

Analysis of Service Quality at Wamena Airport, Jayawijaya Regency

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Abstract:

Wamena Airport, as an important gateway to the Highland Papua, has less than optimal service quality compared to the applicable service standards. This study aimed to describe and analyze the quality of the passenger terminal services at Wamena Airport, Jayawijaya Regency as well as identify supporting and hindering factors to the service quality at Wamena Airport. This was mixed methods research. The quantitative research data were obtained by distributing questionnaires to 382 Wamena Airport passengers. Meanwhile, the qualitative data were obtained by interviewing 12 informants who were the managers, passengers, and users of Wamena Airport as well as staffs of the airline. The quantitative data were processed using factor analysis, while the qualitative data were analyzed using an inductive approach. The results showed that the quality of the passenger terminal services at Wamena Airport was not yet optimal. There were several aspects which had poor service quality, requiring improvement. There were nine supporting and hindering factors to the quality of the passenger services at Wamena Airport. The supporting factors are interactional quality (delivery), security, reliability of services, value added, and airport ground-handling services. The hindering factors to the service quality are convenience, leisure facilities, access and mobility, and the airport environment.

Keywords:

Airport Service Quality, Factor Analysis, Wamena Airport.

I. Introduction

Equitable regional development is one of the central government's priority programs to advance the growth of a region. The government seeks to develop underdeveloped and isolated areas in Papua by building facilities and infrastructure that support access to distribution and connectedness of services between communities (Jenar, 2021). Infrastructure and transportation modes are key to opening isolated areas (Fofid et al., 2019). Wamena Airport is one of the infrastructures built to open up areas in Jayawijaya Regency, located in the Central Highland Papua. These areas encounter transportation challenges due to their isolated demographics and challenging terrain (BPS of Jayawijaya Regency, 2022).

Based on data from BPS of Papua Province (2018, 2021), the number of arriving and departing aircraft at Wamena Airport fluctuates yet tends to decline. In addition to the number of aircraft, the number of passengers departing from Wamena Airport also fluctuates and tends to decline. The decline in the number of both aircraft and passenger movements at Wamena Airport indicates declining performance. This decline might be caused by the less optimal quality of service. Reviews on Google Maps also show that the overall quality of service at Wamena Airport is not good, indicated from the fact that many users left complaints related to the quality of service at this airport.

In the literature, service quality has been shown to be significantly related with airport reuse, revisit to tourist attractions, the likelihood of passengers to promote airport, passenger

satisfaction, and the performance of the airport itself (Halpern & Mwesiumo, 2021; Hong et al., 2020; Prentice & Kadan, 2019; Rizan et al., 2020). The less optimal service quality of Wamena Airport shows the importance of research on the service quality of Wamena Airport. Given the important role of Wamena Airport in developing the economy and regional access, it is relevant to conduct research that focuses on service quality.

A meta-analysis study conducted by Usman et al. (2022) showed that the literature related to airport service quality has, so far, been rarely developed. Previous researchers tend to use measurements of which the validity has been proven such as SERVQUAL and Airport Service Quality (ASQ) measurements (Chonsalasin et al., 2021; Pabedinskaitė & Akstinaitė, 2014; Singgih et al., 2022). According to Trischler and Lohmann (2018), there is no consensus on the measurement of airport service quality because of two main reasons: airport services are so complex that various dimensions can affect customers' perception of service quality and airports usually accommodate various customer groups with different preferences and needs. A meta-analysis study by Usman et al. (2022) also showed that, research that develops airport quality measurement mostly focuses only on the physical facilities of the airport. This certainly becomes a gap in service quality measurement, especially from the passenger's point of view. Passengers or service users assess the quality of service not only in terms of facilities but also in terms of services provided by staff and other indicators. Thus, it is crucial to investigate indicators that determine the quality of airport services to improve the measurement dimensions of airport service quality, so the measurement dimensions can be as valid as those of other service sectors.

