

## QUALITY SERVICE AS A MEASUREMENT OF LION AIR PASSENGER SATISFACTION

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**Abstract:** This study aims to analyze service quality of Lion Air based on five dimensions in Service Quality model according to respondent's background characteristics. A two-way ANOVA was carried out to analyze mean differences of service quality scores according to respondents' education and sex. This study reveals that half of respondents gave good scores of Lion Air's service quality, leaving another half unsatisfied. Male respondents with education level of Diploma I-Diploma III gave the lowest score of service quality relative to their counterparts. These results suggest Lion Air to improve all dimensions of service quality to achieve better appraisal from its passengers.

**Keywords:** *Service Quality, Passenger Satisfaction, Two-Way ANOVA, Quadrant Analysis, Air Transportation*

### Introduction

Air transportation is a service that provides transportation services for the movement of passengers and goods from one point to another quickly and safely. Transportation services are said to be derived demand, which means that the demand for transportation services is increasing or increasing because they are needed to serve rapidly growing economic activities. There are several types of air transportation: land transportation, sea transportation, and air transportation. Air transportation has one advantage over other types, which is that it can reach various places around the world in a relatively short time. Air transportation is also able to move faster, has a wider range of traffic, and is free of obstacles.

Along with the growing airline companies, they are required to be ready to face increasingly fierce business competition from their competitors in order to be able to be at the forefront. This increasingly fierce competition has led to the emergence of a trend of cheap flights, or better known as low-cost carriers (LCC), making people prefer to use aviation services compared to other transportation services because they are considered more efficient in time. Lion Air is one of the largest LCC airlines in Indonesia with the slogan "We Make People Fly". Through this, Lion Air tries to realize and change the stigma of society so that anyone can fly with Lion Air while still prioritizing aspects of safety, security, and flight quality. Based on data obtained from the top brand award in 2022, Lion Air is ranked second in the transportation category that uses the LCC system, with a top brand index of 10.1%. Thus, the number of consumers who choose Lion Air is greater than other brand airlines.

The COVID-19 pandemic, which has nearly spread to every country in the previous two years, has had an effect on the aviation industry, a global sector that includes Lion Air, which is also attempting to preserve the viability of its business. During the COVID-19 outbreak, Lion Air carriers had challenges. The greatest contributing elements were the drop in passengers brought on by public anxiety over the COVID-19 epidemic and the health protocol rules put in place by the government in the context of combating COVID-19. The "New Normal" phase, in which aviation restrictions relating to health standards are still in force, is currently beginning to take hold throughout the entire world.

In Table 1, data on the number of aircraft departures from Soekarno-Hatta Airport is presented using the flight services of Lion Air Airlines. Table 1 shows that Lion Air experienced a decrease in total aircraft departures in

June 2022. This was due to the application of rules for air travel passengers who were changing regarding health protocols implemented by the government in the New Normal era, such as the requirements for PCR tests or antigens for passengers who had not had a booster vaccine yet. Another thing is the result of higher tariff competition, where competitors offer increasingly competitive rates that adjust to the quality of their services.

**Table 1 Data on the number of passenger departures from Soekarno-Hatta Airport using PT. Lion Air in the last 3 months of 2022**

Period	Realization of Departure	Departure Plan	Achieved (%)	Not Achieved (%)
April	5,436	7,882	68.97	31.03
May	7,606	11,637	65.36	34.64
June	6,639	10,290	64.52	35.48

In terms of service quality, Lion Air does not have a significant difference compared to other airlines. Lion Air has the most complaints and poor complaint handling (information obtained from Skytrax data). The phenomenon that occurs is that there are still frequent delays in departure time, which causes passengers to have to wait longer due to aircraft engine damage or technical problems. Then there is the lack of skills of some of the pass staff so that there are long queues at check-in, there are still canceled flights, unprofessional complaint handling, and problems with paid baggage that passengers feel are burdened by the Lion Air airline.(Sekar et al., n.d.)

