ACCESSIBILITY OF TRANSPORTATION FACILITIES FOR DISABILITIES (CASE STUDY OF TRANS SEMARANG)

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Abstract. Accessibility related to public transport is a means of advancing the economic welfare of the community, creating and increasing economic degrees, as well as a precursor sector of other sectors. Therefore, people with disabilities are also entitled to the same service to the public transportation as an effort to realize similarities, the equality of citizens and the enhancement of the role of disability. This research aims to analyse disability access and the role of the transportation service of Semarang and PT. Trans Semarang on Bus Rapid Transit in Semarang City. This research uses a type of qualitative approach that is implemented through interviews, observations and documentation. The conclusion of this research shows that from the regulatory aspects, the government of Semarang should be appreciated because the government of Semarang has tried to fulfill the rights of the disabled. But from the implementation aspect, there needs to be an improvement because the accessibility of disabled people running optimally can be seen through the condition of public facilities in the city of Semarang. Public facilities in the city of Semarang do not completely ignore the reference accessibility means there are public facilities that have been good enough but many more are not optimal.

Keywords: *Accessibility, disability, public transport service.***.**

1. Introduction

Persons with disabilities are one of the problems in social welfare, where persons with disabilities need special attention so that they can carry out their social functions properly and regularly. People with disabilities generally experience difficulty in mobility when carrying out daily activities when compared to normal people.

Based on Act No.8 of 2016 concerning Persons with Disabilities, it states that persons with disabilities have the right to life, free from stigma, privacy, justice, the law protection, education, employment, entrepreneurship, and cooperatives, health, politics, religion, sports, culture and tourism, social welfare, accessibility, public services, from the description of the law above, public service is one of the rights that must be fulfilled by persons with disabilities to carry out social functions properly [1]. According to the Act of the Republic of Indonesia Number 8 of 2016 concerning persons with disabilities, what is meant by persons with disabilities in Article 1 point 1 is every person that experiences physical, intellectual, mental, and/or sensory limitations. The physical deficiencies consist of the blind, deaf, and physically disabled

Transportation is one of the public services which held the main component to support social functions, so every person with a disability has the right to decent public transportation services. The government has issued act No. 29 of 2009 concerning the clarity of public services for every citizen, including persons with disabilities. The law makes it clear that in public services there are principles that emphasize the convenience for persons with disabilities. In reality, there are still many inadequate public transportation services, especially for the disabled in Semarang, Indonesia.

The Semarang city government provides a more reliable, fast, and efficient bus-based mass transportation mode to reduce urban transportation problems in Semarang. Problems in transportation such as vehicle volume density, the increase of private vehicles do not only occur in Semarang. In Lampung, the problems that occur include the imbalance in the addition of the road network compared to the rapid growth of vehicle ownership increased mobility of people, goods, and services, less disciplined drivers [2]. The Semarang city government together with the Transportation Agency and PT Trans Semarang provide the Trans Semarang Bus Rapid Transit (BRT). BRT has the characteristics, namely, special stops, special buses, special ticketing systems, special

routes, frequent and regular service frequencies throughout the day. BRT has a frequency scheduled and only stops at predetermined shelters. Although the available transportation facilities are quite good, from the preliminary study of BRT facilities, the supporting facilities were still difficult to be accessed by persons with disabilities. There are still many obstacles for persons with disabilities to be able to enjoy various existing public service facilities [3]. The research on 125 public buildings in Malang City, for example, indicating that most of them do not meet the accessibility requirements for people with disabilities [4].

2. Methods

This research is a qualitative descriptive study, where the researcher aims to describe and analyze the implementation of public services in the transportation sector provided to people with disabilities in Semarang.

2.1. Data collection technique

2.1.1 Interview

Interview or interview is a technique of collecting data by asking questions to respondents or sources of information. Data or information in the form of responses, opinions, beliefs, feelings, results of thoughts, or knowledge of a person about all questionable rights in connection with research problems.

2.1.2. Documentation

The documents used by researchers are in the form of a law, a description of transportation in the city of Semarang, data on the number of people with disabilities in the city of Semarang, data on the number of fleets and BRT conditions, and documents related to accessibility for people with disabilities in Semarang City in 2019.

2.1.3. Questionnaire

An information collection technique that can analyze the attitudes, behavior, satisfaction, beliefs, and characteristics of some of the main people in the organization that can affect the proposed system or the existing system.

2.1.4. Observation

Observation meant here is the direct observation of decision-makers and their physical environment and/or direct observation of ongoing activity. Methodologically, the use of observation is optimizing the ability of the researcher in terms of motives, beliefs, attention, unconscious behavior, habits, and so on.