The novelty of this research is in terms of developing indicators that can measure the quality of airport services in remote areas or areas with difficult access such as Wamena Airport. Previous studies have not developed indicators to measure airports in remote areas because most of them only focus on international airports and airports in big cities (Kurniawan et al., 2017; Pabedinskaitė & Akstinaitė, 2014; Prentice & Kadan, 2019; Ruhiyat et al., 2017; Singgih et al., 2022). Wamena Airport plays an important role as the entrance and backbone of the regencies in central Papua (Nadhira, 2022). Although Wamena Airport operates in a less competitive market where customers are offered only with a limited choice of alternatives when traveling, there is always a risk that the airport abuses its market power by paying less attention to service quality (Halpern & Mwesiumo, 2021). The fact that Wamena Airport plays crucial roles requires the airport to continue to develop and provide its best services. Unfortunately, research on airport service quality indicators is still very rare in the Indonesian context. Existing research focuses more on the effect of service quality on passenger satisfaction (Darus & Mahalli, 2015; Fakhruddin, 2021; Roellyanti & Jannah, 2022)

This research makes an important contribution by developing key factors or indicators of service quality at Wamena Airport. A proper analysis of airport service quality indicators will assist airport managers in improving operations and decision making as well as providing better services for users. The findings related to service quality factors in this study can also be used in analyzing service quality in the context of airports in other remote areas in Indonesia

II. Review of Literature

2.1 Public Services

The literature defines public services as services provided by public organizations to citizens, either collectively or individually, and either directly or financed by private providers (Christensen et al., 2005; Lindgren & Jansson, 2013). Public sector services are accountable to citizens and communities as well as to their customers (Bryceland & Curry, 2001; Wisniewski,

2001). Currently, an important issue in public sector management is the increasing demand for transparency, efficiency, and effectiveness in the quality of public services (Abdiyanto & Warokka, 2015; Ancarani, 2005). Research by Ramseook-Munhurrin et al. (2010) reported that it is important for public sector organizations to conduct surveys and take into account the opinions of customers and employees in identifying areas for service quality improvement. To exceed customer expectations, in this case citizens, public sector organizations need to continuously improve the quality of services provided to their customers (Ramseook-Munhurrin et al., 2010).

2.2 Service Quality

Service quality is one of the most important and widely researched topics related to service (Zeithaml, 2000). Previous studies are unanimous in concluding that service quality refers to the judgment given by customers when they receive a service, based on whether or not the service meets their expectations (Lewis & Booms, 1983; Zeithaml, 1988). Service quality is multidimensional (Brady & Cronin, 2001) and dimensions may vary according to different service industries (Pollack, 2009). Service quality analysis allows managers to identify problems in the services provided to customers to improve efficiency and quality for the purpose of order fulfilment and customer satisfaction (Ghotbabadi et al., 2015).

Previous studies in services have shown that service quality indicates a positive relationship with a number of behavioral intentions either directly or through the mediating effect of satisfaction (Cronin et al., 2000). A high level of service quality will result in a higher level of customer satisfaction, which then leads to increased patronage and increased sales (Prakash & Mohanty, 2013). Boonlertvanich (2019) in his research found that service quality has a positive effect on customer loyalty. Thus, to increase customer loyalty, organizations must first improve their service quality.

2.3 Airport Service Quality

An airport is a place that provides air transportation services for passengers, freight forwarders, and airlines (Yu, 2010). Airport service quality refers to the totality of all service attributes aimed at meeting the desires and aspirations of passengers by adhering to applicable standards in all airport processes (Bakır et al., 2022). Based on the literature review, airport operators and scholars have tried to understand passengers' expectations and perceptions by taking into account a set of service criteria or attributes (Bakır et al., 2022). There is an increasing interest in conducting research on critical issues or criteria needed to provide superior airport service quality, customer satisfaction, and added value (Pamucar et al., 2021; Rizan et al., 2020). Although passengers may choose other airports, good service quality is the key to making passengers revisit and recommend it to others (Halpern & Mwesiumo, 2021).

