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PERCEIVED SERVICE QUALITY OF YOUTH PUBLIC TRANSPORT PASSENGERS

Summary. This research aims to explore the dimension of perceived service quality of youth public transport passengers. This research is important due to the lack of research that focuses on perceived service quality of youth public transport passengers. This research employed quantitative research methodology. Survey was performed in order to gather research data. The respondents are 233 youth public transport passengers in Bogor and Tangerang, Indonesia. Exploratory factor analysis, validity analysis, and reliability analysis were conducted. The research results show that there are three dimensions of perceived service quality of youth public transport passengers. The dimensions are comfort, performance, and assurance.

WAHRGENOMMENE SERVICEQUALITÄT JUGENDLICHER FAHRGÄSTE IM ÖFFENTLICHEN NAHVERKEHR

Zusammenfassung. Diese Untersuchung zielt darauf Dimensionen der wahrgenommenen Servicequalität jugendlicher Passagiere im öffentlichen Nahverkehr zu bestimmen. Diese Untersuchung ist aufgrund der mangelnden Forschung, die auf die wahrgenommene Servicequalität jugentlicher Fahrgäste im öffentlichen Nahverkehr abzielt, wichtig. In dieser Untersuchung wurde eine quantitative Forschungsmethode verwendet. Zur Erlangund von Forschungsdaten wurde eine Umfrage durchgeführt. Die Befragten sind 233 jugendliche Fahrgäste im öffentlichen Nahverkehr in Bogor und Tangerang (Indonesien). Explorative Faktorenanalyse, Validitätsanalyse und Zuverlässigkeitsanalyse wurden durchgeführt. Die Untersuchungsergebnisse zeigen, dass es drei Dimensionen der wahrgenommenen Servicequalität jugentlicher Fahrgäste im öffentlichen Nahverkehr gibt. Die Dimensionen sind Komfort, Leistung und Sicherheit.

1. INTRODUCTION

1.1. Background

One of the important issues in many countries is the rapid growth of private vehicle ownership [1, 2]. On the other hand, there is significant decrease of public transport use [2]. This condition makes some negative impacts, such as congestion, fossil fuel scarcity, and air pollution [1, 3]. Given this, it is important to study public transport passengers' behavior in order to provide valuable information for developing public transport policy and strategy [2, 4].

Service quality is an important topic for service business [5, 6], including public transport service [3, 4 and 6]. Many researchers have proved the positive correlation between service quality and future

consumer behavior intention, including service reuse intention and word of mouth communication [3, 7, and 8]. In the context of public transport, empirical studies have also shown that service quality positively affects public transport passengers' favorable behavior intention [e.g. 3, 4, 7 and 10]. Thus, in order to maintain the existing passengers as well as to attract the new ones, public transport management should always monitor and improve its public transport service quality [3, 10]. Furthermore, government should also develop a supportive policy for improving public transport service quality.

Service quality is an abstract and elusive concept with many definitions [11 - 13]. However, researchers have agreed that quality should be viewed using the perception of the service business's customer [e.g. 8, 14 - 17]. Literature has documented that there may a difference between actual service quality (objective service quality) with customer's perceived service quality [18]. Furthermore, a service may have a high objective quality but the customer may perceive that the service has lower quality [19]. Therefore, public transport policy or strategy that aimed to increase public transport use should consider passengers' perceived service quality. Hence, it is important to investigate public transport passengers' perceived service quality.

1.2. Research Gap

It is agreed that perceived service quality is a multidimensional construct [2, 12]. However, there is no agreement on the number of the dimension and the type of the dimension [2, 12]. A similar condition is also happened in public transport services. Some researchers have investigated the dimension of perceived public transport service quality but there is no consensus on the dimensions of public transport services [e.g. 4, 7, and 10]. Given this, it is still important to study the dimension of the public transport passengers' service quality.

Perceived service quality is a form of attitude [13, 18, and 19]. Literature has documented that youth customer may have different attitude and behavior compare with adult customer [20]. More specifically, youth customer may perceive a service differently with the adult ones [20]. Given this, it is important to study the dimension of perceived service quality of youth public transport passengers. However, to date, there is no research that specifically studied perceived service quality of youth public transport passengers.

1.3. Research Objective

In order to address the gap in the literature, this research aims to explore the dimension of perceived service quality of youth public transport passengers. On other word, this research question is what are the dimensions of perceived service quality of youth public transport passengers?

