

CUSTOMER SATISFACTION TOWARD GRAB APPLICATION

IN BALIKPAPAN

AN UNDERGRADUATE THESIS



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2023

DECLARATION OF AUTHENTICITY

Herein I declare the originality of the thesis; I have not presented anyone else's work to obtain my university degree, nor have I presented anyone else's words, ideas or expression without acknowledgment. All quotations are cited and listed in the bibliography of the thesis.

If this statement is proven to be false in the future, I am willing to accept any sanction complying with the determined regulation or its consequence.

Yogyakarta, July 26th, 2023



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I am sure that this research is still imperfect. However, I had been devoted to all efforts to achieve the maximum result. The researcher also realizes that this research will not work if not supported and guided by several parties, which they had helped the researcher both morally and spiritually. The preparation of this research is not separated from the encouragement and support from several parties. In this occasion, the researcher wants to give thanks to:

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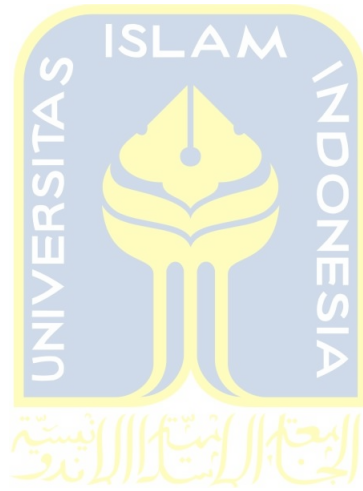


TABLE OF CONTENTS

APPROVAL PAGE	2
LEGALIZATION PAGE	3
DECLARATION OF AUTHENTICITY	4
ACKNOWLEDGMENTS.....	5
TABLE OF CONTENTS	i
LIST OF TABLES	iv
LIST OF FIGURES.....	v
LIST OF APPENDICES	vi
ABSTRACT	vii
ABSTRAK	viii
CHAPTER I INTRODUCTION.....	1
1.1 Background	1
1.2 Problems Formulation.....	3
1.3 Research Objectives.....	3
1.4 Benefits of Research.....	4
1.4.1 Theoretical Benefits	4
1.4.2 Practical Benefits	4
1.5 Systematical Writing.....	4
CHAPTER II LITERATURE REVIEW	6
2.1 Theoretical Review	6
2.1.1 Interface Quality	6
2.1.2 Product Quality	7
2.1.3 Product Variety	7
2.1.4 Shopping Safety	8

2.1.5	Customer Satisfaction	9
2.2	Conceptual Framework of the Study	9
CHAPTER III RESEARCH METHODOLOGY		10
3.1	Type of Study	10
3.2	Populations and Sample	10
3.3	Data Collections Method.....	10
3.4	Instrumentation	11
3.5	Definition of Operational and Measurement of Research Variable	11
3.5.1	Independent Variable	11
3.5.2	Dependant Variable	13
3.6	Validity and Reliability Test of the Instrument	13
3.7	Analysis Technique	15
3.7.1	Respondents Characteristic	15
3.7.2	Descriptive Analysis	15
3.7.3	Model Development on Theory	15
CHAPTER IV DATA ANALYSIS AND DISCUSSIONS		19
4.1	Statistics Descriptive	19
4.1.1	Respondents' Classification Based on Gender	19
4.1.2	Respondents' Classification Based on Age.....	19
4.1.3	Respondents' Classification Based on Educational Background.....	20
4.1.4	Respondents' Classification Based on Job Types	20
4.1.5	Respondents' Classification Based on Monthly Expenses	21
4.2	Descriptive Analysis	21
4.2.1	Interface Quality	22
4.2.2	Product Quality	22
4.2.3	Product Variety	23
4.2.4	Shopping Safety	23