Literature review on airport service quality reveals various dimensions of service quality that should be taken into account. According to Bogicevic et al. (2013), an important dimension of airport service quality is the passenger's perception of the physical environment, not only inside the aircraft. For Fodness and Murray (2007), several aspects on the ground, such as a clean and pleasant environment, security, staff courtesy, and waiting areas, should be considered in order to obtain better customers' perception and satisfaction with the services provided to them at the airport. Bezerra and Gomes (2016) stated that it is crucial to pay attention to airport processing areas, areas associated with passenger travel to various destinations. Activities in these areas start from the moment passengers arrive at the check-in counter to passing through security checks and boarding the plane, including things that passengers can do in their free time

at the terminal, such as resting, going to the restroom, or other activities provided by the airport (Bezerra & Gomes, 2016).

Regarding the findings of previous studies on the formulation of service quality indicators and performance issues at Wamena Airport, it is necessary to conduct research on the service quality at Wamena Airport. In addition, it is also necessary to analyze both the supporting and hindering factors to the service quality at Wamena Airport. Therefore, this study developed an analytical framework as shown in Figure 1.

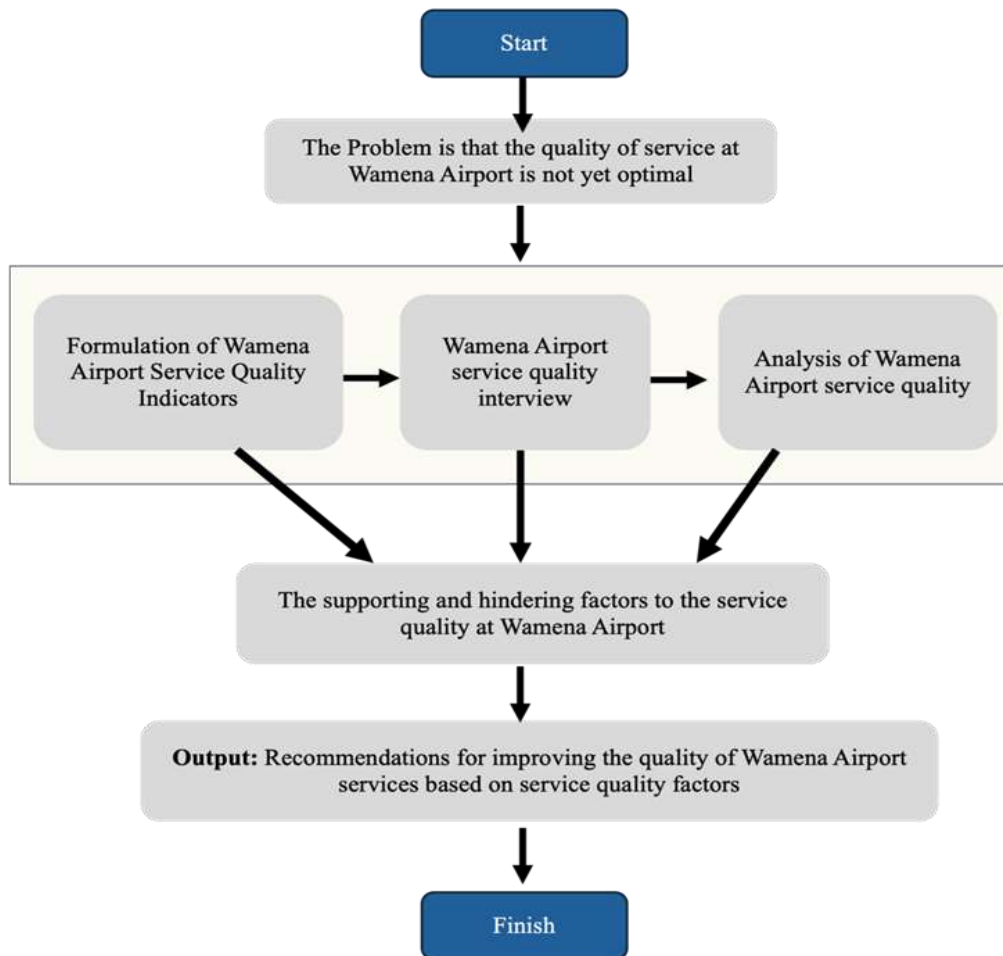


Figure 1. Analytical Framework

III. Research Method

This was a mixed-methods research, combining qualitative and quantitative components in the research. The research used a sequential explanatory design. The researcher first collected and analyzed quantitative data by distributing questionnaires. She then collected qualitative data to strengthen the results of the quantitative analysis. The questionnaire was distributed to the research sample which consisted of 382 passengers who used Wamena Airport services in Jayawijaya Regency, Papua. Meanwhile, the qualitative data were obtained from interviews with 12 informants, including managers, passengers, and users of Wamena Airport and the airlines.

This research used exploratory factor analysis to analyze the quantitative data and general inductive analysis to analyze the interview results.