After the introduction, the structure of this paper is organized as follows. The first section reviews the theoretical background. The second section describes the research methodology. The third section presents and discusses the empirical results. Finally, conclusion and limitation of this research are presented and future research directions are proposed.

2. LITERATURE REVIEW

2.1. Perceived Service Quality

Perceived service quality is an important topic for service business [5, 6]. Many researchers have proposed the definition of the construct. One of the most quoted definitions of perceived service quality was proposed by [18]. According to [18], perceived service quality is "the consumer's judgment about a [service]'s overall excellence or superiority". Therefore, public transport perceived service quality is public transport passengers' judgment about the public transport service overall excellence or superiority.

Another definition of perceived service quality was adopted by [4, 19 - 21]. They viewed that service quality is a function of service expectation and performance discrepancy. It shows how well

the performance of service quality in meeting the passengers' service expectation [4, 19 - 21]. We choose to use the first definition since the second definition similar to the widely accepted definition of satisfaction [22].

There are two generic perceived service quality models that are generally adopted by researchers [7, 12]. The first model is Servqual, which is proposed by [13]. Servqual is also known as American model [7, 12]. The model proposed that service quality consists of five dimensions, namely reliability, assurance, tangible, empathy and responsiveness [13]. The second model is known as Nordic model [7, 12]. The Nordic model, which is popularized by [25], proposed that service quality consists of two dimensions, namely functional quality and technical quality.

Literature has documented that perceived service quality model depends on the type of the service and the context where the service is provided [16, 26]. Given this, it is argued that perceived service quality model that is developed for a specific service type will provide better useful knowledge for service provider [16]. Furthermore, the prominent researchers on service quality, such as [12] and [13], also emphasized on the importance role of the service specific characteristics or contexts on developing perceived service quality model. Given this, this research aims to develop a perceived service quality model that aligned with the characteristics of public transport services.

2.2. Public Transport Service Quality

Some researchers have tried to investigate the dimension of public transport service quality. [4] performed a research on Mass Rapid Transit's Passengers in Taiwan. They found that public transport passengers' perceived service quality consist of two dimensions, namely core services and Psychical environment. [10] investigated the service quality dimension of intercity bus in Taiwan and they revealed that service quality consists of four dimensions, which are onboard amenity, crews attitude, station performance, and operational performance. [27] found that railways service quality in India consists of assurance, empathy, reliability, responsiveness, tangible, comfort, connection, and convenience. [28] researched local bus service in Spain and they found that bus service quality consists of tangibility, reliability, receptivity, assurance, and empathy. Meanwhile, [15] found that bus service quality in Taiwan consists of interaction with passengers, tangible service equipment, convenience of service, and operating management support. [29] found that reliability, responsiveness, assurance, empathy, and culture are the dimensions of commuter service quality in India. [30] revealed that travel agency service quality in Spain consist of three dimensions, namely personal interaction, physical environment, and outcome. [31] found that service quality consists of three dimensions, namely service planning and reliability, comfort and other factors, and safety and cleanliness.

In Indonesia, [3] found that the dimensions of paratransit passengers' perceived service quality in Jakarta are safety, comfort, performance and reliability, crews' attitude and condition of vehicles and facilities. Other researchers [19] found that the dimensions of paratransit passengers' perceived service quality in Bandung are availability, accessibility, reliability, information, customer service, comfort, safety, fare, and environmental impact. Furthermore, [32] found that the dimensions of paratransit passengers' perceived service quality in Indonesia are comfort, tangible, personnel, and reliability. When developing their model, [32] performed stability analysis to analysis the stability their model among the respondents with different demographic variables. However, the model were developed in a cross sectional study, which means the model need to be further tested for confirming the stability of the models in different time. Given this, this research tried to investigate and develop another model of public transport service quality for youth passengers.

2.3. Youth Customers

Literature has revealed that age influences customer behavior. More specifically, youth customers may have different behavior with adult customer. Youth customer is in the stage of self-identity development [33 - 35]. Given this, youth customers are innovative customers, familiar with technology, and open with new ideas [33 - 35]. Furthermore, their behaviors are more affected by social groups, such as parents, peer, and friends [33 - 35].

