable was analyzed as a higher-order construct, which includes formative constructs of reliability, assurance, tangible, empathy, and responsiveness [29]. The study utilized a combined model, integrating the TPB and SERVQUAL 5 dimensions that overall consisted of ten latent variable, twenty-five (25) constructs and thirty-one (31) antecedent constructs.

4. Results

4.1. The Result of Initial SEM

The initial Structural Equation Modeling (SEM) result, depicted in Figure 3, illustrates the factors influencing passengers' intentions to use modern jeepneys as their mode of transportation. It could be seen that 9 out of 10 variables were found to be significant. For the higher-order constructs, it was seen that all latent variables have a significant influence on Service Quality: assurance ($\beta = 0.886$, $p < 0.001$), responsiveness ($\beta = 0.884$, $p < 0.001$), reliability ($\beta = 0.844$, $p < 0.001$), empathy ($\beta = 0.821$, $p < 0.001$), and tangibles ($\beta = 0.787$, $p < 0.001$). For lower orders, Service Quality significantly influenced satisfaction ($\beta = 0.819$, $p < 0.001$), PBC ($\beta = 0.667$, $p < 0.001$), attitude ($\beta = 0.658$, $p < 0.001$), subjective norm ($\beta = 0.558$, $p < 0.001$), and behavioral intention ($\beta = 0.147$, $p < 0.001$). Furthermore, it was also seen that satisfaction ($\beta = 0.585$, $p = 0.00$), attitude ($\beta = 0.138$, $p = 0.01$), and PBC ($\beta = 0.175$, $p = 0.035$) significantly influenced behavioral intention. Consequently, the subjective norm ($\beta = 0.046$, $p = 0.200$) does not significantly influence behavioral intention, which is presented as broken lines.
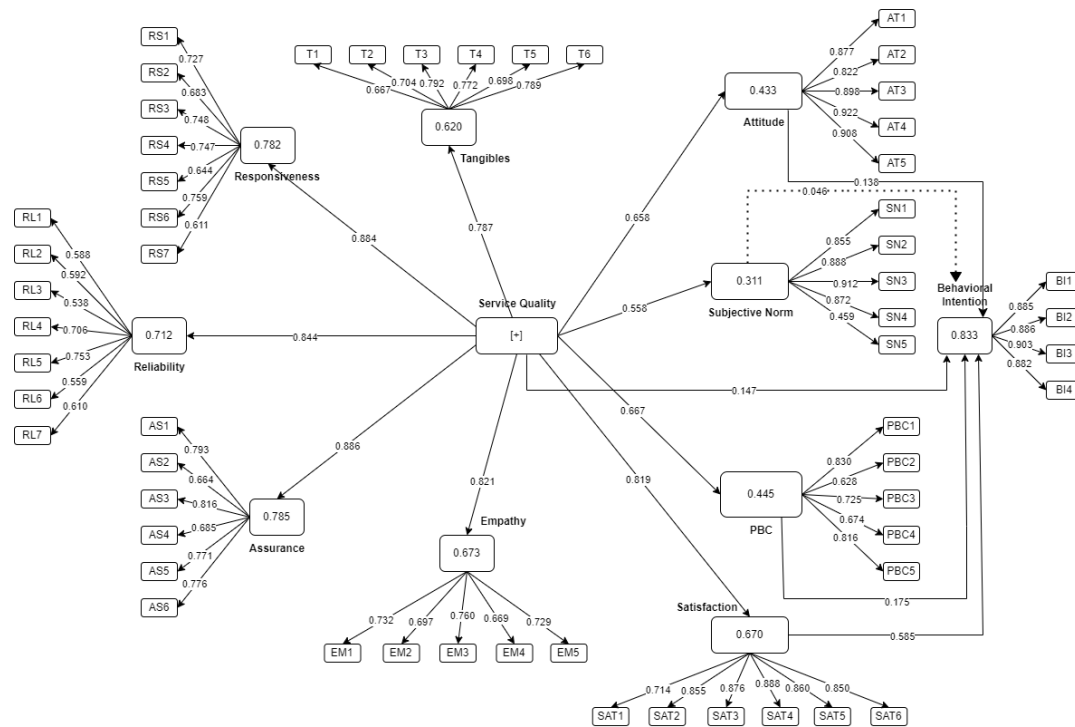
Figure 3. Initial SEM result.

The descriptive statistics in Table 3 outline the factors' loadings for both the initial and final SEM, aiming to identify the factors influencing passengers' intention to opt for modern jeepneys. Factors with loadings exceeding 0.70, as deemed acceptable according to Hair et al. [61], are incorporated into the final SEM analysis.

Table 3. Descriptive statistical analysis.

Variable	Item	Mean	StD	Factor Loading	
				Initial	Final
Tangible Factors	T1	3.3462	1.1890	0.667	-
	T2	3.4423	1.1546	0.704	0.786
	T3	3.2500	1.1125	0.792	0.847
	T4	3.4038	1.1852	0.772	0.812
	T5	3.7308	1.2664	0.698	-
	T6	3.3846	1.2817	0.789	0.805
Reliability	RL1	4.1731	1.0759	0.588	-
	RL2	3.8269	1.1603	0.592	-
	RL3	2.9423	1.5179	0.538	-
	RL4	3.7308	1.1974	0.706	0.776
	RL5	3.5769	1.1623	0.753	0.896
	RL6	2.4808	1.2902	0.559	-
	RL7	3.8654	1.0880	0.610	-
Responsiveness	RS1	3.5192	1.0567	0.727	0.729
	RS2	2.6923	1.2914	0.683	-
	RS3	3.5192	1.0643	0.748	0.758
	RS4	3.9615	1.0252	0.747	0.827
	RS5	3.8077	1.1652	0.644	-
	RS6	4.0577	1.1088	0.759	0.848
	RS7	2.4808	1.2578	0.611	-

Table 3. *Cont.*

Variable	Item	Mean	StD	Factor Loading	
				Initial	Final
Assurance	AS1	3.6346	1.0852	0.793	0.803
	AS2	4.4038	0.8518	0.664	0.814
	AS3	3.6154	1.1062	0.816	0.869
	AS4	3.4615	1.2135	0.685	-
	AS5	3.6538	1.1469	0.771	0.738
	AS6	3.4808	1.1357	0.776	
Empathy	EM1	3.5192	0.9609	0.732	0.811
	EM2	3.5000	1.3411	0.697	-
	EM3	3.8077	1.1064	0.760	0.771
	EM4	3.9423	0.9638	0.669	-
	EM5	4.1154	1.0252	0.729	0.747
Attitude	AT1	3.9434	1.2126	0.877	0.877
	AT2	3.5768	1.2773	0.822	0.821
	AT3	3.9038	1.1315	0.898	0.897
	AT4	3.9423	1.1691	0.922	0.923
	AT5	4.0385	1.2133	0.908	0.909
Subjective Norm	SN1	3.6346	1.1742	0.855	0.864
	SN2	3.4423	1.2809	0.888	0.893
	SN3	3.3077	1.2314	0.912	0.908
	SN4	3.6346	1.2326	0.872	0.879
	SN5	2.8077	1.2418	0.459	-
Perceived Behavior Control	PBC1	3.5577	1.1488	0.83	0.881
	PBC2	4.0577	1.2316	0.628	-
	PBC3	3.5385	1.2658	0.725	0.709
	PBC4	3.3077	1.3312	0.674	-
	PBC5	3.6731	1.2293	0.816	0.873
Satisfaction	SAT1	3.6346	1.0081	0.714	0.713
	SAT2	3.5577	1.2041	0.855	0.854
	SAT3	3.4423	1.1825	0.876	0.876
	SAT4	3.5577	1.1521	0.888	0.888
	SAT5	3.5962	1.1877	0.86	0.86
	SAT6	3.8077	1.0889	0.85	0.851
Behavioral Intention	BI1	3.7115	1.0240	0.885	0.885
	BI2	3.6923	1.0175	0.886	0.886
	BI3	3.7885	1.0528	0.903	0.903
	BI4	3.6538	1.1719	0.882	0.882

To test the validity of the indicators, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE) were conducted. In Table 4, it can be seen that items with a result of more than 0.7 in the initial SEM were included. Moreover, it was shown that the constructs outlined in the framework can be deemed valid, as their values surpass the necessary thresholds for validity. According to Ab Hamid et al. [62], convergent validity is an evaluation method used to measure the extent of correlation of multiple indicator items under the same constructs that align with one another. Several reports said that the acceptable value of Cronbach's Alpha ranges from 0.70 to 0.95 [63]. The 0.70 threshold of composite reliability is one of the widely used benchmarks in the evaluation process [64]. The Average Variance Extracted (AVE) is satisfactory for convergent validity if its value is more than 0.50 [62].