The airport service quality factors in this study were measured by adapting the measurement items of previous research. The research not only used service quality indicators from one theory, source, or aviation service standards. This research combined airport service quality indicators that have been studied by previous researchers. There were, in general, 73 service quality indicator items adapted from previous studies. Totalnya, terdapat 73 item indikator kualitas pelayanan yang di adaptasi dari penelitian sebelumnya (Allen et al., 2020; Antwi et al., 2020; Bezerra & Gomes, 2020; Chonsalasin et al., 2021; Fodness & Murray, 2007; Hong et al., 2020; Kratudnak & Tippayawong, 2018; Liao et al., 2022; Mainardes et al., 2021; Prentice & Kadan, 2019; Trischler & Lohmann, 2018).

IV. Result and Discussion

The research questionnaire was distributed to 382 respondents who were passengers at Wamena Airport. All the questionnaires distributed can be used further during data processing, so the response rate was 100%. First, the data were analyzed descriptively to determine the characteristics of the respondents. The characteristics taken into account in this study were gender, age, occupation, and travel destination. Based on Table 1, most of the respondents were male respondents (62.83%), aged 18-29 years (41.10%), not entrepreneurs, civil servants, private employees, or housewives (36.65%). In terms of travel destination, they went for vacation (26.18%).

Table 1. Demographic Characteristics of Respondents.

Characteristics	Alternative Answers	Frequency	Percentage (%)
Gender	Male	240	62,83%
	Female	142	37,17%
Age	18-29 years old	157	41,10%
	30-39 years old	111	29,06%
	40-49 years old	62	16,23%
	>49 years old	52	13,61%
Job	Civil Servants	100	26,18%
	Entrepreneurs	50	13,09%
	Private Employees	69	18,06%
	Housewives	23	6,02%
	Other Jobs	140	36,65%
Travel Destination	Vacation	100	26,18%
	Business	35	9,16%
	Visit to friends/relatives	76	19,90%
	Hometown visit	77	20,16%
	Business trips	94	24,61%

The factor analysis in this study was conducted to determine the factors that shape or measure service quality at Wamena Airport. The complex airport services and the different customers' preferences and needs at each airport make factor analysis important to determine service quality factors that are in line with the characteristics of Wamena Airport. This research used exploratory factor analysis (EFA) with the help of IBM SPSS software version 25.

At the factor analysis stage, 73 items of service quality at Wamena airport were used as variables. The results of the factor analysis showed that the service quality indicators were grouped into nine factors with a total variance explained of 59.363%. After performing Varimax rotation, Table 1 displays the component matrix and factor loadings for each relevant variable. In addition, a total of 22 items were eliminated due to low factor loading. The results of the factor analysis indicated that there were nine factors and 51 indicators of service quality at Wamena Airport.