Some researchers have tried to study youth customers. For example, [33]'s research revealed that "young females are more shopping influenced, fashion conscious, recreational, and confused over-choice as compare to males whereas males are more reliance on media, perfectionist, brand conscious, and impulsive as compare to females for their consumption style toward shopping behavior". [34] investigated young customers' product involvement and they found that young people's product involvement is explained by age, subjective product knowledge, influence of parents, influence of peers, and product category. [35] researched young customers' compulsive buying. They found that compulsive buying behavior among young Malaysian consumers is influenced by perceived social image and materialism. However, to date, there is lack of research that studied perceived service quality dimension of youth customers.

3. METHODOLOGY

3.1. Research Design

This research applied quantitative research methodology. Generally, the research consists of five steps. The first step is public transport service quality indicator identification. The second step is data collection through field survey. The third step is exploratory factor analysis. The fourth step is construct validity and reliability analysis. The fifth step is criterion related validity analysis.

3.2. Public Transport Service Quality Indicator Identification

This step aimed to gather public transport service quality indicator that is relevant to be used for measuring youth public transport service quality. In order to ensure the content validity of the indicator, the indicator was gathered from previous researches on public transport service quality [36, 37]. Table 1 shows the results of public transport service quality indicator identification.

In this research, we didn't consider ITS system as one of the indicator because two main reasons. First, we are focus on the indicators that can be managed by the public transport provider. In Indonesia, in the context of paratransit services, government responsible for the infrastructure, such as road or shelter while the paratransit provider is private organizations. Second, most of public transport in Indonesia don't use the ITS system. Furthermore, the public transport type that we investigated, which is paratransit service, didn't use the ITS system. This may cause the passengers do not know the ITS system. Thus, if we asked the indicator, the response of the respondent may be bias. Third, the previous researches on passengers on public transport service quality in Indonesia also didn't asked the availability of ITS [3, 19, and 32].

Table 1

The Public Transport Service Quality Indicators

Indicators		References
Q1	Safety on board	[2 – 4, 10, 20 and 32]
Q2	The public transport obedience to traffic regulations	
Q3	Safety from crime while riding	
Q4	Safety related to behavior of other persons	
Q5	Comfortable temperatures on the public transport	
Q6	Degree of crowding on the public transport	
Q7	The public transport engine is still powerful	
Q8	Comfort of the seats	
Q9	Cleanliness of the public transport interior	
Q10	Cleanliness of the public transport exterior	
Q11	The driver/conductor are courteous	
Q12	The driver/conductor are understanding your needs when you make inquiries	
Q13	The driver/conductor are willing to help passenger	
Q14	The driver/conductor willing to respond to passenger request	
Q15	The public transport deliver to destination	
Q16	The number of public transport is adequate	
Q17	Wait time when transferring	
Q18	Travel time by public transport	

3.3. Data Collection

Survey was performed to gather research data. The survey instrument is questionnaire. In the questionnaire, public transport service quality indicator is measured using a 7-points Likert scale where 1 represents “totally disagree” and 7 represents “totally agree”.

The respondents of the survey are 233 public transport passengers. The sample size fulfills the requirement of the statistical analysis method we used, which is factor analysis [38]. According to [38], factor analysis requires minimum sample size ten times the number of the indicators. In this research, there are 18 indicators so that it needs minimum 180 samples.

This survey’s object is youth public transport passengers. The samples of this survey are 16-20 years old public transport passengers. In order to ensure that the respondents are public transport passengers, the survey was performed at public transport terminals [3], which are public transport terminals in Tangerang and Bogor, Indonesia. Most of the respondents are female (60.1%), students (85.1%), and single (99.5%). Table 2 shows the demographic profile of the respondents.

3.4. Exploratory Factor Analysis

This step aimed to identify the dimensions of the public transport service quality from the indicators identified in the first stage. We used exploratory factor analysis due to two reasons. First, defining the underlying structure among the variables in the analysis is the primary objective of exploratory factor analysis [38]. Thus, exploratory factor analysis is appropriate with the objective of this research. Second, the previous research on service quality also used exploratory factor analysis [e.g. 4, 10, 13, 16 and 32].

The dimension of the public transport service quality was identified from the eigenvalue [38]. Eigenvalue, which is also called as latent root, represents the amount of variance accounted for by a dimension or a factor [38]. The eigenvalue of the dimension must equal or greater than 1 [4, 38]. The indicator of the dimension must have loading factor equal or greater than 0.5 [4, 38].