Customer satisfaction can be created by a company's good service quality. After consumers are satisfied with the product or service they receive, they will compare the services provided. If consumers are really satisfied, they will repurchase and recommend others to buy at the same place. Nevertheless, sometimes two consumers receive identical performance, yet

respond to these identical situations in a diametrically opposite manner (Oliver, 2015).

This study aims to measure passenger satisfaction of Lion Air based on a service quality model that includes five dimensions of service quality measurement, i.e., tangible, reliability, responsiveness, assurance, and empathy. This study also analyze passenger satisfaction according to passenger background characteristics.

## **Literature Review and Framework**

### *Service Definition and Characteristics*

Service marketing is something that can be identified separately/not materialized, which is used to meet needs. Services can produce tangible or intangible objects. Service marketing is a part of the service system that covers the whole area where service providers have a form of contact with their customers, from advertising to billing, when doing things that include contact delivery or service delivery (Lovelock & Wright, 1999).

In general, service is the provision of an intangible performance or action from one party to another. In a broad sense, service is an activity that can be identified with an intangible nature that is planned to meet customer satisfaction. Kotler & Keller (2012) stated that service is any activity, benefit, or performance offered by one party to another that is intangible and does not cause any transfer of ownership, which in its production is bound or not with physical products. Service characteristics are the nature of the services offered by one party to another, which serve to differentiate goods and services. Kotler & Keller (2012) suggested four points of service characteristics, which are intangible (intangibility), variable (variability), cannot be separated (insensibility), and cannot be stored (perishability).

The quality of a service can be measured by five dimensions that can be identified by customers to evaluate a service provided by service providers (Parasuraman, Zeithaml, & Berry, 1988), these are

1. Physical Evidence (tangible), which relates to the attractiveness of the physical facilities, equipment, and materials used by the company, as well as the appearance of employees. The facilities and infrastructure related to customer service must be considered by the company. because this will be a customer consideration in choosing a service.
2. Reliability, namely the ability to provide accurate services from the first time the customer uses the service without making mistakes, and the delivery of services quickly in accordance with the agreed time. Services are required to provide services and provide services desired by customers.
3. responsiveness, which is the ability of employees or service providers to assist and respond to customer requests responsively. In addition, the service provided must be fast and always ready to help customers.
4. Assurance, namely, the behavior of employees or service providers to foster customer trust in service companies, The impact of this trust will create a sense of security and comfort so that customers will get a guarantee from the company.
5. Empathy, which is a concern for service providers in understanding customer problems, The company will act in the interests of customers so that customers will feel comfortable with the services provided.

### *Customer Satisfaction*

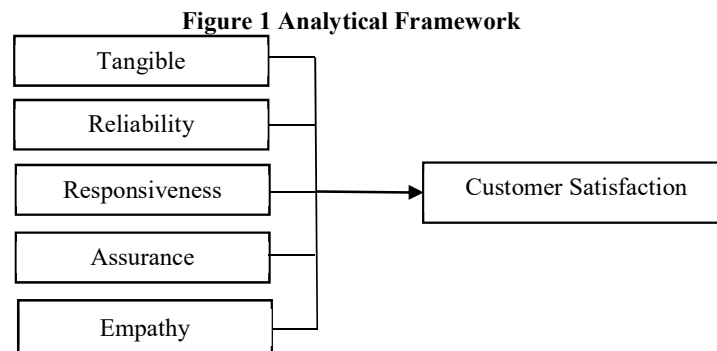
Satisfaction is derived from the Latin *satis* (enough) and *facere* (to do or make). Satisfaction can be interpreted as an effort to fulfill something or

make something adequate (Tjiptono & Chandra, 2011). Customer satisfaction is the level at which the needs, desires, and expectations of customers can be met so that it will create continued loyalty. Loyal customers will make repeat purchases and produce positive word of mouth that will attract new customers.