Table 2. Results of Factor Analysis

Airport Service Quality	Factor 1	2	3	4	5	6	7	8	9	Communalities
Factor 1										
X16	0,654									0,665
X18	0,614									0,594
X19	0,603									0,605
X17	0,602									0,599
X15	0,588									0,626
X20	0,539									0,587
X21	0,504									0,529
X23	0,464									0,634
X22	0,438									0,509
Factor 2										
X40		0,689								0,652
X41		0,683								0,652
X42		0,668								0,646
X39		0,622								0,607
X43		0,537								0,586
X44		0,525								0,554
X38		0,520								0,676
X45		0,439								0,564
Factor 3										
X5			0,755							0,732
X4			0,693							0,633
X3			0,666							0,596
X6			0,656							0,651
X1			0,587							0,470
X2			0,568							0,411
X7			0,528							0,584
Factor 4										
X56				0,700						0,557
X55				0,584						0,553
X58				0,561						0,615
X57				0,482						0,549
X59				0,475						0,624
X54				0,448						0,526
X60				0,406						0,559
Factor 5										
X24					0,617					0,639
X25					0,614					0,611
X26					0,596					0,539
X27					0,574					0,591
X28					0,456					0,634
Factor 6										
X65						0,572				0,514
X64						0,518				0,540
X63						0,503				0,473
X67						0,436				0,550
Factor 7										

X48							0,640		0,527
X49							0,538		0,528
X47							0,537		0,570
Factor 8									
X69							0,490		0,525
X73							0,446		0,510
X70							0,400		0,469
X72							0,400		0,438
Factor 9									
X9								0,517	0,581
X11								0,461	0,643
X10								0,459	0,685
X18								0,452	0,594
Eigen value	16,236	2,811	2,198	1,967	1,502	1,391	1,255	1,186	1,136
Variance explained (%)	32,471	5,621	4,396	3,934	3,004	2,782	2,511	2,373	2,271
Cumulative variance (%)	32,471	38,09	42,48	46,42	49,42	52,20	54,71	57,09	59,36
		2	8	3	6	8	9	1	2

Note: Kaiser–Meyer–Olkin (KMO); measure of sampling adequacy (MSA): 0,943; Bartlett's test of sphericity: 15240,553; $p = 0.000$ (significant)

The researcher conducted interviews to determine the perceptions or opinions of the informants about the results of the research that has been done, i.e., there were nine factors and 51 indicators of airport service quality. In addition, the interviews, which were unstructured interviews, also aimed to determine the informants' perceptions of airport service quality. The informants consisted of staffs at Wamena Airport, users of Wamena Airport cooperative, users of Wamena airport taxi association, airlines, and passengers at Wamena Airport. During the interview process, the informants were asked for their opinions and suggestions regarding the naming of the nine service quality factors of Wamena Airport. The naming the nine factors and their indicators are shown in Table 3.

Table 3. Service Quality Factors of Wamena Airport

No	Factors	Indicators
1	Airport Ground Handling Services	X16 The airport provides good and precise flight information to passengers
		X18 Flight information is easily accessible
		X19 Terminal cleanliness is very well maintained.
		X17 There are road signs to and at the airport.
		X15 Signage that is good and easy to find is available at the airport.
		X20 The check-in time does not take too long.
		X21 The check-in process is efficient.
		X23 The check-in staff are polite and well-mannered.
		X22 Airport staff assist passengers properly in the check-in process.
		2
X41 Airports have convenient pre-flight and post-flight services.		
X42 Airports handle passenger complaints properly.		
X39 Airports provide services within acceptable wait time (check-in process, ticket sales counters, baggage x-ray, and waiting room)		
X43 Airports have good handling of lost or damaged baggage.		
X44 Baggage processing facilities are available.		
X38 The airport complies with the necessary security measures to ensure the safety of passengers.		