Table 4. Convergent validity.

Latent Variables	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Reliability	0.785	0.840	0.702
Responsiveness	0.802	0.870	0.627
Assurance	0.830	0.882	0.652
Empathy	0.771	0.820	0.603
Tangibles	0.832	0.886	0.661
Attitude	0.931	0.948	0.785
Subjective Norm	0.909	0.936	0.785
Perceived Behavior Control	0.762	0.863	0.680
Satisfaction	0.917	0.936	0.710
Behavioral Intention	0.912	0.938	0.790

Furthermore, to test the validity of the measurement and the relationship of the latent variables, the Fornell–Larcker criterion (FLC) and Heterotrait–Monotrait Ratio (HTMT) were used. According to Henseler et al. [64], once the value of the result is greater than the threshold of HTMT (>0.85), there is a lack of discriminant validity. On the other hand, in the case of FLC, AVE for each latent construct must be greater than the highest squared correlation between that particular construct and any other latent constructs [61]. As observed in Tables 5 and 6, the values of the variables meet the established criteria for FLC and HTMT. Therefore, the measurement and the relationship of each latent variable are considered valid and reliable.

Table 5. Discriminant validity: Fornell–Larcker criterion (FLC).

Factors	AT	AS	BI	EM	PBC	RL	RS	SN	SAT	T
AT	0.886									
AS	0.554	0.807								
BI	0.769	0.700	0.889							
EM	0.516	0.725	0.638	0.777						
PBC	0.768	0.564	0.750	0.552	0.825					
RL	0.570	0.675	0.659	0.616	0.580	0.838				
RS	0.570	0.733	0.665	0.669	0.605	0.704	0.792			
SN	0.750	0.454	0.676	0.471	0.740	0.480	0.474	0.883		
SAT	0.756	0.709	0.816	0.647	0.719	0.680	0.692	0.666	0.842	
T	0.531	0.589	0.659	0.524	0.494	0.606	0.587	0.444	0.708	0.813

Table 6. Heterotrait–Monotrait ratio (HTMT).

Factors	AT	AS	BI	EM	PBC	RL	RS	SQ	SN	SAT	T
AT											
AS	0.638										
BI	0.832	0.806									
EM	0.613	0.847	0.762								
PBC	0.843	0.684	0.835	0.71							
RL	0.693	0.844	0.802	0.81	0.759						
RS	0.647	0.834	0.767	0.827	0.744	0.819					
SQ	0.421	0.83	0.566	0.681	0.502	0.65	0.661				
SN	0.810	0.533	0.739	0.567	0.844	0.596	0.556	0.339			
SAT	0.815	0.811	0.779	0.773	0.816	0.823	0.802	0.586	0.73		
T	0.605	0.707	0.757	0.66	0.599	0.764	0.718	0.487	0.526	0.814	

4.2. Model Fit Analysis

Model fit was used to further evaluate if the model of this study is suitable under its dataset and questionnaire. According to Hu and Bentler [65], the threshold of SRMR should not be greater than 0.08. It is the absolute indicator of fit as it represents the standardized difference between the observed and predicted correlation [66]. On the other hand, Hooper et al. [67] highlighted that the threshold for chi-square/dF could range from 2.0, according to Tabachnick and Fidell [68], to 5.0, suggested by Wheaton et al. [69]. In addition, the suggested threshold for NFI should be greater than 0.80 [70]. The parameter estimates of each model in Table 7 show that the values meet the standard qualification. Thus, this proves that the model used in this study is valid and reliable.

Table 7. Model fit.

Goodness of Fit Measures of the SEM	Parameter Estimates	Minimum Cut-Off	Recommended by
SRMR	0.051	<0.08	Hu and Bentler [65]
Chi-square/dF	4.500	<5.0	Hooper et al. [67]
Normal fit index (NFI)	0.953	>0.80	Baumgartner and Homburg [70]

4.3. The Result of Final SEM

Presented in Figure 4 is the final SEM result of the model. It was revealed that service quality has a significant impact on assurance ($\beta = 0.869$, $p = 0.00$), empathy ($\beta = 0.600$, $p = 0.00$), responsiveness ($\beta = 0.593$, $p = 0.00$), tangibles ($\beta = 0.0449$, $p = 0.00$), and reliability ($\beta = 0.443$, $p = 0.00$). It could also be seen that service quality has a significant influence on satisfaction ($\beta = 0.559$, $p = 0.00$), PBC ($\beta = 0.426$, $p = 0.00$), attitude ($\beta = 0.407$, $p = 0.00$), and subjective norm ($\beta = 0.330$, $p = 0.00$). Lastly, it was revealed that behavioral intention was significantly influenced by satisfaction ($\beta = 0.673$, $p = 0.00$), attitude ($\beta = 0.169$, $p = 0.00$), PBC ($\beta = 0.083$, $p = 0.14$), and service quality ($\beta = 0.060$, $p = 0.00$).
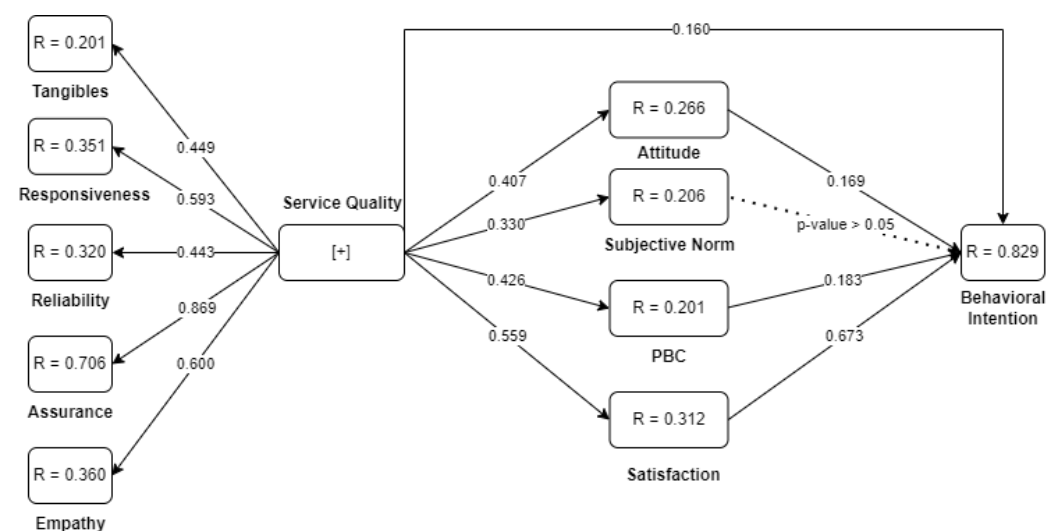

Figure 4. Final SEM result.

5. Discussion

Partial least squares structural equation modeling (PLS-SEM) was used in order to determine the factors affecting the passenger's intention to use modern jeepneys. It was seen from the results that assurance was the most significant factor for higher-ordered constructs, which was followed by empathy, responsiveness, tangibles, and reliability which were seen as the least. Among lower-ordered constructs, satisfaction in relation to behavioral intention was seen to be the most significant, followed by the influence of service quality on PBC, attitude, subjective norm, and the influence of these domains on behavioral

intention. It was also identified that subjective norms do not have a significant effect on behavioral intention. Table 8 presents the summarized output for this study, showing eight out of nine hypotheses as acceptable with *p*-values less than 0.05.

Table 8. Summarized output.