The key of retaining customers is customer satisfaction. Indicators of customer satisfaction can be seen from (Kotler & Armstrong, 2012)

1. Re-purchase: buy back, where the customer will return to the company to look for goods or services.
2. Creating word-of-mouth: In this case, the customer will say good things about the company to others.
3. Creating brand image: customers will pay less attention to brands and advertisements of competitors' products.
4. Make a purchase decision within the same company: buy another product from the same company.

This study applies five dimensions to measure service quality, i.e., the dimensions of tangible, reliability, responsiveness, assurance, and empathy, as an approach to measure customer satisfaction. If the customer rates the service quality is good then it can be interpreted that the customer is satisfied with the service provided (Figure 1).



Some of the hypotheses tested in this study are:

- 1)  $H_0$ : There is no difference in the average rating of Lion Air's service quality according to the level of customer education.  
 $H_1$ : There is a difference in the average rating of Lion Air's service quality according to the customer's education level.
- 2)  $H_0$ : There is no difference in the average assessment of Lion Air's service quality according to the gender of the customer.  
 $H_1$ : There is a difference in the average assessment of Lion Air's service quality according to the gender of the customer.
- 3)  $H_0$ : There is no difference in the average assessment of Lion Air's service quality according to the level of education and gender of the customer.  
 $H_1$ : There is a difference in the average assessment of Lion Air's service quality according to the level of education and gender of the customer.

### **Method**

This study uses primary data with a sample of 129 Lion Air passengers at Soekarno-Hatta Airport. Data collection was carried out on August 31<sup>st</sup>, 2022. Slovin's formula was applied to calculate minimum sample size in this study (Asra & Prasetyo, 2015)

$$n \geq \frac{N}{(1+N e^2)}$$

where

$n$  = Sample size

$N$  = Population size

$e$  = Margin of error

Due to limitation of some resources, we set the margin of error at 10% resulting 99 respondents as the minimum sample size. Questionnaire was

used as an instrument to collect data from 150 respondents. The eligible respondents are those aged 18 years and over and have used Lion Air flight services at least once in the past month. The background characteristics of the respondents collected were gender, age, highest level of education completed, monthly income, working status in the last month before the enumeration, frequency of using Lion Air in the last month, and reasons for traveling. There are 129 respondents who complete all questions in the questionnaire as our final sample size.

Lion Air's service quality is measured using a modified Servqual questionnaire to measure the service quality of airlines (Parasuraman, Zeithaml, & Berry, 1988). There are 22 question items to measure service quality with a Likert scale of 1-5. The greater the score, the better the service quality. The scores of 22 questions are added up, and the respondent is categorized as "satisfied" if the total score of the respondent is equal to or greater than the average total score of all respondents. On the other hand, respondents are categorized as "dissatisfied" if their total score is less than the average total score of all respondents.

The quality of the instrument used in this study was measured by reliability and validity test (Buckingham & Saunders, 2004). We apply correlation matrix to analyze the construct validity of the instrument. Pearson's correlation was calculated to reveal the existing relationships between the pairs of variables with a significance level of 0.05. Reliability test was conducted to determine the instrument's internal consistency by calculating Cronbach's Alpha for each dimension. Previous researchers defined a Cronbach's Alpha reaching 0.7 as a sufficient measure of reliability or internal consistency of an instrument (Taber, 2018).



In order to achieved the aims of study, we apply Analysis of Variance (ANOVA). ANOVA is a statistical test used to analyze the difference between the means of more than two groups. This study have a quantitative dependent variable (i.e. total score of service quality) at multiple levels of two categorical independent variables (i.e., highest education leve and sex). There are several assumptions to be met before applying a two-way ANOVA: (1) normality assumptions, (2) homogeneity of variance (homoscedasticity), and (3) independence of observations. We used IBM SPSS Statisics 26 to run the descriptive analysis and the ANOVA model.

### Discussion and Result

The analysis of the correlation matrix showed that all of the 22 questions have a positive correlation with  $p - value = 0.0000$ . Pearson's correlation values less than 0.49 indicate a weak correlation, from 0.5 to 0.69 indicate a moderate correlation, and more than 0.7 indicate strong correlation (Schober, Boer, & Schwarte, 2018). The results showed one of the questions has low but significant correlation with  $r = 0.39$  and  $p - value = 0.0000$ . One question has strong correlation and the rest of the questions have moderate correlations, as presented in Table 2.