2.2. Data Analysis

This study uses validity and reliability tests:

2.2.1. Validity

Validity is a measure showing the level of validity of the question items. The validity test is conducted to measure whether a questionnaire is valid or not. How to measure the constructed variable, namely finding between each question and the total score using the Pearson Product Moment correlation technique formula, as follows

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{[\, n\sum x^2 - (\sum x)^2][\, n\sum y^2 - (\sum y)^2]}}$$

Information :

r = pearson correlation coefficient of validity

x = score of respondents' responses to each question

y = score of respondents' responses to all questions

n = number of respondents / subjects.

The SPSS program used the Pearson Product Moment Correlation - Bivariate and compared the results of the Pearson Correlation test with table r. Criteria for whether or not data is valid or not in the SPSS program. Based on the correlation value:

If r count> r table then the item is declared valid.

If r count <r table, the item is declared invalid.

2.2.2. Reliability

Reliability is an index that shows the extent to which a measuring device can be trusted or can be relied upon when a measuring device used more than once to measure the same symptoms and the measurement results obtained are relatively consistent, so the measuring instrument is reliable. How to find the reliability figure using the Cronbach's Alpha method the following formula is used (Sulistyanto in Wibowo, 2012: 52):

$$r11 = \left[\frac{k}{k-1}\right]\left[1 - \frac{\sum \sigma b^2}{\sigma 1^2}\right]$$

Information :
r11 = instrument reliability
k = number of questions
∑σb ^ 2 = number of variants on items
σ1 ^ 2 = total variance
reliability criteria, namely:
If r_count (r_alpha)> r table df then the statement/question item is reliable.
If r_count (r_alpha) <rtabel df, then the statement/question item is not reliable.

3. Result and Disscussion

Trans Semarang BRT has seven main corridors and one special corridor equipped with pedestrian and waiting room facilities, several shelters for the waiting room have been equipped with air-conditioned room facilities. The use of Trans Semarang BRT is in great demand by the general public because it has an affordable price. Trans Semarang BRT routes include the following:

Table 1. Route of BRT Trans Semarang [5]

Corridor	Color	Route	Number of Shelter
1	Blue	Terminal Mangkang – Terminal Penggaron	46
2	Red	Terminal Terboyo – Terimal Sisemut, Ungaran	48
3A	Green	Pelabuhan Tanjung Emas – Elizabeth	37
3B	Orange		34
4	yellow	Terminal Cangkiran – Stasiun Semarang Tawang	Est. 40+
5	Light Blue	Meteseh – Bandara – PRPP	41
6	Purple	Universitas Diponegoro – Universitas Negeri Semarang	40
7	Light Purple	Genuk – Balai Kota	Est. 30+
Night Corridor			
B	Black	Bandara – Simapng lima	10
The Corridor to be Built			
8	Light Green	Terminal Cangkiran - Gunungpati – Balai Kota Semarang	*TBD*

The operational speed of the Trans Semarang is limited to 60 km/hour across the city and 30 km/hour in non-city traffic. Each bus in the corridor is equipped with GPS, air conditioning, radio entertainment, and corridor and destination information boards (both electric and manual). Bus doors in corridors I and V (as well as several fleets from II, VI, and VII) use a sliding door system on the left side (in the corridor I there are sliding doors on the right side) while corridors II (several), III, IV, VI (some), and VII (some) used a folding door system (butterfly) on the left side, and had a sound indicating that the door was open (only in some fleets). All settings on the Driver's dashboard.

3.1. Data Validity Test

This validity test is used to measure whether the data we get is valid or not. Test the validity of each variable that will be used in this study. The following are the results of the validity of the infrastructure, facilities, and convenience variables using 40 respondents for non-disabled people and 15 respondents for people with disabilities.

Table.2 Validity Test Results for Non-Disabilities

Statement	r count	R table	Description
ND_1	0,5870	0,312	Valid
ND_2	0,584	0,312	Valid
ND_3	0,491	0,312	Valid
ND_4	0,780	0,312	Valid
ND_5	0,619	0,312	Valid
ND_6	0,717	0,312	Valid
ND_7	0,626	0,312	Valid
ND_8	0,540	0,312	Valid
ND_9	0,426	0,312	Valid
ND_10	0,534	0,312	Valid
ND_11	0,592	0,312	Valid
ND_12	0,335	0,312	Valid
ND_13	0,473	0,312	Valid
ND_14	0,705	0,312	Valid
ND_15	0,626	0,312	Valid

the results of the validity test in table 2, show that of the 15 items the calculated r-value ≥ 0.514 means that the 15 items above are valid. After obtaining items that are declared valid, the reliability test of Cronbach's Alpha is continued.

3.2. Reliability Test

The following is a test of the reliability of Non-Disabilities and Disabilities on the accessibility of transportation infrastructure that is accessible to persons with disabilities (Trans Semarang case study) using a sample of 40 respondents without disabilities and 15 respondents with disabilities.