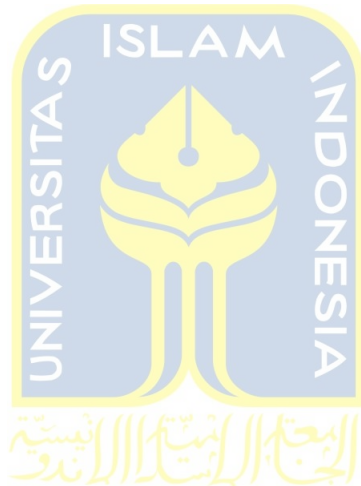
4.2.5	Customer Satisfaction	24
4.3	Structural Equation Model (SEM) Analysis	25
4.3.1	Development Model Based on Theory	25
4.3.2	Diagram Flow and Structural Equation.....	25
4.3.3	Normality Test	26
4.3.4	Outliners Test.....	28
4.3.5	Confirmatory Test Result.....	30
4.3.6	Reliability Test.....	32
4.4	Model Modification and Complete Goodness	34
4.5	Hypothesis Testing.....	35
4.6	Result Discussions	36
4.6.1	The Influence of Interface Quality to Customer Satisfaction	36
4.6.2	The Influence of Product Quality to Customer Satisfaction	37
4.6.3	The Influence of Product Variety to Customer Satisfaction	37
4.6.4	The Influence of Shopping Safety to Customer Satisfaction	38
CHAPTER V CONCLUSIONS AND RECOMMENDATIONS.....		40
5.1	Conclusions.....	40
5.2	Research Limitations.....	40
5.3	Recommendation	41
REFERENCES.....		42
APPENDIX 1		46
APPENDIX 2		49

LIST OF TABLES

Table 3. 1 Validity and Reliability Test for Pilot Test.....	13
Table 4. 1 Respondents based on gender	19
Table 4. 2 Respondents based on age	19
Table 4. 3 Respondents based on educational background	20
Table 4. 4 Respondents based on Job	20
Table 4. 5 Respondents based on monthly expenses	21
Table 4. 6 Descriptive Analysis of Interface Quality	22
Table 4. 7 Descriptive Analysis of Product Quality	22
Table 4. 8 Descriptive Analysis of Product Variety	23
Table 4. 9 Descriptive Analysis of Shopping Safety	24
Table 4. 10 Descriptive Analysis of Customer Satisfaction.....	24
Table 4. 11 Normality Test Result.....	26
Table 4. 12 Modified Normality Test Result.....	27
Table 4. 13 Outliners Test Result.....	28
Table 4. 14 Loading Factors Result.....	31
Table 4. 15 Loading Factors Result.....	32
Table 4. 16 Reliability Test Result.....	33
Table 4. 17 Complete Goodness of Fit Model.....	35
Table 4. 18 Data of Hypothesis Testing.....	35

LIST OF FIGURES

Figure 2. 1 Conceptual Framework	9
Figure 4. 1 Research Framework	25
Figure 4. 2 Structural Diagrams	26
Figure 4. 3 Confirmatory Analysis Model	31
Figure 4. 4 Final Research Model	35



LIST OF APPENDICES

APPENDIX 1 Research Questionnaires	44
APPENDIX 2 Validity and Reliability Test	47



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ABSTRACT

Currently, many people are familiar with e-commerce or online shopping platforms due to their convenience and speed. One of the examples is the Grab application. Behind the rapid development of e-commerce in Indonesia, there are many factors that can contribute to the superiority of one e-commerce platform over another. One important factor is customer satisfaction when they use the services provided by the platform. Customer satisfaction is the primary focus of this research due to the increasingly intense competition in the e-commerce industry. One way to ensure customer satisfaction on e-commerce platforms is by enhancing interface quality, product quality, product variety, and shopping security. When an e-commerce platform provides good service quality and high-quality products, customers will feel satisfied. This satisfaction, in turn, leads to customer loyalty and continued usage of the platform's services. The aim of this study is to examine the influence of interface quality, product quality, product variety, and shopping security on customer satisfaction in the Grab application. The research methodology employed in this study is quantitative. The sample consists of questionnaire responses from 170 users of the Grab application. Data processing in this research utilized Amos 22 software. The results of the study indicate that interface quality, product quality, and shopping security have a positive and significant partial influence on customer satisfaction.