**Table 2 Classification of Pearson's correlation**

No.	Items	Pearson's Correlation	p-value	Classification
1	Tangible 1	0.62	0.0000	Moderate
2	Tangible 2	0.65	0.0000	Moderate
3	Tangible 3	0.47	0.0000	Moderate
4	Tangible 4	0.59	0.0000	Moderate
5	Reliability 1	0.61	0.0000	Moderate
6	Reliability 2	0.67	0.0000	Moderate
7	Reliability 3	0.70	0.0000	Strong
8	Reliability 4	0.67	0.0000	Moderate
9	Reliability 5	0.66	0.0000	Moderate
10	Responsiveness 1	0.41	0.0000	Moderate

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11	Responsiveness 2	0.39	0.0000	Weak
12	Responsiveness 3	0.50	0.0000	Moderate
13	Responsiveness 4	0.65	0.0000	Moderate
14	Assurance 1	0.66	0.0000	Moderate
15	Assurance 2	0.63	0.0000	Moderate
16	Assurance 3	0.57	0.0000	Moderate
17	Assurance 4	0.54	0.0000	Moderate
18	Emphaty 1	0.45	0.0000	Moderate
19	Emphaty 2	0.53	0.0000	Moderate
20	Emphaty 3	0.45	0.0000	Moderate
21	Emphaty 4	0.53	0.0000	Moderate
22	Emphaty 5	0.57	0.0000	Moderate

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The Cronbach's Alpha values presented in the Table 3 ranged 0.67–0.93. The results showed that all of the dimensions presented values equal to 0.7 or higher , which indicated an acceptable reliability of the instrument.

A total of 129 respondents participated in this study, of which more than half are female, have a high school education or above, have worked for the past month, have a monthly income of less than IDR 5,000,000, travel for tourism or family reasons, and have used Lion Air at least 1-2 times in the past month. The average age of the respondents was 26.6 years, with the youngest age being 19 years and the oldest being 57 years. The average score of service quality is 82.91, with the lowest score being 57 and the highest being 110 (Table 4). Respondents with a total score of 82.91 or greater are categorized as satisfied customers with Lion Air services and are categorized otherwise if the total score is less than 82.91.

**Table 3 Reliability of the Scales**

	Scale Item	Mean	Mode	Standard Deviation	Cronbach's Alpha
<b>Tangible</b>					<b>0.86</b>
1	Lion Air has up-to-date equipment	3.73	4	0.80	
2	Lion Air has modern and clean facilities	3.81	4	0.84	
3	Their flight attendants wear neat and clean uniform	4.33	5	0.74	
4	Check-in and boarding process is easy and practical	3.88	4	0.92	
<b>Reliability</b>					<b>0.93</b>
5	Lion Air flight schedule is always on time	3.19	3	1.11	
6	When a passenger has a problem, Lion Air pays attention and helps to solve it	3.67	4	0.95	
7	Lion Air provides good service from the beginning	3.72	4	0.87	
8	Lion Air provides services as promised	3.60	3	0.91	
9	The flight service process with Lion Air is carried out without errors	3.62	4	0.93	
<b>Responsiveness</b>					<b>0.67</b>
10	Lion Air provides information when a service is performed	3.81	3	0.86	
11	Lion Air provides fast service	3.67	4	0.97	
12	Lion Air employees/stewardess are always willing to help passengers	4.12	4	0.79	
13	Lion Air provides good service when there is a flight delay	3.54	4	1.04	
<b>Assurance</b>					<b>0.84</b>
14	Flight security performance with Lion Air is very convincing	3.62	4	0.95	
15	Flights with Lion Air have little chance of being cancelled	3.47	3	1.01	
16	Lion Air employees/stewardess are always polite and patient with passengers	4.08	4	0.79	
17	Lion Air employees/stewardess have the knowledge to answer passenger questions	4.01	4	0.80	
<b>Emphaty</b>					<b>0.91</b>
18	Lion Air pays attention to the specific needs of passengers	3.78	4	0.87	
19	Lion Air responds to passenger emergency situations	3.83	4	0.83	
20	Lion Air employees/stewardess provide personal service and attention to passengers	3.84	4	0.88	
21	Lion Air has a good mileage program	3.74	3	0.90	
22	Lion Air has good frequent flyers	3.85	4	0.88	