Hypothesis	Relationship	Beta	*p* Values	Decision
1	SQ → AT	0.407	<0.001	Accept
2	SQ → SN	0.330	<0.001	Accept
3	SQ → PBC	0.426	<0.001	Accept
4	SQ → SAT	0.559	<0.001	Accept
5	SQ → BI	0.160	0.019	Accept
6	AT → BI	0.169	<0.001	Accept
7	PBC → BI	0.183	0.024	Accept
8	SN → BI	0.046	0.200	Reject
9	SAT → BI	0.673	<0.001	Accept
Higher-order	SQ → T	0.449	<0.001	Accept
Higher-order	SQ → AS	0.869	<0.001	Accept
Higher-order	SQ → EM	0.600	<0.001	Accept
Higher-order	SQ → RL	0.443	<0.001	Accept
Higher-order	SQ → RS	0.593	<0.001	Accept

5.1. Higher-Order Construct Findings

- Assurance was seen to be the most influential factor among the five dimensions of SERVQUAL (supporting hypothesis 1; β: 0.869; *p* < 0.001). Factors include ensuring that the passengers are loaded and unloaded in the designated area, maintaining a smooth driving experience, obeying and adhering to traffic laws and a minimal to no risk of personal injury due to reckless driving were the indicators of how satisfied the passengers were in terms of assurance of modern jeepneys.

Muthupandian and Vijayakumar [71] further supported this finding, emphasizing that among the five dimensions, passengers have high expectations for assurance, encompassing factors such as competence, courtesy, credibility, and security. Ulkhaq [72] also highlighted the importance of assurance for passengers. The drivers and conductors must build the passengers' trust, especially when they can see how knowledgeable the drivers and conductors are along their journey, which will make them feel safe and secure. However, it was revealed that the passengers do not feel safe from crime even though the modern jeepneys are closed vehicles compared to traditional ones (AS2 and AS4). Thus, it could be said that safety should be promoted to increase the assurance among passengers in using modern jeepneys. The addition of monitors and cameras may be placed so passengers could easily see what is happening during travel inside of the transportation. This could help ease up their concerns on safety.

- Empathy was seen to be the second influential factor (supporting hypothesis 1; β: 0.600; *p* < 0.001). Passengers were satisfied with the politeness the drivers and conductors showed as they assisted persons with disabilities and senior citizens. Moreover, they were pleased with the routes taken by the drivers as they did not add extra routes.

Sam et al. [23] also revealed empathy as significant because the passengers received personalized care and attention. In the study of de Aquino et al. [73], the significance of empathy was also seen, especially in having physical facilities and services that enhance individuals' mobility, most notably those who need special attention. Drivers and conductors provided great assistance to those who need special attention, but do not provide designated areas for them. Also, modern jeepney drivers do not always stop for those passengers who want to ride the modern jeepney; this could be due to the fact that it is full already, or the drivers/conductors could not clearly see them on the side of the road. Thus, the need for enhancement is noticeable and should be taken into account for satisfaction to be increased, thereby increasing behavioral intention.

- Responsiveness was also proven to significantly influence service quality (supporting hypothesis 1; β: 0.593; $p < 0.001$). The primary determinants of this variable are the communication between the drivers/conductors and passengers, which is useful and straightforward, and that the passengers can reach their destination on time. In addition, the drivers/conductors are attentive and ready to stop at passengers' (designated) locations, ensuring that the passengers can safely exit the modern jeepney.

One of the most frequently mentioned determinants of satisfaction is punctuality [74]. It shows a great essence of being responsive to most passengers' demands. In contrast, Too and Earl [75] revealed that, in satisfaction, service quality falls short because of responsiveness and reliability due to the infrequent public transportation. Passengers were said to have a hard time riding modern jeepneys during peak hours, and they were not always notified about changes in fares. However, being relatively new, it could be reasonable that limited modern jeepneys are yet to be available for mass transportation utility. Thus, the need to ensure abundantly many modern jeepneys may be designed and implemented for mass utility—increasing satisfaction and behavioral intention. On the contrary, the study of Ong et al. [9] revealed that responsiveness was considered insignificant since passengers believed that accidents could happen at times. It also highlighted how challenging it is to book motorcycle transportation during rush hours due to the high volume of commuters and low volume of motorcycle transport, which can be related to all public transportation during peak hours in the country.

- Tangible factors, in this study, were presented as the second to last most significant variable under SERVQUAL 5 dimensions (supporting hypothesis 1; β: 0.449; $p < 0.001$). It discovered that there is sufficient space, seats, and handles that are ergonomically made. In addition, they are also indicated to be well-maintained and visually appealing. Moreover, they have an appropriate temperature and air ventilation.

The result of other studies highlighted tangible factors as one of the dimensions that are of great importance in the public transit sector [75–77]. Several studies mentioned that the atmosphere, cleanliness, space availability, and comfort of passengers in public transport play a pivotal role in determining the significance of tangible factors in public transportation. According to Brysland and Curry [78], while the expectations for tangible factors may be low, their importance remains high. Contradicting Randheer et al. [30], their study found that tangible factors were insignificant. This is because they focused more on highlighting neatness as their determinant—compared to the overall tangible factors variable evaluation of this study. In addition, Luke and Heyns [22] found dissatisfaction of passengers due to a lack of spaces and availability of services, especially during peak hours. However, this study presented otherwise, leading to a significant effect of tangible factors on satisfaction and behavioral intention. The relatively newly established vehicles are assumed to automatically improve their visual appeal since they are neat, clean, and have good working air conditioning. However, the continuous implementation of the service should be monitored to increase satisfaction and behavioral intention.

- Reliability was also seen as an influential factor of service quality but was seen to be the least important factor (supporting hypothesis 1; β: 0.443; $p < 0.001$). It was determined that the fare is affordable, and the loading and unloading areas are accessible but not close to the passengers' housefronts.

According to Ong et al. [2], the price/fare of jeepneys considering their safety and efficient services is reasonable. It also highlighted the importance of information materials such as legible road signage to the satisfaction of the commuters. This reflects the results having an effect on satisfaction and behavioral intention since only PHP 2 (USD 0.035) difference is seen with modern jeepney fares. This study revealed that the route signage of modern jeepneys is not legible enough. This could lead to confusion that could cause inconvenience to passengers. Also, it was also revealed that drivers/conductors do not always give the right amount of change, do not follow the advised maximum number of passengers, and modern jeepneys have experienced breakdowns in the middle of their

journeys. The proper receipt of change could be implemented and not abiding could lead to a monetary penalty for drivers and conductors, so strict compliance would be encouraged. This would help increase passenger satisfaction and behavioral intention. Sam et al. [23] discovered the insignificance of reliability; people from Ghana also experienced a breakdown of their vehicle during their journey, it not being punctual, and not following a schedule, and bus tickets not being accessible for them, and this led to dissatisfaction and negative behavioral intention.

5.2. Passenger Satisfaction

- Satisfaction was proved to have a significant influence on behavioral intention (supporting hypothesis 9; β: 0.673; $p < 0.001$). Passengers were generally pleased with modern jeepneys, acknowledging the courteous demeanor of drivers and conductors, the comfort level of the vehicles, and the service quality that surpasses expectations. They expressed satisfaction with the overall experience and a willingness to promote and use modern jeepneys again.

Eboli and Mazzulla [79] discovered that service quality has a favorable impact on satisfaction. Service planning and reliability are significant aspects determining satisfaction. In contrast, Ojo et al. [80] revealed dissatisfaction with the attributes of SERVQUAL. Passengers expressed discontent with the assistance they received, the lack of availability of a scheduled timetable for buses, and not feeling safe and secure with staff. Public transportation services were also deemed inaccessible and inefficient. Similar to the results of this study, it could be deduced that passengers were not content with the space available, such as legroom and foot space.

- It could also be seen that several factors are positively affected by the service quality (Hypothesis 4—β: 0.426, $p < 0.001$).

The significant impact of service quality on satisfaction was supported by Deb and Ahmed [81]. It was emphasized that reliability plays a crucial role in shaping the comfort and safety of the service due to the journey experience. Van Lierop et al. [82] also discovered that reliability significantly increased passenger satisfaction. The study emphasized that drivers demonstrate assurance to passengers by adhering to traffic laws, ensuring a smooth and safe travel experience, and providing a sense of security in the vehicle. However, the research also highlighted that cleanliness was not considered an influential factor in choosing a public transport vehicle, but was in this study. Thus, stakeholders and transportation service developers may opt to reconsider the ergonomic factors of their vehicles to increase behavioral intention and customer satisfaction.