Keywords: *Customer Satisfaction, Grab Application, Amos 22, Interface Quality, Product Quality, Product Variety, Shopping Safety*

KEPUASAN PELANGGAN TERHADAP APLIKASI GRAB DI BALIKPAPAN

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ABSTRAK

Saat ini, banyak orang sudah familiar dengan e-commerce atau platform belanja online dikarenakan kemudahan dan kecepatannya. Salah satu contohnya adalah aplikasi Grab. Di balik perkembangan pesat e-commerce di Indonesia, terdapat beragam faktor yang dapat berkontribusi terhadap superioritas suatu platform e-commerce dibandingkan dengan platform lainnya. Salah satu faktor penting adalah kepuasan pelanggan saat mereka menggunakan layanan yang disediakan oleh platform tersebut. Kepuasan pelanggan menjadi fokus utama dalam penelitian ini mengingat persaingan yang semakin ketat dalam industri e-commerce. Salah satu cara untuk memastikan kepuasan pelanggan pada platform e-commerce adalah dengan meningkatkan kualitas antarmuka, kualitas produk, variasi produk, dan keamanan berbelanja. Ketika sebuah platform e-commerce menyajikan kualitas layanan yang baik dan produk-produk berkualitas tinggi, pelanggan akan merasa puas. Kepuasan ini kemudian berdampak pada loyalitas pelanggan dan penggunaan berkelanjutan terhadap layanan platform tersebut. Tujuan dari penelitian ini adalah untuk menguji pengaruh kualitas antarmuka, kualitas produk, variasi produk, dan keamanan berbelanja terhadap kepuasan pelanggan di aplikasi Grab. Metode penelitian yang digunakan adalah kuantitatif. Sampel penelitian terdiri dari hasil kuesioner dari 170 pengguna aplikasi Grab. Pengolahan data dalam penelitian ini menggunakan perangkat lunak Amos 22. Hasil penelitian menunjukkan bahwa kualitas antarmuka, kualitas produk, dan keamanan berbelanja memiliki pengaruh positif dan signifikan secara parsial terhadap kepuasan pelanggan.

Kata Kunci: Kepuasan Pelanggan, Aplikasi Grab, Amos 22, Kualitas Antarmuka, Kualitas Produk, Variasi Produk, Keamanan Berbelanja

CHAPTER I

INTRODUCTION

1.1 Background

Nowadays, almost everyone knows about e-commerce or online shopping. Online shopping is known for its convenience and fast way to shop, there are a lot of online shopping platform nowadays that enable customers to buy products and delivered it to them in just a few minutes or hours with just using their phone or computer to order something, for example Grab, Gojek, or Shopee can deliver items that the customers purchase such as food, groceries, clothes, and many more to the customer in just a few minutes or hours, but if it's a delivery from different cities it might take longer time.

Due to the increasing number of online shoppers in Indonesia, the e-commerce sector is seen as a viable area for growth. E-commerce in Indonesia started to emerge one by one in the years 2010–2011. Go-Jek is one of them. A program that initially solely provided client delivery and pickup. However, as time goes on, more services are being added, such as the ability to pay phone and utility bills. The innovations made by Go-Jek provide a lot of inspiration for other e-commerce. So the emergence of Go-Jek is also followed by e-commerce such as Shopee, Tokopedia, Bukalapak, Grab and so on. Since the beginning of 2020, the epidemic has had a significant impact on the e-commerce industry in Indonesia. This internet trading company experienced tremendous growth in 2020, rising quickly from an estimated worth of Rp. 253 trillion to Rp. 337 trillion. According to a special analysis published in October 2020 by Google, Temasek, and Bain Company, during the lockdown, consumers spent more time on e-commerce platforms—from 3.7 hours per day before to 4.7 hours per day after, and fell to 4.2 hours each day once the lockdown was over. Bank Indonesia dares to predict that e-commerce transactions would rise annually over this time period based on claims from Google and others.

Behind the rapid growth of e-commerce in Indonesia, there are many factors that can increase the superiority of an e-commerce platform to another e-commerce platform. One important factor behind the success of an e-commerce platform is the customer's satisfaction when they use their services in their platform. In several fields of study, including marketing (Andreassen & Lindestad, 1998), consumer research (Yi, 1993), economic psychology (Johnson & Fornell, 1991), welfare-economics (Chipman & Moore, 1978) and economics, customer satisfaction is a well-known and established concept (van Raaij & Crotts, 1995). Customers' satisfaction or discontent with a product are based on a comparison of their hopes and

expectations with the product (Kotler & Zaltman, 1997). According to the definition given above, customer satisfaction depends on how their hopes and expectations are perceived, and if those expectations are exceeded, customers will be extremely satisfied. If the condition is the opposite, it is also the same.