Table 2

The Respondents' Demographic Profile

Variable	Category	%
Gender	Male	39.9
	Female	60.1
Occupation	Unemployed	4.5
	Students	85.1
	Government employee	1.4
	Private employee	5.4
	Entrepreneur	3.6
Marital status	Single	99.5
	Married	.5
	Divorced	0
Age	16-20 years old	100%

3.5. Construct Validity and Reliability Analysis

This step aimed to examine the dimension's construct validity and reliability. The dimension fulfills construct validity if are (1) Kaiser Meyer Olkin value ≥ 0.5; (2) p value of Bartlett Test of Sphericity ≤ 0.05; (3) Factor loading value (for each indicator) ≥ 0.5 [4, 38]. The dimension fulfills construct reliability if the alpha cronbach value equal or greater than 0.6 [4, 37].

Kaiser Meyer Olkin value is also called as measure of sampling adequacy (MSA). It shows the intercorrelations level among the indicators we analyzed and the appropriateness level of factor analysis [38]. In factor analysis, since its objective is to identify interrelated sets of variables, some degree of colliniearity is desirable [38]. Bartlett Test of Sphericity is a statistical test that used to evaluate the statistical significance of the correlations among the indicators [38]. Factor loading value represents the value of the correlation between the indicator and the dimension that we obtained from the factor analysis [38].

3.6. Criterion Related Validity Analysis

This step aimed to check the criterion related validity of the dimension. The multiple regression analysis was performed. The dependent variable used is satisfaction. We used satisfaction as the dependent variable because most of researches show that there are positive correlation between satisfaction and the dimension [2 - 4 and 9]. The dimension fulfills the criterion related validity if the beta coefficient is positive and the p value equal or less than 0.05 [39].

4. RESULTS AND DISCUSSION

4.1. Exploratory Factor Analysis

The results of exploratory factor analysis are shown in table 3. From table 3, it can be seen that there are three dimensions that have eigenvalue greater than 1. All indicators have loading factor greater than 0.5. Thus, there is no indicator that is removed in the subsequent analysis. The dimensions identified in the exploratory factor analysis can be named as comfort, performance, and assurance.

Table 3 showed that the value of Kaiser-Meyer-Olkin is higher than 0.5 and the p value of Bartlett's Test of Sphericity is lower than 0.05. This means that comfort, assurance, and performance have high degree of intercorelations. On other words, comfort, assurance, and performance are confirmed to be the dimensions of perceived service quality of youth passengers.

Table 3 showed that there are three dimensions of youth public transport passengers' perceived service quality. The first dimension is performance. This dimension refers to the performance of a public transport service provider in delivering its passenger to his/her destination punctually. On other

words, performance dimension represents the reliability of the public transport services in meeting the promised outcome of public transport services [13].

Performance dimension is the core product of public transport service [35]. Thus, performance dimension may become an order qualifier rather than an order winner in service business competition [41]. Besides this research, other researchers have also found the importance of performance dimension of public transport services, such as [3, 4, 10 and 30].

The second dimension of youth public transport passengers' perceived service quality is comfort. Comfort refers to the comfortable condition of public transport services perceived by public transport passengers. The dimension can also be categorized as outcome dimension of public transport services [12, 25, and 30]. This research finding supports the finding of [3]. Furthermore, this finding also supports the finding of [27].

The third dimension of youth public transport passengers' perceived service quality is assurance. This dimension represents the facility condition and personnel competency to convey public transport passengers' trust and confidence in using public transport services. This finding supports previous researches performed by [27] and [28].

Table 3

The Exploratory Factor Analysis Results

Indicator	Loading Factor	Eigenvalue	% of Variance	Dimension
Q1	.769	8.973	49.851	Comfort
Q2	.766			
Q3	.769			
Q4	.661			
Q5	.789			
Q6	.741			
Q7	.594	1.985	11.028	Assurance
Q8	.635			
Q9	.585			
Q10	.600			
Q11	.781			
Q12	.796			
Q13	.799			
Q14	.730			
Q15	.697	1.335	7.414	Performance
Q16	.773			
Q17	.687			
Q18	.751			
Kaiser-Meyer-Olkin		.919		
Bartlett's Test of Sphericity (.Sig)		.000		
Cumulative % of Variance		68.293		

4.2. Construct Validity and Reliability Analysis

Table 4 shows the result of construct validity and reliability analysis. Cronbach alpha is the degree of the reliability of indicators in measuring the dimension [38]. In other words, cronbach alpha measures the consistency of the dimension measurement scale [38].