5.3. Theory of Planned Behavior

- The positive effect of service quality to PBC (Hypothesis 3—β: 0.426), attitude (Hypothesis 1—β: 0.407), and subjective norm (Hypothesis 2—β: 0.330) was seen from the output. The passengers expressed a high level of trust in using modern jeepneys as they consistently find opportunities to ride them. The commuters also believed that using modern jeepneys can contribute to the betterment of society.
- Regarding attitude, the individuals consider using the modern jeepney beneficial for their community. Their decision to use a modern jeepney was inspired by a desire for a safe commuting experience, and they are confident that its use contributes positively to the overall wellbeing and comfort of their community.
- Relating to subjective norms, the invention of the modern jeepney has great significance, and its use is valuable. Passengers thought that using the modern jeepney was important because people in their community, including those they look up to, preferred and endorsed it.

This was supported by Borhan et al. [36], Gelaidan et al. [32], and Saeidi et al. [33], who highlighted that service quality significantly influences the overall positive behavior of individuals. Passengers believe in e-sustainable travelling behaviors and the importance of

reliable, assured, and cost-effective transportation was shown. It was also emphasized that politeness, respectfulness, and the adaptation of better services were the determinants of a positive attitude. These factors would lead to an increase in passenger behavioral intention and drive satisfaction. Zhang et al. [35] presented a significant relationship between PBC, the subjective norm, and service quality. It was revealed that when COVID-19 started, safety measures enhanced the intention of passengers to use public transport. With that, many commuters supported and encouraged other people to use public transportation along with factors under assurance, responsiveness, and reliability. In contrast, Zou et al. [34] discovered that the service quality has a considerable impact on attitude but has no direct effect on subjective norms or PBC. This was because passengers were more likely to choose public transportation if there was an improvement in punctuality and convenience, which are common problems in the Philippines [9].

- Furthermore, PBC was next to be seen as influential to behavioral intention (hypothesis 7—β: 0.183, *p* = 0.024). Passengers considered using modern jeepney since they trust it as their mode of transportation, especially as they feel safe and secure, and, in turn, it increases behavioral intentions.

Li et al. [83] also proved the significant influence of PBC to behavioral intention. The route emerged as a determinant of PBC, and its significance was evident in this study. Modern jeepney users preferred a well-planned route without additional detours that could inconvenience passengers. However, Sumaedi [36] found that PBC do not significantly influence behavioral intention. This could be attributed to the differences in features of public transportation services and the characteristics of the users, as expressed in their study.

- In addition, attitude was proven to positively affect behavioral intention (Hypothesis 6—β: 0.169, *p* < 0.001). It could be posited that passengers will use modern jeepney because they have a favorable opinion about the service quality provided by modern jeepney.

This was supported by Ambak et al. [25] and Ali et al. [47]. It was mentioned that the users are more likely to use public transportation if their travel and waiting time is reduced. On the other hand, Bandyopadhyaya and Bandyopadhyaya [42] revealed that attitude does not have a significant effect on behavioral intentions, mainly because the travel experience of passengers is not good. The study also emphasized that passengers are more likely to use public transportation if the services improve and become more convenient. Thus, the need to highlight these aspects should be properly maintained for the continuance of utility among modern jeepneys, increasing passenger behavioral intention.

5.4. Service Quality

- The last variable that positively influenced behavioral intention is service quality (Hypothesis 5—β: 0.160, *p* = 0.019). It has been demonstrated that passengers are inclined to consider using modern jeepneys due to their quality of service. As presented, all SERVQUAL domains were identified as significant variables of service quality, contributing to passengers' behavioral intention to use modern jeepneys.

This finding aligns with Lai and Chen [39] who emphasized the positive effect of service quality on behavioral intention, citing determinants such as vehicle safety, cleanliness of facilities, and complaint handling. Additionally, Watthanaklang et al. [84] also underscored the positive effect of service quality on behavioral intention, with responsiveness, particularly the courtesy of the staff, identified as the most important factor. Ali et al. [47] also revealed a significant impact of subjective norms on behavioral intentions. This indicates that passengers are more inclined to use public transportation based on the travel experiences of others and when it becomes a common practice in society.

- Subsequently, the findings of this study revealed that subjective norms do not significantly influence behavioral intentions (Rejecting hypothesis 8—β: 0.046, *p* = 0.200). It

means that passengers rely on factors other than other people's experiences when considering using modern jeepneys. They will not use modern jeepneys simply because people tell or encourage them.

This was supported by Forward [44], as the author did not also see subjective norms as a strong influential factor on behavioral intention due to the fact that the behavior was seen to be deeply ingrained more as a habit.

5.5. Theoretical Implications

The integration of the higher-order SERVQUAL 5 dimensions and the TPB model was seen to positively evaluate the relationship between variables. Compared to lower-ordered or traditional SEM analysis with the SERQVUAL 5 dimensions, it could be reflected that the higher-order construct analyses provided better output. How influential the domains are in reflecting the service quality is highlighted. Concerning lower-order constructs, service quality significantly impacts satisfaction, PBC, attitude, and the subjective norm. Additionally, satisfaction, attitude, and PBC were found to have positive effects on behavioral intentions. This means that the integration of TPB provided a more holistic assessment on satisfaction, behavioral intention, and service quality assessment among passengers. According to German et al. [29], higher-order constructs were used to illustrate the relationship between higher-order and lower-order components, providing an extended and more comprehensive view. The study's findings can be utilized by future research in the context of public transportation. The framework model of this study can also be employed, particularly in studies determining consumer satisfaction and intention regarding service quality, contributing valuable insights into understanding consumer behavior and enhancing service quality—even among other service industries.

5.6. Practical Implications and Managerial Insights

Commuters' may express concerns about the limited space in modern jeepneys and the non-ergonomic design of handles and seats. Modern jeepneys, with their high ceilings and closed windows due to air conditioning, face challenges during peak hours as drivers/conductors often exceed the advised maximum capacity. This has led to overcrowding, insufficient air ventilation, and limited space and could be reassessed to provide a better service quality. Passengers also encounter difficulties disembarking at their destinations. To improve the service quality of modern jeepneys, it is recommended that drivers/conductors adhere to the vehicle's maximum capacity, enhancing safety and security, with a lower risk of crimes like theft in less crowded conditions. For the implementation to be successful, government agencies may provide penalties to avoid the preceding circumstances.

Additionally, the study revealed that modern jeepneys are not visually appealing and lack the traditional charm embraced by Filipinos. Many consider them more akin to minibuses than the iconic jeepney. To make modern jeepneys more appealing to Filipino commuters, aligning their appearance with traditional jeepneys is suggested to preserve cultural uniqueness. Presented in Figure 5 is the suggested structure of the modern jeepney, displayed in one of the provinces in the Philippines, far from the capital.

Industry stakeholders should prioritize organizing seminars and training sessions for modern jeepney drivers and conductors. The findings indicate that earning the trust of passengers is a crucial factor in enhancing their intention to utilize modern jeepneys. Moreover, they must possess a thorough understanding of traffic regulations and demonstrate discipline in adhering to them; thus, requiring consistent and continuous seminars for improvement and refresher is needed. These measures are integral to ensuring a positive passenger experience and increasing the attractiveness of modern jeepneys as modes of transportation. Regular maintenance is also recommended to avoid breakdowns and inconvenience among commuters. One of LTFRB's objectives is to guarantee safe, convenient, and sufficient transportation for commuters. To enhance the services provided by modern jeepneys, it is crucial for the board to enforce strict regulations regarding passenger loading and unloading areas, as well as adherence to traffic regulations, as these factors greatly in-

fluence the service quality. Alongside conducting seminars or training sessions for drivers, LTFRB should play a role in instilling discipline among drivers to ensure passenger safety.

Figure 5. *Suggested modern jeepney from Bacolod City, Negros Occidental.*

Policymakers need to rigorously enforce laws concerning providing correct change to passengers, as failing to do so reflects a lack of honesty and integrity. This practice directly impacts the trustworthiness of drivers and conductors, which in turn influences passengers' willingness to use modern jeepneys, as reliability is essential for both comfort and safety. Therefore, penalties may be given such as extra seminar hours or monetary penalties. Additionally, adherence to advised maximum passenger capacities is crucial to ensure the safety and security of modern jeepneys. Neglecting these guidelines could result in serious injuries, health risks, and criminal activities like theft. By implementing and enforcing such laws consistently, policymakers can enhance the overall service quality of modern jeepneys.

The study suggests that the government should improve the service quality of modern jeepneys. This improvement could lead to a greater number of people choosing modern jeepneys as their mode of transportation. Commuters might influence others, particularly car owners, to consider using modern jeepneys, which the current study show not to be significant. One of the benefits of this shift is the potential reduction in the use of private cars, which could significantly alleviate the prevalent traffic issues in the country and contribute to addressing environmental concerns. The government, manufacturers, and management should collaborate to enhance the service quality of modern jeepneys for the betterment of public transportation in the country.