This research examines customers' satisfaction with the GrabApp. In 2012, Anthony Tan and Hooi Ling Tan founded Grab. Anthony had the idea to launch a ride-hailing company when he finished his master's at Harvard Business School. Later, after working with Hooi Ling Tan and winning a \$25,000 grant from Harvard Business School, the "MyTeksi" app was made available in Malaysia. MyTeksi changed its name to "GrabTaxi" in 2013 and began to gain popularity in neighboring countries like the Philippines, Singapore, and Thailand. A year later, GrabTaxi launched operations in Vietnam and Indonesia and GrabCar, a personal vehicle service. In 2015, GrabBike and GrabCar+ made their debuts in Vietnam, Indonesia, and the Philippines, respectively. GrabBike offers passengers the choice of choosing motorcycles or motorbikes as their preferred means of transportation, whereas GrabCar+ allows customers to travel in more upscale or luxury vehicles. In order to better reflect the inclusion of its car and document delivery services, the company changed its name to "Grab" in 2016. That same year, the company released a feature enabling drivers and riders to communicate with one another via the app. Grab developed GrabFood and invested in OVO, a provider of electronic payments, to take on Gojek in Indonesia. The construction of a new corporate office of Grab in Singapore is scheduled to begin in 2019. The end of 2020 saw the official opening of the \$135 million new headquarters, which is located in Queenstown's one-north business park. During the 2020 Coronavirus outbreak, the business increased GrabMart and GrabAssistant (on-demand concierge) and provided \$40 million in relief funds to all of its Southeast Asian sites.

The main purpose of this research is to identify the variables that may influence customer satisfaction (user interface quality, product quality, product variety, shopping safety). Customer satisfaction was described by (Mowen, J. C., & Minor, 2002) as the attitude that customers have toward products or services after they have purchased and used them. Additionally, (Philip Kotler & Keller, 2007) clarified that satisfaction is connected to feelings of joy or disappointment experienced by people after comparing the actual performance of a product to what was anticipated. If the product's performance falls short of expectations, dissatisfaction will be the result. But when a product operates at a level that meets or exceeds customer expectations, it will result in satisfaction. Customer satisfaction is a metric used to assess consumer interest in online shopping.

Customer happiness is the sensation a customer has after using or consuming a product

from a business (Ahyar et al., 2020) Customer satisfaction is influenced by a number of things. Website quality is the first consideration. Website quality and consumer satisfaction are significantly related, according to research by (Ali et al., 2016). According to the research, (Xie et al., 2009) also said that elements that satisfy customers' wants and highlight a website's unique selling point are the foundation for how well customers perceive the quality of a website.

Shopping safely is the second aspect of e-commerce that influences client pleasure. When customers purchase in e-commerce, security or safe shopping, particularly those related to payment processing and customer personal data, affects customer satisfaction, according to research by (Noviarni, 2019) and (Ishak, 2012).

The cost of a product is the following element. According to studies by (Mediti & Widyastuti, 2020) and (DA Susanti, 2016), a product's price has an impact on customers' satisfaction. Then, consumer satisfaction is also influenced by the product quality of the online store. (Lestari, 2015) and (DA Susanti, 2016) conducted studies that found a substantial association between product quality and customer happiness. Product performance or service is affected by product quality, which is closely tied to consumer value and satisfaction (Kim & Choi, 2013).

The variables in this study were never examined in Balikpapan, where the research was conducted using an online purchasing application. The variables used in this study came from two articles that created slightly modified versions of the original hypothesis from the journal "Factors Affecting Customer Satisfaction in e-Commerce" by Rahmayanti et al. in the year 2021. The hypothesis model and the fact that these variables have never been employed in Balikpapan's e-commerce business separate this study from earlier ones.

