

The Student Perception of public transportation mode choice: A case study of Universitas Mercubuana

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DOI: 10.53866/jimi.v2i5.211

Abstract

Using public transportation to support one's mobility causes one to consider their mode of transportation more carefully depending on how vital one views using public transportation. Students who depend on public transit for daily mobility are particularly concerned about rearranging their priorities by those demands. This essay aims to investigate student preferences for using public transportation. With the information gathered from the questionnaire for 100 respondents, the Spider Chart was used to assess the approach utilized in choosing public transportation based on the level of interest of Mercu Buana University students. The results of the study show that there is student interest in offering public transportation to campus. Based on the ten parameters asked, students gave relatively high responses. Safety is essential for both men and women when selecting public transportation, with average values of 9.0 and 9.3 being the highest.

Keywords: Mode choice, Perception, Public transport, Students

1. Introduction

Because it enables the trade of products, fosters contact among residents, and is one of the factors contributing to urbanization in cities, transportation is essential in today's global economy (García-Olivares, Solé, & Osychenko, 2018). Currently, people move from one place to another based on their choice of transportation, especially public transportation. The world's public transportation networks are improving, especially in emerging nations like Malaysia (Saad, Ishak, Fauzi, Baharudin, & Idris, 2018). Because of this, most people rely substantially on public transportation today. They argued that choosing the proper transportation form might cut costs and trip time.

Since 1662, there have been facilities for public transportation, which served as a means of transportation for the general population by charging for service on short and large distances (Merlin, 2017). The availability of this public transportation infrastructure greatly influences how quickly and effectively Indonesians can do tasks requiring short or long distances. Using public transit allows even members of the general public who lack a car or other means of mobility to get where they need to go more quickly. In most Indonesian cities, buses are the most widely used mode of public transportation, with a variety of minor to significant bus systems (Soehodho, 2017). For daily mobility, Indonesians can choose from various public transit options in addition to buses.

There are numerous public transportation options in Jakarta, including the Electric Rail Train (KRL), Transjakarta, taxis, metro mini, microlite, bajaj, and motorcycle taxis, etc. (Warnars, Lanita, Prasetyo, & Randriatoamanana, 2017). One of the places with the broadest selections is Jakarta itself. Comparatively speaking to other Indonesian cities, Jakarta's public transportation system has evolved quickly. Most people depend heavily on public transit (Fatima & Moridpou, 2019). Consequently, it is crucial to monitor its

progress.

Although the existing transportation infrastructure in many developing countries still has several issues, urban transportation is crucial to the nation's economic and social development (Elmansouri, Almhroog, & Badi, 2020). One of the nations with ongoing transportation or public transit issues is Jakarta. For someone to use public transportation, they must decide on it as their mode of everyday transit based on their needs and top priorities. Tariffs are a sign of public transportation services since they impact how long those services remain in operation (Winaya, 2019). Students in the employee class, who work and study every day, feel this most strongly. They are always encouraged to engage in outside activities and frequently commute using public transit.

This study examines how students choose the best form of public transportation by examining their priorities in terms of needs or interests. This study examines the operational dynamics of the public transportation used by students for mobility. More specifically, public transit, which students frequently use to go to campus, will be the mode of transportation being examined. The choice of public transportation alternatives will be based on a consideration of these issues. Being selective when using public transit is also necessary. The proper form of transportation must be chosen to satisfy the intended needs (Sentanu, Purba, & Sulistyorini, 2021).

2. Literature Review

2.1 Public Transportation

One of the methods for moving people or commodities daily is public transportation. One of the public services offered by the transportation system is public transit. It is essential to have a solid public service system, particularly in a large city with a high population density like Jakarta. Increasing human resources, inter-agency cooperation, and transportation infrastructure are all components of strengthening public services in the urban transportation system (Harahap & Hasibuan, 2021). One strategy for reducing issues like congestion is to improve public transportation systems.

Indonesia has a wide variety of public transportation options, including small, medium, and big buses and public passenger automobiles. In large cities like Jakarta, public transportation improvements are highly critical. By doing this, the community may use fewer private vehicles. The increased use of private vehicles is to blame for many effects. For example, air pollution in metropolitan areas rises as the number of vehicles increases (Pouresmaeili, Aghayan, & Taghizadeh, 2018). Additionally, there will be a wide range of other effects.

In the 1990s, public transportation dominated the transport sector in the countries of Central and Eastern Europe (Poliak, et al., 2017). Due to the ease of ordering online with an app available on an Android smartphone, it may even be higher now than it was then. To meet their everyday demands, today's society struggles to manage time. To make the internet app a speedier middleman for ordering public transportation, this is employed to identify a solution. Grab, Gojek, UberJek, trains, AKAP buses, and other online-based or public transportation options are available.