5.7. Limitation and Future Works

Despite the significant results found by this study, it is crucial to acknowledge its limitations. Firstly, the study utilized an online questionnaire, resulting in a sample predominantly composed of students aged 18 to 25 years old. This demographic may not fully represent the diverse range of commuter experiences. Despite being the majority of passengers utilizing jeepneys [2], it could be noted that age diversity may still be needed for a more generalized output. This would help in the overall perception and evaluation of passenger satisfaction and behavioral intention, enabling us to reduce the response bias and representation bias. Therefore, future research should consider employing face-to-face questionnaires in commuter waiting areas to capture a broader spectrum of perspectives. Secondly, the study was conducted during the government's implementation of the PUV

phaseout to promote modern jeepneys, potentially introducing bias into the results. To mitigate this bias, future works should adopt a longitudinal approach to track changes in public perception over time. This strategy can offer valuable insights into how attitudes evolve throughout the government's modernization process, providing a more nuanced understanding of passengers' intentions to use modern jeepneys.

In accordance with the suggestion that the developed modern jeepney outlook is related to minibuses, future works may try to evaluate the perceptions of the current jeepney style and features may be elevated to be considered a modern jeepney by passengers, leading to lower costs among drivers for changes needed (Figure 5). The challenge for the government modernization policy and action may also be a significant variable after the establishment of this study. Thus, it is recommended that future researchers delve into this aspect to underscore significant external factors affecting goal-oriented behaviors. As a reflection of Zhang et al. [49], the application or even integration of goal-framing theory may be considered for the external factors to be holistically assessed. Moreover, future research may also evaluate the ergonomic factors such as the physical and cognitive aspects in the development of the suggested modern jeepney. Delving deeper into these aspects can contribute to a more comprehensive understanding of passengers' intentions regarding modern jeepneys.

6. Conclusions

Since there are limited studies on users' intentions to use public transportation, especially in the Philippines, it is crucial to understand the intentions of commuters in choosing public transportation. Especially since the deployment of modern jeepneys has received several criticisms and has yet to be fully implemented, an assessment is needed for their proper promotion by government agencies. The current study utilized the higher-order SERVQUAL 5 dimensions and the theory of planned behavior (TPB) framework. Through the utilization of partial least squares structural equation modeling (PLS-SEM), the interrelations among the variables were comprehensively examined.

Various factors were evaluated to further understand why people choose modern jeepneys for transportation. In order to foster positive behavioral intentions, having a great quality of service is crucial. For the service quality, it is essential to consider the variables significantly associated with it. It is important for passengers to develop a favorable opinion of and satisfaction with the services provided. Assurance emerged as the most influential factor in the higher-order model of SERVQUAL's 5 dimensions, with a focus on how drivers or conductors gain the trust of commuters. Commuters are more likely to consider using modern jeepneys if they feel safe and secure, with no delays, and being ergonomically designed for passengers. To cultivate positive intentions from users, gaining the trust of commuters by prioritizing their safety and security is imperative.

The findings from this study could benefit the government by improving public transportation services, thereby encouraging more people to use them, as detailed in the practical implications. Additionally, modern jeepney manufacturers could gain valuable insights to enhance the overall customer experience and develop satisfaction and positive behavioral intentions.

Appendix A

Table A1. Measurement items.

Variable	Code	Constructs	Reference
Tangibles	T1	There is sufficient space inside the modern jeepney	Chuenyindee et al. [5]
	T2	The seats and bar handles of the modern jeepney are ergonomically made	Chuenyindee et al. [5]
	T3	Modern jeepneys are tidy and properly maintained	Ojo et al. [80]
	T4	Modern jeepney maintains an appropriate temperature	Chuenyindee et al. [5]
	T5	The appearance of modern jeepney is visually appealing	Uzir et al. [85]
	T6	Modern jeepney is equipped with effective air ventilation.	Chuenyindee et al. [5]
Reliability	RL1	The driver or conductor always gives the right amount of change	Shaaban and Kim [86]
	RL2	The modern jeepney never experienced any breakdown in the middle of the journey	Luke and Heyns [22]
	RL3	There is a loading and unloading area close to my house	Chuenyindee et al. [5]
	RL4	The fare for modern jeepneys is budget-friendly	Chuenyindee et al. [5]
	RL5	The loading and unloading area are accessible	Chuenyindee et al. [5]
	RL6	The modern jeepney follows the advised maximum number of passengers	Shaaban and Kim [86]
	RL7	The modern jeepney's route signs are legible	Trafarakis et al. [87]
Responsiveness	RS1	I reach my destination punctually when using an modern jeepney	Uzir et al. [85]
	RS2	I can conveniently use modern jeepneys even during peak hours	Chuenyindee et al. [5]
	RS3	Communication with the driver/conductor is straightforward and useful	Ojo et al. [80]
	RS4	The driver/conductor is attentive and ready to stop at the passenger's preferred location	Chuenyindee et al. [5]
	RS5	The modern jeepney company provides advance notice regarding changes in prices	Ojo et al. [80]
	RS6	The driver or conductor consistently notifies passengers when it is safe to exit the modern jeepney	Chuenyindee et al. [5]
	RS7	I do not experience long waits to ride an modern jeepney	Chuenyindee et al. [5]
Assurance	AS1	Drivers of modern jeepneys obey and adhere to traffic laws	Shaaban and Kim [86]
	AS2	Modern jeepney drivers have a great knowledge of the route they will take	Shaaban and Kim [86]
	AS3	Modern jeepney drivers maintain a smooth driving experience	Chuenyindee et al. [5]
	AS4	Modern jeepney makes me feel safer from crimes (thieves, hold-ups, assaults, etc.)	Chuenyindee et al. [5]
	AS5	The driver ensures passengers are loaded and unloaded in the designated areas	Chuenyindee et al. [5]
	AS6	The risk of personal injury due to reckless driving is minimal to none	Luke and Heyns [22]
Empathy	EM1	Drivers and conductors always show politeness	Ojo et al. [80]
	EM2	There is designated areas for people with disabilities or needs assistance	Chuenyindee et al. [5]
	EM3	The driver or conductor provides assistance to persons with disabilities and senior citizens	Chuenyindee et al. [5]
	EM4	Drivers always stop for people who want to get on the modern jeepney	Chuenyindee et al. [5]
	EM5	Routes are well-planned and do not add any extra routes	Chuenyindee et al. [5]
Attitude	AT1	Using modern jeepney is a good plan for our community	Ru et al. [88]
	AT2	I use modern jeepney because I want to feel safe when I am commuting	German et al. [27]
	AT3	Using modern jeepney is beneficial for our community	Ru et al. [88]
	AT4	I think using modern jeepney is valuable	Ru et al. [88]
	AT5	I think that the creation of the modern jeepney has great significance	Lili et al. [89]

Table A1. *Cont.*

Variable	Code	Constructs	Reference
Subjective Norm	SN1	Others believe that I should use modern jeepney	Carfora et al. [90]
	SN2	Most people in my community prefer to use modern jeepney	Carfora et al. [90]
	SN3	People I look up to think I should use modern jeepney	Carfora et al. [90]
	SN4	People who I know also consider utilizing modern jeepney	Carfora et al. [90]
	SN5	I use modern jeepney due to the societal pressure I feel	Carfora et al. [90]
Perceived Behavior Control	PBC1	I trust the modern jeepney modality which is why I consider it as my mode of commute	Park et al. [91]
	PBC2	Choosing to ride a modern jeepney is under my control	Pena-Garcia et al. [92]
	PBC3	I always have the opportunity to ride a modern jeepney	Carfora et al. [90]
	PBC4	I can travel to any destination using modern jeepney	Soorani and Ahmadvand [93]
	PBC5	I believe that utilizing modern jeepney improves our society, which is my action to help	Fornara et al. [94]
Satisfaction	SAT1	I am pleased with the behavior of modern jeepney drivers and conductors	Zhang et al. [95]
	SAT2	I am satisfied with how comfortable modern jeepneys are	Zhang et al. [95]
	SAT3	The service quality of modern jeepneys surpassed what I expected	Zhang et al. [95]
	SAT4	I am content with the modern jeepney's overall service	Zhang et al. [95]
	SAT5	I am likely to suggest modern jeepney rides to people who are important to me	Chuenyindee et al. [5]
	SAT6	I would love to use modern jeepney again	Chuenyindee et al. [5]
Behavioral Intention	BI1	I will consider the overall service of modern jeepney because it is safe and secure	Chuenyindee et al. [5]
	BI2	Overall service that I obtain is satisfactory which is why I will consider modern jeepney	Chuenyindee et al. [5]
	BI3	I have a favorable opinion about the service quality of this PUV which is why I will consider it in the future	Chuenyindee et al. [5]
	BI4	I will consider utilizing modern jeepneys every day due to its quality of service	Chuenyindee et al. [5]