1.2 Problems Formulation

The purpose of this study is to identify the user interface quality, product quality, product variety, and shopping satisfaction as independent variables that may be significant for consumer satisfaction in Grab. The following are some particular problems that were looked into in this study:

- i) Does user interface quality can affect customer satisfaction?
- ii) Does product quality can affect customer satisfaction?
- iii) Does product variety can affect customer satisfaction?
- iv) Does shopping safety can affect customer satisfaction?

1.3 Research Objectives

The goals of this research can be categorized based on the problem formulation

described above as follows:

- i) To describe whether user interface quality can affect the customer satisfaction.
- ii) To describe whether product quality can affect the customer satisfaction.
- iii) To describe whether product variety can affect the customer satisfaction
- iv) To describe whether shopping safety can affect customer satisfaction

1.4 Benefits of Research

1.4.1 Theoretical Benefits

The significance of customer satisfaction in Grab is explained by this study. This study further explains how several factors, like the user interface's quality, product quality, product variety, and shopping safety, have an impact on consumer satisfaction in Grab.

1.4.2 Practical Benefits

This research can assist a business, particularly Grab, in ensuring that users of their application have a positive experience. It is anticipated that this research will be able to assist marketing managers in formulating judgments and policies

1.5 Systematical Writing

This thesis is divided into the following five chapters:

CHAPTER I: INTRODUCTION

This chapter covers the following topics: research background, problem formulation, research boundaries, research aims, research contributions, and systematic writing.

CHAPTER II: LITERATURE REVIEW

This chapter outlined the theoretical basis for e-commerce customer satisfaction, which is influenced by factors including the effectiveness of the user interface, the value of the products, the variety of available products, and the security of online transactions. Additionally, there are the conceptual framework and study hypotheses.

CHAPTER III: RESEARCH METHOD

This chapter covers the models and methods utilized in the study, the population and sample, the sampling process, research variables, and testing procedures.

CHAPTER IV: DATA ANALYSIS AND DISCUSSION

In this chapter, data analysis, results from statistical calculations

employing theoretical notions, and research interpretation of accepted theories are discussed.

CHAPTER V: CONCLUSIONS AND RECOMMENDATIONS

This chapter includes conclusions about the investigation's effects and an evaluation of the data obtained during the research. Additionally, this section will show the flaws of the directed examinations as well as directions for future study.



CHAPTER II

LITERATURE REVIEW

2.1 Theoretical Review

At the beginning, e-commerce was not as easy to access as of today, e-commerce back then there is not a lot of options of products because of internet not available to everyone yet. IndoNet's existence marked the beginning of e-commerce in Indonesia. Indonesia's Internet Service Provider (ISP) at the time was IndoNet. The emergence of IndoNet served as a precursor to the application of technology across many fields. Eventually, in 1996, Dyviacom Intrabumi, often known as D-Net, emerged and was widely regarded as the invention of online purchasing and selling. Of course, the existence of this transactional medium is advantageous for both consumers and business owners. The transaction process will be made considerably simpler by using the internet. The internet was initially only used for product display, though. Sellers and customers must still physically interact in order to complete payments.

2.1.1 Interface Quality

E-commerce has several advantages, not just for individuals but also for groups of people and institutions because of the widespread availability of Internet access and the simplicity of visiting websites using safe electronic payment methods. One of the primary goals of e-commerce is customer satisfaction, this satisfaction can be achieved by having a good interface quality. With good interface quality, it makes it easier for people to access and use the e-commerce application.

Customer perception of the usability of an e-commerce online service is referred to as user interface quality (Eid, 2011) According to research done by (Eid, 2011), the quality of the user interface directly affects customer satisfaction because it offers services like making facilities simple to use. Since this affects consumer happiness, 14 essential elements were found to construct a successful B2C e-commerce website. In a 2011 study, Eid looked at how satisfaction and trust were affected by the information design, navigation design, and aesthetic design of B2C e-commerce websites in three developed nations: Canada, Germany, and China. User interface design elements were shown by Eid to be important predictors of cross-cultural website trust and satisfaction. Also, the results of his research in Malaysia revealed a substantial correlation between consumer satisfaction and website user interface design.

H₁: Interface quality significantly affects customer satisfaction of e-commerce.