**Table 4 Summary Statistics**

Statistics	Total Score of Dimension					Total Score of Service Quality	
	Tangible	Reliability	Responsiveness	Assurance	Empathy	Quality	Age
N	129	129	129	129	129	129	129
Mean	15.74	17.80	15.16	15.17	19.05	82.91	26.57
Std. Deviation	2.77	4.21	2.61	2.91	3.75	11.20	9.08
Median	16.00	17.00	15.00	15.00	19.00	83.00	23.00
Mode	16	15	16	12 <sup>a</sup>	15 <sup>a</sup>	74 <sup>a</sup>	21
Range	12	20	12	12	19	53	38
Minimum	8	5	8	8	6	57	19
Maximum	20	25	20	20	25	110	57

a. Multiple modes exist. The smallest value is shown

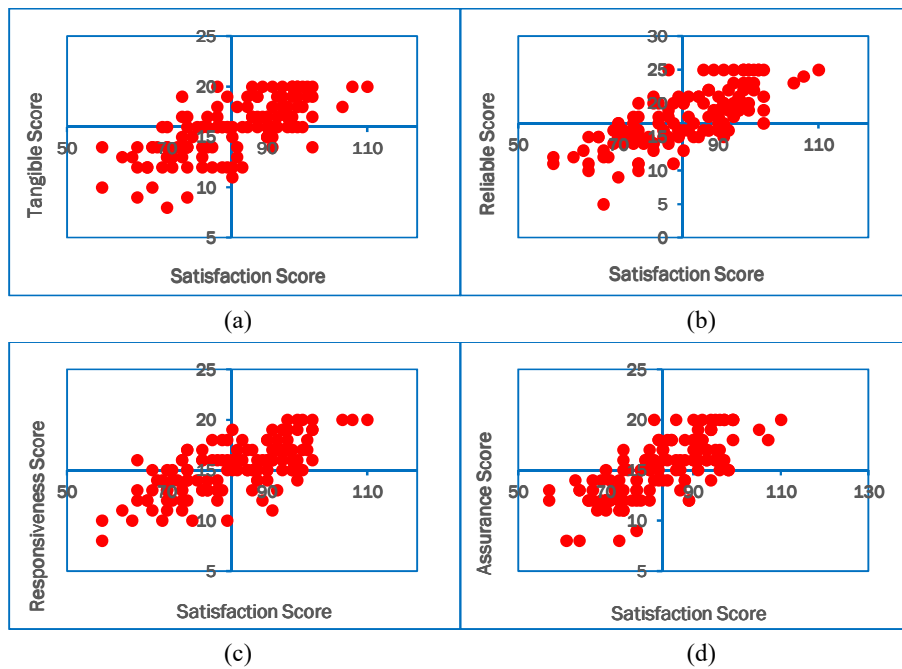
Table 5 presents the percentage of passengers who are satisfied with Lion Air's services according to passenger characteristics. Table 5 shows that 51.9% of respondents gave a satisfactory assessment of Lion Air's service quality. Thus, almost half of the other respondents gave a poor assessment of the quality of service provided by Lion Air. If we look further, it appears that the percentage of respondents who are satisfied or dissatisfied based on the characteristics of their background is relatively the same.