References

1. Ercan, T.; Onat, N.C.; Tatari, O. Investigating carbon footprint reduction potential of public transportation in United States: A system dynamics approach. *J. Clean. Prod.* **2016**, *133*, 1260–1276. [CrossRef]
2. Ong, A.K.; Prasetyo, Y.T.; Estefanio, A.; Tan, A.S.; Videña, J.C.; Villanueva, R.A.; Chuenyindee, T.; Thana, K.; Persada, S.F.; Nadlifatin, R. Determining factors affecting passenger satisfaction of "jeepney" in the Philippine urban areas: The role of service quality in Sustainable Urban Transportation System. *Sustainability* **2023**, *15*, 1223. [CrossRef]
3. Mead, L.; UN Secretary-General's High-Level Advisory Group on Sustainable Transport; Narain, S. The Road to Sustainable Transport. Available online: https://www.iisd.org/articles/deep-dive/road-sustainable-transport (accessed on 14 February 2024).
4. Cahigas, M.M.; Prasetyo, Y.T.; Persada, S.F.; Ong, A.K.; Nadlifatin, R. Understanding the perceived behavior of public utility bus passengers during the era of COVID-19 pandemic in the Philippines: Application of social exchange theory and theory of planned behavior. *Res. Transp. Bus. Manag.* **2022**, *45*, 100840. [CrossRef] [PubMed]
5. Chuenyindee, T.; Ong, A.K.; Ramos, J.P.; Prasetyo, Y.T.; Nadlifatin, R.; Kurata, Y.B.; Sittiwatethanasiri, T. Public Utility Vehicle Service Quality and customer satisfaction in the Philippines during the COVID-19 pandemic. *Util. Policy* **2022**, *75*, 101336. [CrossRef] [PubMed]
6. Joewono, T.B.; Kubota, H. A user perception model concerning safety and security of paratransit services in Bandung, Indonesia. *J. Transp.* **2005**, *5*, 25–36.
7. Çelebi, D.; İmre, Ş. Measuring crowding-related comfort in public transport. *Transp. Plan. Technol.* **2020**, *43*, 735–750. [CrossRef]
8. Yu, L.S. Metro Manila Has World's Worst Metro Area Traffic in 2023. What Can We Learn? Available online: https://www.rappler.com/business/manila-world-worst-metro-area-traffic-2023/ (accessed on 21 April 2024).
9. Ong, A.K.S.; German, J.D.; Dangaran, P.C.; Jethro, B.; Paz, J.; Roniel, G.; Macatangay, R. Service quality and customer satisfaction analysis among motorcycle taxi transportation in the Philippines through SERVQUAL dimensions and social exchange theory. *Case Stud. Transp. Policy* **2024**, *15*, 101139.
10. Faye, P.E. Modernization and/or sustainable transportation system in Dakar: Identification of problems and mode requirements. *Procedia Soc. Behav. Sci.* **2012**, *43*, 43–53. [CrossRef]
11. Lanori, T.; Supriyanto, B.H. Problems of The Impact of Modernization of Indonesia's Public Transportation Equipment System. *Int. J. Soc. Sci.* **2023**, *2*, 2163–2176. [CrossRef]
12. UNFPA Philippines. Population Dynamics. Available online: https://philippines.unfpa.org/en/topics/population-dynamics-5 (accessed on 14 February 2024).
13. Fallaria, A.J.; de Jesus, R.; Carpio, M.; Jacinto, F.L.; De Leon, L.; Agapito, J.; Ramos, J.G. Emerging from the 'worst': An ethnography of the modern Filipino commuting culture behind the Metro Manila traffic crisis. *MATEC Web Conf.* **2019**, *272*, 01032. [CrossRef]

14. Mariano, P. Modernising Public Transport in the Philippines. Available online: https://changing-transport.org/modernizing-public-transport-in-the-philippines/ (accessed on 1 April 2024).

15. Westerman, A. A Push to Modernize Philippine Transport Threatens the Beloved Jeepney. Available online: https://www.npr.org/sections/parallels/2018/03/07/591140541/a-push-to-modernize-philippine-transport-threatens-the-beloved-jeepney (accessed on 1 April 2024).

16. Gatarin, G.R. Modernising the 'king of the road': Pathways for just transitions for the Filipino jeepney. *Urban Gov.* **2024**, *4*, 37–46. [CrossRef]

17. Changing Transport. Reforming the (Semi-)Informal Minibus System in the Philippines—Changing Transport. Available online: https://changing-transport.org/publications/reformation-semi-informal-minibus-system-philippines/ (accessed on 16 February 2024).

18. Asia Pacific Foundation of Canada. Jeepneys, Backbone of Public Transport in Philippines, Face Modernization by Government. Available online: https://www.asiapacific.ca/publication/jeepneys-backbone-public-transport-philippines-face (accessed on 17 February 2024).

19. Sinha, K.C. Sustainability and urban public transportation. *J. Transp. Eng.* **2003**, *129*, 331–341. [CrossRef]

20. Beul-Leusmann, S.; Jakobs, E.-M.; Ziefle, M. User-centered design of Passenger Information Systems. In Proceedings of the IEEE International Professional Communication 2013 Conference, Vancouver, BC, Canada, 15–17 July 2013.

21. Parasuraman, A.; Berry, L.L.; Zeithaml, V.A. Refinement and reassessment of the SERVQUAL scale. *J. Retail.* **1991**, *67*, 420.

22. Luke, R.; Heyns, G.J. An analysis of the quality of public transport in Johannesburg, South Africa using an adapted SERVQUAL model. *Transp. Res. Procedia* **2020**, *48*, 3562–3576. [CrossRef]

23. Sam, E.F.; Hamidu, O.; Daniels, S. SERVQUAL analysis of public bus transport services in Kumasi metropolis, Ghana: Core user perspectives. *Case Stud. Transp. Policy* **2018**, *6*, 25–31. [CrossRef]

24. Heath, Y.; Gifford, R. Extending the theory of planned behavior: Predicting the use of public transportation1. *J. Appl. Social. Psychol.* **2002**, *32*, 2154–2189. [CrossRef]

25. Ambak, K.; Kasvar, K.K.; Daniel, B.D.; Prasetijo, J.; Abd Ghani, A.R. Behavioral intention to use public transport based on theory of planned behavior. *MATEC Web Conf.* **2016**, *47*, 03008. [CrossRef]

26. Kim, J.; Schmöcker, J.-D.; Yu, J.W.; Choi, J.Y. Service Quality Evaluation for urban rail transfer facilities with Rasch analysis. *Travel Behav. Soc.* **2018**, *13*, 26–35. [CrossRef]

27. Tumsekcali, E.; Ayyildiz, E.; Taskin, A. Interval valued intuitionistic fuzzy AHP-WASPAS based public transportation service quality evaluation by a new extension of SERVQUAL model: P-SERVQUAL 4.0. *Expert Syst. Appl.* **2021**, *186*, 115757. [CrossRef]

28. Sarstedt, M.; Hair, J.F.; Cheah, J.-H.; Becker, J.-M.; Ringle, C.M. How to specify, estimate, and validate higher-order constructs in PLS-SEM. *Australas. Mark. J.* **2019**, *27*, 197–211. [CrossRef]

29. German, J.D.; Redi, A.A.; Prasetyo, Y.T.; Persada, S.F.; Ong, A.K.; Young, M.N.; Nadlifatin, R. Choosing a package carrier during COVID-19 pandemic: An integration of pro-environmental planned behavior (PEPB) theory and Service Quality (SERVQUAL). *J. Clean. Prod.* **2022**, *346*, 131123. [CrossRef] [PubMed]

30. Randheer, K.; AL-Motawa, A.A.; Vijay, J.P. Measuring commuters' perception on service quality using SERVQUAL in public transportation. *Int. J. Mark. Stud.* **2011**, *3*, 21. [CrossRef]

31. da Silva, D.J.; Godoy, L.P.; Godoy, T.P.; Wegner, R.D.; Sudati, L.U. Utilização da Escala servqual para mensuração da qualidade: Estudo de Caso em Uma Empresa de Transporte Público. *Rev. Adm. UFSM* **2019**, *12*, 894–910. [CrossRef]

32. Gelaidan, H.; Al-Swidi, A.; Hafeez, M. Studying the joint effects of perceived service quality, perceived benefits, and environmental concerns in sustainable travel behavior: Extending the TPB. *Sustainability* **2023**, *15*, 11266. [CrossRef]

33. Saeidi, S.; Enjedani, S.; Behineh, E.A.; Tehranian, K.; Jazayerifar, S. Factors Affecting Public Transportation Use during Pandemic: An Integrated Approach of Technology Acceptance Model and Theory of Planned Behavior. *Teh. Glas.* **2023**, *18*, 1–12.