Table 4

The Construct Validity and Reliability Analysis Results

Dimension	Indicator	Loading Factor	KMO (Bartlett's Test of Sphericity)	Cronbach Alpha
Comfort	Q1-Q6	.681- .864	.870 (.000)	.897
Assurance	Q7-Q14	.775 - .861	.901 (.000)	.925
Performance	Q15-Q18	.671 - .870	.709 (.000)	.803

Based on table 4, comfort has Kaiser-Meyer-Olkin (KMO) value above 0.5, the p value of Bartlett's Test of Sphericity lower than 0.05, and the loading factor of all its indicators above 0.5. This means the dimension is valid. On other words, the dimension measures its intended concept. The cronbach alpha of comfort is higher than 0.6. This means the dimension is reliable. On other words, the dimension has a good consistency.

Assurance has Kaiser-Meyer-Olkin (KMO) value above 0.5, the p value of Bartlett's Test of Sphericity lower than 0.05, and the loading factor of all its indicators above 0.5. This means the dimension is valid. On other words, the dimension measures its intended concept. The cronbach alpha of assurance is higher than 0.6. This means the dimension is reliable. On other words, the dimension has a good consistency.

Performance has Kaiser-Meyer-Olkin (KMO) value above 0.5, the p value of Bartlett's Test of Sphericity lower than 0.05, and the loading factor of all its indicators above 0.5. This means the dimension is valid. On other words, the dimension measures its intended concept. The cronbach alpha of performance is higher than 0.6. This means the dimension is reliable. On other words, the dimension has a good consistency. Thus, based on the previous explanation, it can be seen that construct validity and reliability of the youth passengers' perceived service quality model were confirmed.

4.3. Criterion Related Validity Analysis

Table 5 shows the results of criterion-related validity analysis. Criterion-related validity analysis aims to test whether the dimensions that are founded in the exploratory factor analysis have appropriate correlation with the standard factor, namely satisfaction. Given this, there is only one stage of regression analysis, whereas the dependent variable is satisfaction and the independent variables are the dimensions. Table 5 shows that the three dimensions have positive and significant correlation with the criterion variable (satisfaction). Hence, the service quality dimensions met the criterion-related validity.

4.4. Discussion

Theoretical Implication. Perceived service quality is an important concept for service business [5, 6], including public transport service [3, 4, 7 and 10]. Some empirical researches have revealed that public transport passengers' perceived service quality has positive impact on public transport passengers' future behavioral intention [e.g. 3, 4, 7, and 10]. More specifically, public transport passengers with favorable perceived service quality will reuse public transport service and recommend it to the others [3, 4]. Thus, public transport service provider needs to monitor public transport passengers' perceived service quality [3, 10].

Table 5

The Criterion Related Validity Analysis Result

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.002	.044		-.039	.969
	Comfort	.262	.062	.261	4.234	.000
	Assurance	.446	.067	.446	6.647	.000
	Performance	.168	.054	.168	3.129	.002

R square = .587, F = 102.243, sig. = 0.000

Perceived service quality is a multidimensional construct [2, 12]. However, to date, there is no agreement on the number of the dimension and the type of the dimension [2, 12]. A similar condition is also happened in public transport services. Some researchers have investigated the dimension of perceived public transport service quality but there is no consensus on the dimensions of public transport services [e.g. 4, 7 and 10].

Perceived service quality is a form of attitude [13, 18 and 23]. Literature has documented that youth customer may have different attitude and behavior compare with adult customer [24]. More specifically, youth customer may perceive a service differently with the adult ones [24]. However, to date, there is lack of research that focuses on perceived service quality of youth public transport passengers. Therefore, this research provides a theoretical contribution by investigating the dimension of youth public transport passengers' perceived service quality. More specifically, this research contributes to the existing literature by developing a perceived service quality model of youth public transport passengers. Figure 1 shows the model.