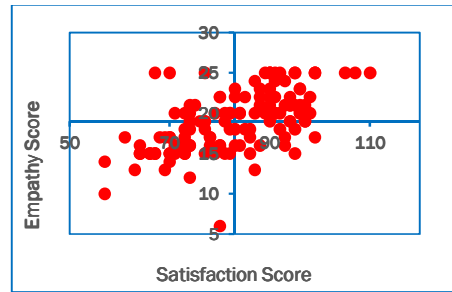
**Table 5 Percentage distribution of passengers by background characteristics and satisfaction status**

Background Characteristics	Satisfaction Status				Total	
	No		Yes		n	%
	n	%	n	%		
Sex						
Male	26	48.1%	28	51.9%	54	100.0%
Female	36	48.0%	39	52.0%	75	100.0%
Highest education level						
High school or less	27	50.9%	26	49.1%	53	100.0%
D1-D3	10	58.8%	7	41.2%	17	100.0%
D4/S1 or more	25	42.4%	34	57.6%	59	100.0%
Working status (last month)						
Yes	43	45.7%	51	54.3%	94	100.0%
No.	19	54.3%	16	45.7%	35	100.0%
Income per month (IDR)						
< 5.000.000	39	45.3%	47	54.7%	86	100.0%
5.000.000-9.999.999	19	55.9%	15	44.1%	34	100.0%
>= 10.000.000	4	44.4%	5	55.6%	9	100.0%
Reason for the trips						
Education/Work	21	53.8%	18	46.2%	39	100.0%

Family	18	54.5%	15	45.5%	33	100.0%
Vacation	23	40.4%	34	59.6%	57	100.0%
Frequency of flying with Lion Air (last month)						
1-2 times	51	48.1%	55	51.9%	106	100.0%
3 times or more	11	47.8%	12	52.2%	23	100.0%
<b>Total</b>	<b>62</b>	<b>48.1%</b>	<b>67</b>	<b>51.9%</b>	<b>129</b>	<b>100.0%</b>

A quadrant analysis based on the scores of each dimension and the total score of service quality is presented in Figures 2a to 2e. Figures 2a to 2e provide a visualization of the results of Table 5 based on each dimension measured in this study. Figures 2a to 2e show that most of the proportion of respondents are in quadrants I and III, where in quadrant I are respondents who are satisfied with the service quality of Lion Air, while in quadrant III are respondents who are dissatisfied with Lion Air's services.





(e)

**Figure 2 Quadrant Analysis of Passenger Satisfaction by Service Quality Dimensions**

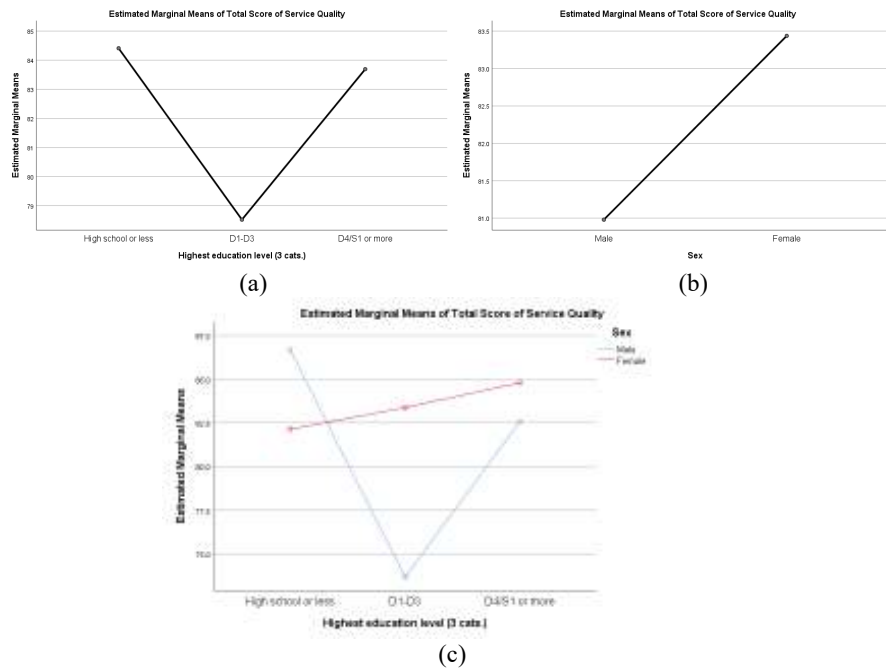
Before we continue to ANOVA analysis, we first checked that all assumptions have been met. We applied Shapiro-Wilk test for normality test and we obtained the statistic of 0.982 with  $p - value = 0.08$ , so we failed to reject the null hypothesis at 5% level of significance. This means that the normality assumption was retained. This result also supported by the normal Q-Q plot of standardized residuals based on the developed model. The plot is not shown in this paper. Based on Breusch-Pagan test for heteroskedasticity, we found the test statistic of 0.960 with  $p - value = 0.327$ . This means that homogeneity of variance is satisfied. Our sample is met independency assumption since each respondent is independent. Hence, all the assumptions are met so the ANOVA analysis can be carried out for this study.