3	Interactional Quality (Delivery)	X45	Information display for inbound baggage reclaim is very good
		X5	Airport staff are polite and well-mannered.
		X4	Airport staff can quickly provide the services needed by passengers.
		X3	Airport staff explain airport services politely.
		X6	Airport staff have sufficient knowledge about airports.
		X1	Airport staff can understand and reassure all passengers when problems arise.
		X2	Airport staff always give trust to passengers.
4	Access and Mobility	X7	Airport staff know properly the individual needs of passengers.
		X56	Store availability and quality are excellent.
		X55	The cleanliness of airport facilities are well maintained.
		X58	External airport signage clearly directs to airport services such as parking, car rental, terminals, etc.
		X57	Food facilities are available and the quality is excellent.
		X59	The physical layout of the airport should ease passengers in finding what they need (i.e. restaurants, restrooms, gates, etc.).
		X54	I feel safe and secure during security checks.
5	Security	X60	Various ground transportation options are available, both to and from the airport.
		X24	Airport security is very good.
		X25	Terminal is very convenient.
		X26	Security check accuracy is excellent.
		X27	The wait time at security checkpoints does not take too long.
		X28	Security staff are polite and helpful to passengers.
		X65	Internet service (Wi-Fi) is available.
6	Leisure Facilities	X64	Shopping facilities are available.
		X63	Luggage cart/trolley is available.
		X67	Restrooms are available and adequate.
7	Convenience	X48	The airport provides air bridges that facilitate access from the terminal to the airplane.
		X49	Shops, restaurants, and cafes have a wide range of consumer products.
		X47	The airport provides comfortable and spacious seating around the terminal.
8	Value Added	X69	Airport terminals are acoustically comfortable.
		X73	The airport provides timely flight delay information.
		X70	Aerobridge/garbarata connects the airport terminal and the airplane.
9	Airport Environment	X72	Value for money from shops, restaurants, and cafes is good.
		X9	Restroom cleanliness is very well-maintained.
		X11	The terminal has good lighting.
		X10	Restrooms are close and easy to find.
		X8	Airport staff can properly direct passengers to any services.

Based on the results of the data analysis, Wamena Airport had less optimal service quality. The passengers assessed that there were several aspects of service quality that should be improved. Similarly, the results of the interview analysis also showed that there were still various things that the Wamena Airport management should pay attention to provide good or optimal

service quality. However, the passengers also considered that, in certain aspects, Wamena Airport was quite good.

The passengers assessed that the Airport service staff were good in terms of providing quality service. The staff were able to explain airport services properly and politely. In fact, airport staff are an important factor because they play a role in ensuring that passengers have a positive and smooth travel experience (Babbar & Koufteros, 2008). This study supports the findings of previous research that service staff who are committed to being polite, friendly, and well-mannered will help create a friendly, comfortable, and professional service atmosphere in the airport environment (Han et al., 2012; Park & Hyun, 2021). This will create passengers' positive perception of the service quality at Wamena Airport.

In addition, the passengers and airlines assessed that the service staff had sufficient knowledge about the airport and provided good service interaction, making them able to quickly provide the services needed by passengers and properly direct passengers to any services. The results of this study support Halpern and Mwesumoo, (2021) who argue that airport staff play an important role in determining passenger satisfaction and perceptions of airport service quality.

In terms of security, Wamena Airport is considered good enough. Security aspect is an important factor considered by passengers in assessing the quality of airport services (Bezerra & Gomes, 2016; Liou et al., 2011). Liou et al. (2011) explained that customs, immigration, quarantine, and security aspects are the most important factors that affect the overall perception of airport services.

Wamena Airport offers a beautiful view and good lighting. In addition, the respondents also considered the temperature and humidity of the airport quite good. However, the mean score of some of these aspects was not quite good, meaning that evaluation and improvement are still needed. Referring to the findings of Hong et al. (2020), lighting, humidity, view, and temperature are also considered important by passengers in assessing the quality of airport services.