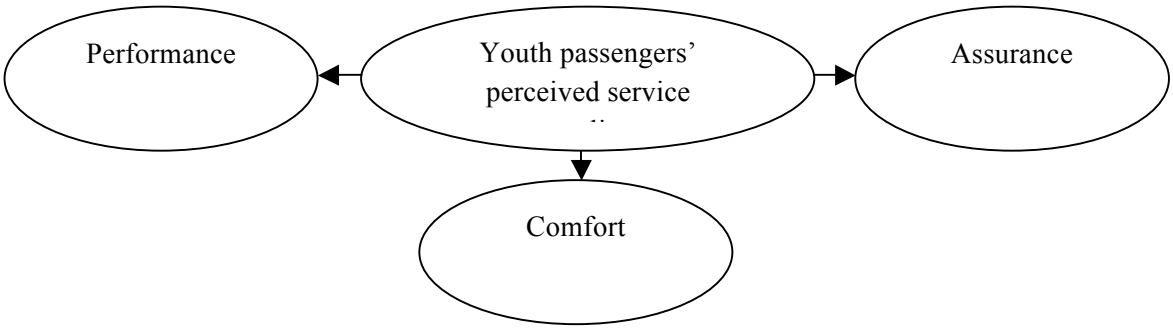

Fig. 1. The Youth Passengers' Perceived Service Quality Model
Abb. 1. Das Modell der wahrgenommenen Servicequalität unter jugentlichen Fahrgästen

The model provides some implications for the existing literature. First, the model shows that youth passengers' perceived service quality model is different with the general passengers' perceived service quality model, which is founded by [2 - 4, 7, 10, 26 - 32]. Therefore, researchers who investigated public transport issue related to the perceived service quality of youth passengers should use a model that is developed specifically for youth passengers. This includes the needs for developing public transport service quality index that is specifically designed for youth passengers.

Second, since youth passengers' perceived service quality model has different dimension with the general ones, researchers need to further investigate the cause and the impact of perceived service quality of youth public transport passengers. This knowledge is needed for gaining deep understanding of youth passengers' perceived service quality.

Third, it is also important for researchers to investigate why youth passengers' perceived service quality model different with the other perceived service quality models. The findings of the

investigation could be used as the basis for developing a generic public transport passengers' perceived service quality.

*Managerial Implication***.** In addition to the theoretical contributions, this research also provides some managerial implications. First, in improving service quality perceived by youth public transport passengers, public transport service provider managers as well as government should focus on the dimensions of performance, comfort, and assurance. Second, the dimensions and measures identified in this research can also be used by public transport service provider managers as well as government as a tool for measuring the youth public transport passengers' perceptions on the service quality of public transport services. Third, the public transport service quality dimensions identified in this research can also be used as a base for segmenting youth public transport passengers. This will assist public transport service provider managers as well as government to develop appropriate strategies for attracting new passengers.

5. CONCLUSION AND FUTURE RESEARCH

One of the biggest problems in many countries, including Indonesia, is the decrease use of public transport [2]. People tend to use their own vehicles [1, 2]. This caused some serious other problems, such as congestion and fossil fuel scarcity [1, 3]. Related to this matter, public transport service providers as well as government need to pay attention to passengers' perceived service quality. A lot of empirical evidences show that perceived service quality affects public transport passengers' future behavioral intention [e.g. 3, 7 and 8]. A passenger with positive perceived service quality will reuse public transport service in the future [3, 7 and 8].

Perceived service quality is an abstract concept [42]. To date, there is no agreement on the dimensions and the indicators of perceived service quality [2, 12]. On other hand, the dimensions and the indicators are needed to measure, monitor, manage, and improve perceived service quality. Furthermore, perceived service quality is a psychological variable that could have different dimensions and indicator among different people. Literature has shown that youth customer has different psychological process than the adult ones [24]. However, to date, there is lack of research that focuses on perceived service quality of youth public transport passengers. Given this, this paper aims to identify the dimension of youth public transport passengers' perceived service quality in Indonesia.

We performed a survey involving youth public transport passengers. The data were analyzed by using exploratory factor analysis. Based on the analysis, this research found that there are three dimensions of perceived service quality of youth public transport passengers. The dimensions are comfort, performance, and assurance. Performance refers to the performance of a public transport service provider in delivering its passenger to his/her destination punctually. Comfort refers to the comfortable condition of public transport services perceived by public transport passengers. Assurance represents the facility condition and personnel competency to convey public transport passengers' trust and confidence in using public transport services.

The findings of this research provide some managerial implications for public transport service providers as well as the government. First, they should manage the dimensions well. Second, they should measure and monitor the dimension. Third, they could segment the youth public transport passengers based on the dimensions and develop appropriate strategies for attracting new passengers.

Even though we have identified the dimension of youth public transport passengers' perceived service quality, we addressed some limitations. First, this research only involved public transport passengers' in Bogor and Tangerang, Indonesia. Second, the sampling method used was convenience sampling. Therefore, the findings may not be generalized to different contexts. Given this, we recommend to perform future research in other contexts with better sampling method in order to test and generalize these research findings.

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