One of the objectives of public transportation is to provide the community with excellent and adequate transportation services. Convenience is another crucial factor that must be considered when providing public transportation services. The community typically takes this into account when deciding to use public transit for daily travel. To raise community interest in what they anticipate, indicators of community appraisal of these issues can be a desirable consideration. Desired quality differs from perceived quality in that it refers to what a user wants or expects from a public transportation system rather than their typical experience (Dell'Olio, Ibeas, & Cecin, 2011).

Improving the quality of passengers and commodities transported is one of the most crucial transportation needs (Davidich, Kush, Galkin, Davidich, & Tkachenko, 2019). With these factors in mind, many people may feel more confident using public transportation than private vehicles. Additionally, congestion may decrease because more people are interested in using public transit. The advantages of more frequent use of public transportation may also have a favorable effect on people's economies. To

balance the outcomes in the field, it is crucial to consider both the needs of the current community and the expansion of public transportation.

2.2 Mode of Transportation

A mode of transportation is a conveyance used by individuals to travel from one location or area to another. This has resulted in the development of a Multi-Mode Transportation System in Indonesia, which is made up of numerous islands and has several sizable cities with a high population density. The mode is one choice when we want to move or go somewhere to make travel easier. Consequently, a comprehensive and effective transportation system in metropolitan areas must include the shared mode (Drut, 2018). Because, especially in major cities like Jakarta, this is how most Indonesians travel regularly.

Numerous different transportation options in Jakarta can be selected based on community needs. New modes of transportation, like high-speed rail, particularly in large cities, have become essential factors in population distribution and short-term migration (Wang & Chen, 2018). The community decided to adopt the train as their form of transportation because it is the least expensive. Primarily when a relatively long distance is used. In addition, the train has the advantage of having a higher passenger capacity than other modes of transportation.

It is also possible that many people continue to use private vehicles daily, particularly during the coronavirus pandemic, which compelled people to avoid close contact. Priorities for modal selection before and after the pandemic changed the share of various modes, lowered and raised it, and the effect of having high-risk family members was investigated (Sameni, Tilenoie, & Dini, 2021). To make the transportation system safer, more comfortable, and guaranteed to keep public security, the government must design it. Education regarding transportation modes and their introduction to the general public is crucial.

Mode During transportation planning, it is crucial to know the elements influencing modal choice (Sierpiński, 2017). When planning modes of transportation, it is essential to take the most popular or in-demand option into account to determine what kind of transportation requirements the area lacks. Society must take this into account. They will think about it from selecting the form of transportation to marketplaces, places of employment, or tourist sites. Depending on the place to be reached, someone may also take time and cost efficiency into account while selecting the mode of transportation.

Applications for transportation mode recognition include traffic management, human behavior research, and transportation management (Xiao, Wang, Fu, & Wu, 2017). Public awareness of these issues is crucial if consumers are to receive the appropriate service for their chosen mode of transportation. Indonesia has various means of transportation, including land-specific, air-specific, and water-specific modes. Moreover, one of the cities with significant progress in transportation is Jakarta, the capital of Indonesia. The residents there have a choice of numerous transportation options.

2.3 Mobility

Moving can be accomplished by using transportation, particularly public transportation. For instance, employing Transjakarta buses to transport students from their homes to the university might be viewed as a form of mobilization or mobility. However, there are many issues with mobility currently, particularly in the capital city of Jakarta, where traffic bottlenecks frequently develop. Urbanization and automated mobilization are causing traffic to become a significant barrier in several states (Bang, Bysani, Prashant, & Narahari, 2017)

As a means of population mobility, public transit is crucial in daily life, especially for young people in school. They are compelled to use public transportation since they are too young to be allowed to operate motor vehicles. Children and young people, in particular, have limited independent mobility due to subpar public transportation services (Berg & Ihlström, 2019). Children and young students undoubtedly place a high value on public transportation services' time and financial effectiveness. They must arrive at their goal, which is school or campus, on time.

A more mobile population will significantly impact the environment in a given location. Congestion

and terrible traffic are two of the effects that are currently the most obvious. Urban traffic congestion is a global issue, not just one that affects one or two nations. Requiring inhabitants to use public transit and raising the cost of driver's licenses has helped some countries tackle this issue. With support from one of the countries, particularly Japan, they were able to reduce the congestion that resulted. This method may have pros and cons in society. Decision-makers establish dangers to the viability of the transportation system in the form of mobilization and convey the necessity for an immediate response, such as in the shape of significant infrastructure projects (Schäfer, 2021).