Wamena Airport is already good in terms of passenger complaint handling and has baggage processing facilities. Effective complaint handling is an important aspect of airport service quality management (Bogicevic et al., 2013). An efficient and empathic response to complaints demonstrates a commitment to passenger satisfaction, which can have a positive impact on the overall passenger experience (Liou et al., 2011; Oliveira et al., 2023). Therefore, Wamena Airport should establish an efficient complaint handling process, ensuring that complaints are quickly and properly handled.

The results of the interview analysis showed that Wamena Airport has given its best to provide good services, but there is an increasing number of passengers because the number of aviation is also increasing and Wamena City becomes the capital of the province. With this increase, the existing Wamena Airport facilities are not adequate to meet the needs of passengers, aviation, and users of other airport services. Many facilities should be added and developed by Wamena Airport.

The facilities and service quality that should be improved by Wamena Airport are aerobridge, restroom cleanliness, internet service availability, timeliness and accuracy in delivering flight delay information, easy access to ground transportation, signage, handling of lost or damaged luggage, as well as ease of pre- and post-flight services. According to Ashford et al.

(2013), aerobridges are one of the criteria for assessing airport efficiency in its operational activities. In addition, access to clean and well-maintained restroom facilities is a fundamental aspect that affects passenger comfort and satisfaction (Allen et al., 2020).

Accuracy and notification of flight information and flight delays are also an important element in determining the quality of airport services. Based on the findings of Chao et al. (2013), in domestic flights and passengers, there are three important attributes, namely the accuracy of flight information, restroom cleanliness, and terminal cleanliness. This is because passengers rely heavily on precise and updated information to plan their trips efficiently. Timely communication regarding potential delays will allow passengers to adjust their plans, thus minimizing inconvenience.

In today's digital era, Wi-Fi has become a necessity for many people, such as passengers, allowing them to access important information, stay connected with others, or work while waiting for a flight. A proper Wi-Fi service not only increases passenger satisfaction but also reflects the airport's positive commitment to providing convenient services and technological advancement (Chonsalasin et al., 2020). This allows passengers to make the most of their time at the airport, whether for business or for leisure, thus fostering a positive perception of the overall travel experience.

Good airport service quality will have easy access to various ground transportation such as private cars, public transportation, and taxi (Chonsalasin et al., 2021). In addition, signage at the airport must also be clear to direct passengers to the service they need. The informants in this study stated that Wamena Airport should add clear signage to make it easier for the users of the airport services to find or access existing facilities such as restaurants, restrooms, luggage or trolleys, parking lots, and car rentals.

Effective handling of lost or damaged baggage is important in determining the quality of airport services (Koenig et al., 2019; Naboush & Alnimer, 2020). Airports with good handling of lost or damaged baggage demonstrate a commitment to passenger satisfaction and efficient problem solving. This supports research by Adisasmita (2012) that baggage claims and complaints directly affect the satisfaction of airport service users.

The results of this study showed that there are nine factors and 51 indicators that can be used to measure the quality of passenger terminal services at Wamena Airport. The nine factors are supporting and hindering factors to service quality at Wamena Airport. Based on the results of the analysis, the supporting factors to service quality at Wamena Airport are interactional quality (delivery), security, reliability of services, value added, and airport ground handling services. Meanwhile, the hindering factors to service quality are convenience, leisure facilities, access and mobility, as well as airport environment.

V. Conclusion

Based on the analysis and discussion, the quality of passenger terminal services at Wamena Airport, Jayawijaya Regency is still less optimal. There are several aspects of service quality that are not quite good, thus requiring improvement. These aspects include aerobridge, restroom availability and cleanliness, timeliness in providing flight information, internet services, ease of access, signage, and handling of lost or damaged luggage. The findings of this study provide important implications for Wamena Airport to help identify the kinds of improvements needed

and help design appropriate strategies to improve service quality. Wamena Airport should take the initiative to continuously monitor and assess its service standards. The best way to encourage passengers to reuse and revisit the airport is to improve its service quality through nine factors namely airport ground handling services, reliability of services, interactional quality (delivery), access and mobility, security, leisure facilities, convenience, value added, and airport environment

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