Table 3 Reliability Test Results for Non-Disabilities

r table	*Cronbach's Alpha*	N of Item	Keterangan
0,312	0,600	15	Reliable

table 3 shows that Cronbach's Alpha value more than the r table value of 0.312. It can be concluded that the question in this questionnaire is reliable because it has a Cronbach's Alpha value greater than the r table value, which is 0.312.

Table 4 Disability Reliability Test Results

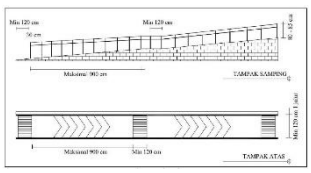
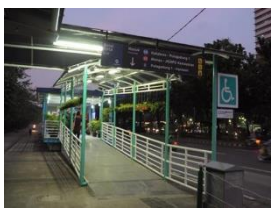
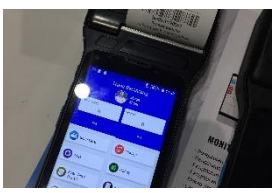
r table	*Cronbach's Alpha*	N of Item	Keterangan
0,514	0,851	15	Reliable

The results of the reliability test using SPSS v 25.0 software showed that Cronbach's Alpha value ≥ r table value which is equal to 0.851. Then the data is Reliable

3.3 Recapitulation of Trans Semarang BRT Facilities

Table 5 shows the recap of Trans Semarang BRT Facilities for disable

Table.5 Recapitulation of Trans Semarang BRT Facilities:

No.	Observation	Documentation	Regulations	Information
1.	Pedestrian			There are still pedestrians that need improvement and are not in accordance with applicable regulations.
2.	Ramp			In the regulation, ramps that are easily accessible to persons with disabilities have a ratio of 1:12. but based on the observations, it is not sufficient because it is too steep and slippery so it is dangerous for users with disabilities, especially wheelchair users.
3.	Bus Stop			From the observations, the space dimensions of the bus stop are still inadequate for a wheelchair-bound to disable. the dimensions of the stop space are relatively small and too high. Besides, some of the bus stops still use portable bus stops that are not possible for persons with disabilities to use.
4.	Ticketing			Ticket payments have been made easy with the TCASH feature, the implementation of this technology allows transactions at the payment terminal easily and quickly without the need to authorize a PIN, so there is no problem with the ticketing

No.	Observation	Documentation	Regulations	Information
5.	Fleet		 	In the observation, the image shows that it is inadequate for wheelchair users because the priority place for people with disabilities is still too narrow. Additional plates are needed for wheelchair disabled access from bus stops to fleets and vice versa. Apart from needing a fleet rejuvenation and if possible it is necessary to replace the fleet to a low deck.

4. Conclusion

Based on the results of research and discussion regarding the Accessibility of the Trans Semarang BRT for persons with disabilities, the following conclusions can be drawn:

a. Trans Semarang BRT facilities for persons with disabilities are inadequate, one of which is when inside the Trans Semarang BRT, some buses do not have priority rooms, especially for wheelchair users, as well as some bus rooms that still do not have a sign or signage regarding priority facilities for person disabilities. However, this is not by Permen PU No.30 / PRT / M / 2006, which states that the ideal public facility must have good accessibility (ease of movement) for its users, including persons with disabilities [6]
b. The ease of services provided by BRT officers has received positive responses from the Non-disabled community and particularly persons with disabilities. The results of interviews conducted with several respondents provided criticism and suggestions for drivers to comply with existing regulations and provide comfort to other road users and ensure the safety of BRT Trans Semarang users.
c. Accessibility of the Trans Semarang BRT shelter is inadequate for persons with disabilities and still needs improvement. Things that need to be considered include stairs that are still slippery and do not have a handle, ramps that are still steep, the use of portable shelters that are not friendly to persons with disabilities. Regarding the ramp rules in the Minister of Public Works Regulation No.30 of 2006 and the book Designing for the Disabled, the slope of a ramp in a building
d. Based on the Decree of the Minister of State Apparatus Empowerment Number 63 / KEP / M.PAN / 7/2003 concerning General Guidelines for the Implementation of Public Services to provide satisfactory services [7]. However, based on the research results, it is known that the public response to persons with disabilities is still inadequate and needs improvement so that persons with disabilities are comfortable using the public transportation that has been provided.

5. Recommendation

Things that can be used as input and material for consideration in increasing the accessibility of persons with disabilities to the Trans Semarang BRT public transportation:

a. Provide a special place for wheelchair users du BRT according to the size on the bus and standard for passengers with disabilities to make wheelchair maneuver easier and equipped with clear instructions
b. Imposing strict sanctions against officers who do not comply with the applicable regulations
c. The Semarang City Transportation Agency implements the availability of access for persons with disabilities, especially for persons with disabilities related to adequate facilities including pedestrians, ramps, waiting rooms in shelters, steps to BRT, special seats for persons with disabilities, and so on.

d. Involving persons with disabilities in the planning implementation stage to evaluate related to public services provided.

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