**Table 6 ANOVA Model for Total Score of Service Quality**

Source	Sum of Squares	df	Mean Square	F	Sig.
Intercept	618,359.25	1	618,359.25	5,094.50	0.000
Education	450.69	2	225.35	1.86	0.161
Sex	138.04	1	138.04	1.14	0.288
Education * Sex	685.52	2	342.76	2.82	0.063
Error	14,929.47	123	121.38		
Total	902,751.00	129			

Table 6 shows that there is no difference in the average service quality score according to the level of education and gender of the respondents.

However, the interaction of education level and gender showed a significant difference in the average service quality score at the level of significance of 10%. Figures 3a to 3c show that brands with Diploma I-Diploma III education give the lowest ratings for service quality, while males give service quality ratings lower than females. The interaction between education and gender shows that males with Diploma I-Diploma III education give the lowest service quality assessment compared to other groups.



**Figure 3 Profile Plots of Service Quality Score by Respondents' Background Characteristics**

This study was conducted to determine whether there is an effect of service quality on the dependent variable (customer satisfaction). Based on the results of the research, the characteristics of the respondents more than half are female, have a high school education or above, have worked for the past month, have a monthly income of less than IDR 5,000,000, travel for

tourism or family reasons, and have used Lion Air at least 1-2 times in the past month. The average age of the respondents was 26.6 years, with the youngest age being 19 years and the oldest being 57 years.

From the results of this study, more than half of the respondents stated that they were satisfied with Lion Air's services. Previous research on passenger satisfaction was carried out by Sadiqin & Saraswati (2018). Their research is a case study that researched only Telkom University Business Administration students who use Lion Air services. Based on 100 respondents the results showed that 73.2% passengers are satisfied with Lion Air services. Almost similar research was conducted by Raja (2019) showed that responsiveness and physical evidence have a positive and significant effect on customer satisfaction. Meanwhile, reliability, assurance, and empathy have a positive but not significant effect on customer satisfaction. Hanif, et al. (2020) found that passenger behavior intention is affected by the quality of service, and passenger satisfaction.

This study found that (1) More than half of the respondents gave a good assessment of Lion Air's service quality, means that the respondents are satisfied with the service quality of Lion Air and and the remaining half gave a poor rating, means that respondents are dissatisfied with Lion Air's services. Males with Diploma I-Diploma III education give the lowest service quality assessment compared to other groups. (2) The results of this study indicate that service quality has a positive and significant effect on customer satisfaction, meaning that if there is a change in service quality, customer satisfaction will also change. The effect of this relationship shows a positive value, meaning that the higher the service quality, the higher the Lion Air customer satisfaction.



### Conclusion

This study found that approximately half of the respondents gave a good assessment of Lion Air's service quality and the remaining half gave a poor rating. Male respondents with Diploma I-Diploma III education gave the lowest service quality ratings compared to their counterparts. These results can be input for Lion Air to improve service quality in all dimensions of service quality to obtain a better rating from its passengers.

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