Transit, especially public transportation, demonstrates the benefit of mobilization. Along with population expansion, public transportation utilization rises. The community uses public transit facilities for daily transportation according to their specific demands. The growing population density influences the choice of transportation in metropolitan areas. One option to lessen traffic is using public transportation, which is becoming increasingly popular as a means of transportation. Additionally, users may profit from the mobilization of people with restricted mobility and the usage of self-driving automobiles by individuals who do not possess a driver's license (Bahamonde-Birke, Kickhöfer, Heinrichs, & Kuhnimhof, 2018).

3. Methodology

This study looks at the top priorities of students who use public transportation to assess how they choose the best form of transportation. For students at Mercu Buana University, this data collection started in November 2022. Students from Mercu Buana University are specifically spread throughout three campuses: Meruya, Menteng, and Warung Buncit. Figure 1 below illustrates more accurate positions.

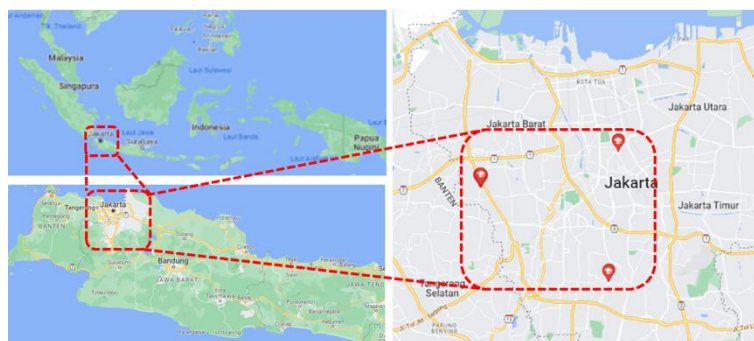


Figure 1. Research Location

With up to 100 Mercubuana students as respondents, this study processes its data using the spider chart analysis approach. In addition, the survey findings from a questionnaire that was issued over the WhatsApp platform were utilized to generate the data and parameters. In this study, there were ten parameters from about ten different publications. Table 1 below shows the ten characteristics considered in this analysis.

Table 1. Parameter of research

Parameter	Source
Travel Time	(Sitinjak & Sitindaon, 2019)
Waiting Time	(Wahab & Roza, 2020)
Headway	(Yuslye, Murniati, & Riani, 2021)
Time Discipline	(Kristyanto, Hasanuddin, & Putra, 2022)
Distance	(Azka, Hidayat, & Ramadhana, 2021)
cost	(Chen & Li, 2017)
Transport affordability	(Darmawan, 2019)
vehicle condition	(Birago, Mensah, & Sharma, 2017)
Comfort	(Arla, Efendi, & Hajia, 2022)
safety	(Imandasari, Sadewo, Windarto, Wanto, Wijaya, &

Parameter	Source
	Kurniawan, 2019)

The primary data used in this study were entered into Google Forms by Mercubuana students. Additionally, the parameters were derived using secondary data already collected and published in several journals. Respondents will rate the importance of taking public transportation on a scale of 1 to 10, with one being the least important and ten being the most important, depending on the characteristics. Figure 2 and the material below provide more information about evaluating the factors determining how important it is to use public transportation.



Figure 2. Scoring Range

It will be analyzed to determine which of the ten attached parameters is more and less essential from all the available data. The average percentage results from surveys conducted with Google Forms will subsequently be processed, and a spider chart analysis approach will be used to illustrate the results.

4. Results and Analysis

The results of the data collected from respondents were obtained from 105 questionnaires distributed via digital media or, more specifically, the WhatsApp and Google Forms platforms as content media. One hundred samples will be taken from the 105-respondent data so that data processing can be done. In the analysis and discussion in this sub-chapter, the characteristics of the respondents and the features of the interests that become a priority in choosing public transportation will be explored individually.

4.1 Respondent Characteristics

Every participant in a survey study must have unique traits and perspectives on every respondent. Therefore, each responder received a separate set of findings from the 100 samples that were drawn using the information from the survey results. Based on the average level of each indicator, the difference in these data will be crucial in evaluating how vital it is to choose public transportation.

Table 2. Respondent Characteristics

Variable	Categories	frequency	Relative Frequency
Gender	Male	26	26%
	Female	74	74%
Age	Under 20	8	8%
	21~30	84	84%
	31~40	6	6%
	41~50	2	2%
	Over 50	0	0%
Vehicle ownership	Motorcycle	91	91%
	car	2	2%
	Motorcycles & cars	7	7%
Campus locations	Meruya	21	21%
	Menteng	8	8%
	Bunty shop	71	71%
Faculty	Engineering	85	85%
	Economics and Business	7	7%
	Communications	3	3%
	ComputerScience	2	2%

Psychology	3	3%
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One hundred respondents, or 26% women and 74 men, on the gender variable provided the results. Ages 21 to 30 account for 84% of all general factors. The highest percentage of vehicle ownership was 91%, while the lowest rate was 2% for car ownership. 71% of the 100 respondents were from the Warung Buncit campus of Mercu Buana University, 21% were from the Meruya campus, and 8% were from the Menteng campus. Civil engineering students make up most of the faculty variables (85%), while computer science faculty has the lowest number (2%). Table 2 provides more information about the data's outcomes.