34. Zou, F.; Wu, B.; Xiong, J.; Li, L. Analyzing public transportation competitiveness based on the theory of planned behavior. *ICTE* **2013**, *2013*, 3139–3147.

35. Zhang, X.; Liu, D.; Wang, Y.; Du, H. Behavioral intentions of urban rail transit passengers during the COVID-19 pandemic in Tianjin, China: A model integrating the theory of planned behavior and customer satisfaction theory. *J. Adv. Transp.* **2021**, *2021*, 8793101. [CrossRef]

36. Borhan, M.N.; Syamsunur, D.; Mohd Akhir, N.; Mat Yazid, M.R.; Ismail, A.; Rahmat, R.A. Predicting the use of public transportation: A case study from Putrajaya, Malaysia. *Sci. World J.* **2014**, *2014*, 784145. [CrossRef] [PubMed]

37. de Oña, J. Service quality, satisfaction and behavioral intentions towards public transport from the point of view of private vehicle users. *Transportation* **2021**, *49*, 237–269. [CrossRef]

38. Sumaedi, S.; Bakti, I.G.M.Y.; Yarmen, M. The empirical study of public transport passengers' behavioral intentions: The roles of service quality, perceived sacrifice, perceived value, and satisfaction (Case study: Paratransit passengers in Jakarta, Indonesia). *Int. J. Traffic Transp. Eng.* **2012**, *2*, 83–97.

39. Lai, W.-T.; Chen, C.-F. Behavioral intentions of public transit passengers—The roles of service quality, perceived value, satisfaction and involvement. *Transp. Policy* **2011**, *18*, 318–325. [CrossRef]

40. de Oña, R.; Machado, J.L.; de Oña, J. Perceived service quality, customer satisfaction, and behavioral intentions. *Transp. Res. Rec. J. Transp. Res. Board* **2015**, *2538*, 76–85. [CrossRef]

41. Ajzen, I. The theory of planned behavior. *Organ. Behav. Human Decis. Process.* **1991**, *50*, 179–211. [CrossRef]

42. Bandyopadhyaya, V.; Bandyopadhyaya, R. Understanding public transport use intention post COVID-19 outbreak using modified theory of planned behavior: Case study from developing Country Perspective. *Case Stud. Transp. Policy* **2022**, *10*, 2044–2052. [CrossRef] [PubMed]

43. Zailani, S.; Iranmanesh, M.; Masron, T.A.; Chan, T.-H. Is the intention to use public transport for different travel purposes determined by different factors? *Transp. Res. Part D Transp. Environ.* **2016**, *49*, 18–24. [CrossRef]

44. Forward, S.E. Views on public transport and how personal experiences can contribute to a more positive attitude and behavioural change. *Soc. Sci.* **2019**, *8*, 47. [CrossRef]

45. Chen, C.-F.; Chao, W.-H. Habitual or reasoned? using the theory of planned behavior, technology acceptance model, and habit to examine switching intentions toward public transit. *Transp. Res. Part F Traffic Psychol. Behav.* **2011**, *14*, 128–137. [CrossRef]

46. Donald, I.J.; Cooper, S.R.; Conchie, S.M. An extended theory of planned behaviour model of the psychological factors affecting commuters' transport mode use. *J. Environ. Psychol.* **2014**, *40*, 39–48. [CrossRef]

47. Ali, N.; Nakayama, S.; Yamaguchi, H. Using the extensions of the theory of planned behavior (TPB) for behavioral intentions to use public transport (PT) in Kanazawa, Japan. *Transp. Res. Interdiscip. Perspect.* **2023**, *17*, 100742. [CrossRef]

48. Sumaedi, S.; Yarmen, M.; Bakti, I.G.M.Y.; Rakhmawati, T.; Astrini, N.J.; Widianti, T. The integrated model of theory planned behavior, value, and image for explaining public transport passengers' intention to reuse. *Manag. Environ. Qual. Int. J.* **2016**, *27*, 124–135. [CrossRef]

49. Zhang, C.; Yu, Z.; Huang, Y.; Wang, M.; Martin, S.; Xiao, G.; Lu, X. Investigating the influence mechanism of goal-framing theory on urban residents' Green Travel Behavior. *Sustain. Dev.* **2024**. [CrossRef]

50. Söderlund, M.; Öhman, N. Behavioral intentions in satisfaction research revisited. *J. Consum. Satisf. Dissatisfaction Complain. Behav.* **2003**, *16*, 53–66.

51. Fu, X.; Juan, Z. Understanding public transit use behavior: Integration of the theory of planned behavior and the Customer Satisfaction Theory. *Transportation* **2016**, *44*, 1021–1042. [CrossRef]

52. Mugion, R.G.; Toni, M.; Raharjo, H.; Di Pietro, L.; Sebathu, S.P. Does the service quality of urban public transport enhance sustainable mobility? *J. Clean. Prod.* **2018**, *174*, 1566–1587. [CrossRef]

53. Ng, P.Y.; Phung, P.T. Public transportation in Hanoi: Applying an integrative model of behavioral intention. *Case Stud. Transp. Policy* **2021**, *9*, 395–404. [CrossRef]

54. de Oña, J.; de Oña, R.; Eboli, L.; Forciniti, C.; Mazzulla, G. Transit passengers' behavioural intentions: The influence of service quality and customer satisfaction. *Transp. A Transp. Sci.* **2016**, *12*, 385–412. [CrossRef]

55. Brodaty, H.; Mothakunnel, A.; de Vel-Palumbo, M.; Ames, D.; Ellis, K.A.; Reppermund, S.; Kochan, N.A.; Savage, G.; Trollor, J.N.; Crawford, J.; et al. Influence of population versus convenience sampling on sample characteristics in studies of cognitive aging. *Ann. Epidemiol.* **2014**, *24*, 63–71. [CrossRef] [PubMed]

56. Baluyot, M.K.; Cuenca, C.; Custodio, B.; Jazmines, M.S. B8-4 an ergonomic study on the ideal interior of jeepneys based on anthropometric measurements of Filipinos. *Jpn. J. Ergon.* **2017**, *53*, S644–S647. [CrossRef]

57. Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E. *Multivariate Data Analysis*; Pearson: Harlow, UK, 2014.

58. Podsakoff, P.M.; MacKenzie, S.B.; Lee, J.-Y.; Podsakoff, N.P. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *J. Appl. Psychol.* **2003**, *88*, 879–903. [CrossRef]

59. de Oña, J.; de Oña, R.; Eboli, L.; Mazzulla, G. Perceived service quality in bus transit service: A structural equation approach. *Transp. Policy* **2013**, *29*, 219–226. [CrossRef]

60. Wang, Y.; Cao, M.; Liu, Y.; Ye, R.; Gao, X.; Ma, L. Public transport equity in Shenyang: Using structural equation modelling. *Res. Transp. Bus. Manag.* **2022**, *42*, 100555. [CrossRef]

61. Hair, J.F.; Ringle, C.M.; Sarstedt, M. PLS-SEM: Indeed a silver bullet. *J. Mark. Theory Pract.* **2011**, *19*, 139–152. [CrossRef]

62. Ab Hamid, M.R.; Sami, W.; Mohmad Sidek, M.H. Discriminant validity assessment: Use of Fornell & Larcker criterion versus HTMT criterion. *J. Phys. Conf. Ser.* **2017**, *890*, 012163.