2.1.2 Product Quality

Product Quality is important to customers' expectation for the quality of the product, the better the product quality is the better the customers' satisfaction and the better the customers' satisfaction, the better the sales and repeat order. As defined by (Parasuraman & Grewal, 2000) Service quality is the evaluation of service by customers which is achieved by comparing actual performance and general expectations of its performance. However, if the product quality falls short of expectations, it has a detrimental effect on the level of satisfaction (Cai et al., 2019).

(Armstrong & Kotler, 2018) state that. The factors of an item that can fulfill its goal are determined by its quality. The degree of satisfaction with a product is its quality. Factors affecting the product's quality include:

1. The process of manufacturing items, as well as the use of tools and environments, is included in production.
2. Sales uncertainty; if a product's quality is too poor, it may result in a drop in sales. Meanwhile, if both the product's quality and the price being given are excessively high, purchasing interest will decline.
3. Changes in Consumer Requests: Buyers or consumers desire to see changes in the quality or quantity of the things they utilize.
4. The Role of Inspection. The role of inspection can lower production costs in addition to being able to monitor the quality standards established.

H₂ : Product quality significantly affects customers satisfaction of e-commerce.

2.1.3 Product Variety

(Kotler & Keller, 2016) defines a "product" as anything that may be advertised to the public, bought, used, or consumed in order to satiate a need or want. Conceptually, a product is the manufacturer's subjective perception of something that may be provided in an effort to fulfill customer requirements and activities in line with organizational competence and capacity as well as market purchasing power in order to achieve organizational goals. The term "product" generally refers to anything that is created by producers to satisfy the needs and wants of customers.

According to Deschamps (1999), "the ability to come up with a huge variety of products to cover every imaginable application area has quickly become the dominant success factor," meaning that the capacity to produce numerous product variations in order to satisfy every demand anticipated has quickly come to be one of the key success

factors. Gaining the loyalty of customers is success in this scenario.

According to (Tjiptono, 2013), consumers will feel more content if they make purchases at one location and won't feel the need to make purchases elsewhere the more diverse the number and types of products supplied in one location. And he'll do the same thing again for his subsequent buy. So it can be concluded that consumers find it more convenient to shop at one location given the vast availability of numerous products, it can be argued that the product is a strategy for competing to draw customers away from going to other locations.

Product variety, according to (Kotler & Keller, 2016), is a distinct item within a brand or product line that may be distinguished based on size, price, look, or another feature. (Tjiptono, 2013) contends that product variations are appropriate if a corporation aims to use product flexibility as a weapon against other manufacturers, like regular products. The researcher draws the conclusion that product diversity is a broad range of products based on size, price, look, or other qualities as distinguishing components. This is based on the interpretation of these specialists.

H3: Product variety significantly affect customers satisfaction of e-commerce.

2.1.4 Shopping Safety

One of the biggest reasons why internet users don't make online purchases is security concerns. According to Udo in (Eri et al., 2011), security and privacy are closely related. Although firm decisions surrounding customer data are related to privacy, security is also taken into account by comparing consumer data in third groups (such as hackers and identity theft). According to (Salim et al., 2000) in (Eri et al., 2011), hackers will no longer only originate from within the firm but may also originate from the outside or from any other location and remain anonymous.

Anil notes that processing personal data is frequently necessary for online shopping activities in (Eri et al., 2011). As a result, privacy protection is crucial, and personal information must only be used for approved purposes.

Consumers are aware of how governments and now businesses use personal data, so privacy is not a new concern. Internet users also desire a sense of privacy protection. In order for internet commerce to grow, the government must also safeguard customer security and privacy (Yu & Abdulai, 2000).

H4: Shopping safety significantly affect customers satisfaction of e-commerce.

2.1.5 Customer Satisfaction

The sensation of pleasure or disappointment that a person experiences after comparing the performance (results) of the product they are thinking about with the performance (results) predicted, according to (Philip Kotler & Keller, 2007), is known as satisfaction. Customer satisfaction is a goal and a marketing technique for businesses with a consumer-centric emphasis. Tse and Wilton argue that customer satisfaction or discontent is the customer's reaction to the assessment of the apparent disparity between prior expectations and the product's actual performance in (Lupiyoadi & Hamdani, 2006). There is usually a difference in the degree of satisfaction among customers. Age, occupation, income, education, gender, social position, economic level, culture, mental attitude, and personality are just a few of the characteristics that contribute to this. The discrepancy between actual performance and expectations determines satisfaction level.