4.2 Interest Characteristics

After analyzing the data from the distributed survey, each student's decision on the mode of priority for taking public transportation to campus is significantly influenced by the variances in respondents' assessments of the relative importance of each criterion. The level of emphasis given to journey time, waiting time, headway, cost, distance, time management, transportation affordability, vehicle condition, comfort, and safety are among the factors used to gauge student interest in choosing means of transportation to campus. When the survey data is processed, male and female genders are separated into two categories. The gender split among the 100 responders was 74% men and 26% women. The outcomes are displayed in figure 3.



Figure 3. Spider Chart

One of the ten parameters utilized in conducting field surveys is the relative importance of journey time, which is the first parameter in this topic. On a scale of 1 to 10, men's average scores for this parameter were 8.2, and women's average scores were 7.7, according to 100 respondents' responses. Because of the high average value, it is clear that this metric is now a significant but only one deciding factor for women to choose public transportation. The second factor is how crucial waiting time is. The length of the wait is another factor to consider while selecting public transportation. Students like public transit with relatively quick waiting times. Therefore it is essential to consider that when selecting a mode of transportation. The analysis showed that male and female respondents received the same value, or 8.2, in their responses.

The third factor is the significance of the made headway. The headway is the time it takes for public transit to move between two locations, or more accurately, from one station to another. The headway, or amount of time it takes for a public vehicle to move from one location to another, varies depending on the type of vehicle and the amount of traffic in the area. For instance, smooth transportation utilization may be impeded, and journey times will increase as an area's level of congestion increases. The level of importance of headway obtained an average value of 8.1 for men, according to the analysis's findings this time, which is the lowest value of the other ten factors. The specific number for women is 8.0. Each individual must establish a charge for utilizing public transit. Cost is another factor that may be crucial when deciding on public transit for someone. The daily spending will be impacted by public transportation, ranking the costs from least to most costly. Determining a person's transportation expenses is crucial because it affects their monthly income. The average value for men was 8.6, according to the field survey findings. At the same time, women received a rating of 8.6. These numbers suggest that both people value the expense of public transportation because there is a slight variation between the average values obtained for men and women.

The fifth factor is how significant the travel time between home and university is. Each respondent's distance from their starting location to their campus must be different. This becomes one factor that influences a person's decision to use public transit to get to campus. The average value for men was 8.4, according to the analysis of the survey data that had been analyzed. Women's average values are, however, 8.1. Someone may take public transit because of the system's time constraints. To avoid delays, someone planning a vacation must also have good time management skills. According to the results, the survey participants did reasonably well in this parameter. The average value for men is 8.6, while the average for female responses is 8.8. This demonstrates the need for time management while deciding on a person's means of transportation.

Only some locations or aspects of a person's home are convenient for public transportation. One of the deciding factors when choosing public transit is how far it is from your home. Many people feel this way while picking a mode of transportation due to a lack of public transportation options or perhaps because the public transit route needs to be more extensive. Based on the survey data, the average value was 8.5 for males and 8.8 for women. This value is significant enough to factor into someone's decision to use public transportation. To lessen things that are not acceptable for everyone, it is essential to pay attention to the state of public vehicles when they are in use. According to the car condition study statistics, the average value for men was 8.4, and for women, it was 7.8. This is a crucial consideration when students choose public transit to get to university.

According to their comfort level, many people opt for public transit to get around. When utilizing public transit, everyone has their level of comfort. The survey's findings, which were used to derive a pretty high average value, prove this. For men, the average score for comfort's importance is 8.9. While women received a 9.2 out of 10 average rating. It is crucial for public transportation always to keep its passengers secure. Men heavily weigh safety, the seventh criterion, while deciding on their means of transportation. This is demonstrated by the survey's findings, which obtained the highest average rating of 9.0 out of 10. Men are just some of the ones that prioritize safety when selecting a means of transportation. The average value of 9.3 for women is a highly significant metric out of the ten offered in the questionnaire, and it is the same for males.

5. Conclusion

The results of the study show that there is student interest in offering public transportation to campus. Based on the ten parameters asked, students gave relatively high responses. In addition, safety is essential for both men and women when selecting public transportation, with average values of 9.0 and 9.3 being the highest.

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