63. Aguirre-Urreta, M.I.; Marakas, G.M.; Ellis, M.E. Measurement of composite reliability in research using partial least squares. *ACM SIGMIS Database DATABASE Adv. Inf. Syst.* **2013**, *44*, 11–43. [CrossRef]

64. Henseler, J.; Ringle, C.M.; Sarstedt, M. A new criterion for assessing discriminant validity in variance-based structural equation modeling. *J. Acad. Mark. Sci.* **2014**, *43*, 115–135. [CrossRef]

65. Hu, L.T.; Bentler, P.M. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct. Equ. Model. A Multidiscip. J.* **1999**, *6*, 1–55. [CrossRef]

66. Kenny, D.A. Measuring Model Fit. Available online: https://davidakenny.net/cm/fit.htm (accessed on 31 March 2024).

67. Hooper, D.; Coughlan, J.; Mullen, M. Evaluating model fit: A synthesis of the structural equation modelling literature. In Proceedings of the 7th European Conference on Research Methodology for Business and Management Studies, London, UK, 19–20 June 2008.

68. Tabachnick, B.G.; Fidell, L.S. Using Multivariate Statistics. Available online: https://www.scirp.org/(S(czeh2tfqyw2orz553k1w0r45))/reference/ReferencesPapers.aspx?ReferenceID=1887285 (accessed on 31 March 2024).

69. Wheaton, B.; Muthen, B.; Alwin, D.F.; Summers, G.F. Assessing reliability and stability in panel models. *Sociol. Methodol.* **1977**, *8*, 84. [CrossRef]

70. Baumgartner, H.; Homburg, C. Applications of structural equation modeling in marketing and Consumer Research: A Review. *Int. J. Res. Mark.* **1996**, *13*, 139–161. [CrossRef]

71. Muthupandian, K.S.; Vijayakumar, D.C. Measurement of Passengers Service Quality in Public Transportation: Servqual Analysis. *Bus. Plus* **2012**, *1*. Available online: https://mpra.ub.uni-muenchen.de/38584/1/MEASUREMENT_OF_PASSENGERS_SERVICE_QUALITY_IN_PUBLIC_TRANSPORTATION.pdf (accessed on 20 February 2024).

72. Ulkhaq, M.M.; Ardiani, A.J.; Farhan, M.; Bagja, R.P.; Hanif, R.Z. Service Quality Analysis of Bus Rapid Transit: A case in Semarang, Indonesia. In Proceedings of the 2019 4th International Conference on Intelligent Transportation Engineering (ICITE), Singapore, 5–7 September 2019.

73. de Aquino, J.T.; de Melo, F.J.; de Jerônimo, T.; de Medeiros, D.D. Evaluation of quality in public transport services: The use of quality dimensions as an input for Fuzzy Topsis. *Int. J. Fuzzy Syst.* **2018**, *21*, 176–193. [CrossRef]

74. Fonseca, F.; Pinto, S.; Brito, C. Service Quality and Customer Satisfaction in Public Transports. *Int. J. Qual. Res.* **2010**, *4*, 125–130.

75. Too, L.; Earl, G. Public transport service quality and sustainable development: A community stakeholder perspective. *Sustain. Dev.* **2010**, *18*, 51–61. [CrossRef]

76. Yaya, L.H.; Fortià, M.F.; Canals, C.S.; Marimon, F. Service Quality Assessment of public transport and the implication role of demographic characteristics. *Public Transp.* **2014**, *7*, 409–428. [CrossRef]

77. Ueasangkomsate, P. Service quality of public road passenger transport in Thailand. *Kasetsart J. Soc. Sci.* **2019**, *40*, 74–81.

78. Brysland, A.; Curry, A. Service improvements in public services using SERVQUAL. *Manag. Serv. Qual. Int. J.* **2001**, *11*, 389–401. [CrossRef]

79. Eboli, L.; Mazzulla, G. Service quality attributes affecting customer satisfaction for bus transit. *J. Public Transp.* **2007**, *10*, 21–34. [CrossRef]

80. Ojo, T.K.; Okoree, D.; Mireku, S.D. Service Quality and Customer Satisfaction of Public Transport on Cape Coast-Accra Route, Ghana. 2014. Available online: https://www.researchgate.net/publication/266385664_Service_Quality_and_Customer_Satisfaction_of_Public_Transport_on_Cape_Coast-Accra_Route_Ghana (accessed on 25 February 2024).

81. Deb, S.; Ahmed, M.A. Quality Assessment of city bus service based on subjective and objective service quality dimensions. *Benchmarking Int. J.* **2019**, *26*, 567–589. [CrossRef]

82. Van Lierop, D.; Badami, M.G.; El-Geneidy, A.M. What influences satisfaction and loyalty in public transport? A review of the literature. *Transp. Rev.* **2018**, *38*, 52–72. [CrossRef]

83. Li, L.; Xiong, J.; Chen, A.; Zhao, S.; Dong, Z. Key strategies for improving public transportation based on planned behavior theory: Case study in Shanghai, China. *J. Urban Plan. Dev.* **2015**, *141*, 04014019. [CrossRef]

84. Watthanaklang, D.; Jomnonkwao, S.; Champahom, T.; Wisutwattanasak, P. Exploring accessibility and service quality perceptions on local public transportation in Thailand. *Case Stud. Transp. Policy* **2024**, *15*, 101144. [CrossRef]

85. Uzir, M.U.H.; Al Halbusi, H.; Thurasamy, R.; Hock, R.L.T.; Aljaberi, M.A.; Hasan, N.; Hamid, M. The effects of service quality, perceived value and trust in home delivery service personnel on customer satisfaction: Evidence from a developing country. *J. Retail. Consum. Serv.* **2021**, *63*, 102721. [CrossRef]

86. Shaaban, K.; Kim, I. The influence of bus service satisfaction on university students' mode choice. *J. Adv. Transp.* **2016**, *50*, 935–948. [CrossRef]

87. Tsafarakis, S.; Kokotas, T.; Pantouvakis, A. A multiple criteria approach for airline passenger satisfaction measurement and service quality improvement. *J. Air Transp. Manag.* **2021**, *68*, 61–75. [CrossRef]

88. Ru, X.; Wang, S.; Chen, Q.; Yan, S. Exploring the interaction effects of norms and attitudes on green travel intention: An empirical study in eastern China. *J. Clean. Prod.* **2018**, *197*, 1317–1327. [CrossRef]

89. Lili, D.; Ying, Y.; Qiuhui, H.; Mengxi, L. Residents' acceptance of using desalinated water in China based on the theory of planned behaviour (TPB). *Mar. Policy* **2021**, *123*, 104293. [CrossRef]

90. Carfora, V.; Cavallo, C.; Catellani, P.; Del Giudice, T.; Cicia, G. Why do consumers intend to purchase natural food? integrating theory of planned behavior, value-belief-norm theory, and Trust. *Nutrients* **2021**, *13*, 1904. [CrossRef] [PubMed]

91. Park, E.; Kim, S.; Kim, Y.; Kwon, S.J. Smart home services as the next mainstream of the ICT industry: Determinants of the adoption of smart home services. *Univers. Access Inf. Soc.* **2018**, *17*, 175–190. [CrossRef]

92. Peña-García, N.; Gil-Saura, I.; Rodríguez-Orejuela, A.; Siqueira-Junior, J.R. Purchase intention and purchase behavior online: A cross-cultural approach. *Heliyon* **2020**, *6*, e04284. [CrossRef] [PubMed]

93. Soorani, F.; Ahmadvand, M. Determinants of consumers' food management behavior: Applying and extending the theory of planned behavior. *Waste Manag.* **2019**, *98*, 151–159. [CrossRef]

94. Fornara, F.; Pattitoni, P.; Mura, M.; Strazzera, E. Predicting intention to improve household energy efficiency: The role of value-belief-norm theory, normative and informational influence, and specific attitude. *J. Environ. Psychol.* **2016**, *45*, 1–10. [CrossRef]

95. Zhang, C.; Liu, Y.; Lu, W.; Xiao, G. Evaluating passenger satisfaction index based on PLS-SEM model: Evidence from Chinese public transport service. *Transp. Res. Part A Policy Pract.* **2019**, *120*, 149–164. [CrossRef]