2.2 Conceptual Framework of the Study

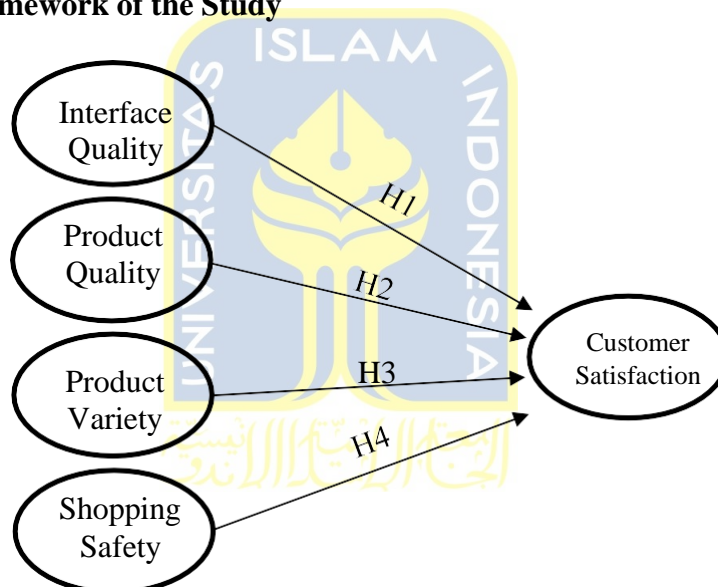


Figure 2. 1 Conceptual Framework

CHAPTER III

RESEARCH METHODOLOGY

3.1 Type of Study

This study's goal is to examine the theories, or what is commonly known as a causal investigation, which seeks to explain the origins of particular correlations. This study aims to determine the link and correlation between the interface quality, product quality, product variety, and shopping safety as an independent variable that have an effect towards customers satisfaction. A deeper knowledge of interface quality, product quality, product variety, and shopping safety in the context of customer satisfaction is anticipated as a result of this research. It will examine those variables, confirm their linkages, and examine those variables in more detail. This study adopted a quantitative methodology, using a Likert scale as an itemized rating scale to evaluate the data while disseminating a questionnaire as the research instrument.

3.2 Populations and Sample

Population, according to (Sugiyono, 2002), is a broad category made up of items or subjects with specific attributes and characteristics chosen by the researcher to be investigated before conclusions are drawn. The population in this research is people in Balikpapan who have used the service from Grab Application. There were 170 participants in the study's sample. The calculation of the sample size is based on the structural equation modeling (SEM) analytical methods that are used to test hypotheses. For each of the estimated parameters or indicators employed, SEM mandated that the sample size be 5–10 times the number of observations (Ferdinand, 2006).

3.3 Data Collections Method

In this study, both primary and secondary data were utilised. Primary data is information that has been directly retrieved from the subject of the investigation or from the object itself using measurement equipment. A questionnaire that was given to 170 respondents was used in this study to collect data. This method is a kind of data collection tool that is very adaptable and comparatively simple to use. Respondents will receive questionnaires via email (Google form). Secondary data, on the other hand, comes from books and earlier studies. The Likert scale was used to evaluate the questionnaire. Items on a 6-point Likert scale were used in this study, with 1 denoting Strongly Disagree and 6 denoting Strongly Agree. Because the researcher wanted to rule out any neutral responses from the respondents, she decided to utilize a 6-point Likert scale. The choices are as follows:

- a. Strongly Disagree (SD)
- b. Disagree (D)
- c. Rather Disagree (RD)
- d. Rather Agree (RA)
- e. Agree (A)
- f. Strongly Agree (SA)

3.4 Instrumentation

The respondents were given questionnaires by the researchers in order to collect primary data. To determine the relationship between interface quality, product quality, product variety, shopping safety, and customer's satisfaction, a questionnaire with 5 variables and 24 question items was created. All items are scored using six-likert ratings that range from Strongly Disagree (1) to Strongly Agree (6). Additionally, demographic factors including age and gender were incorporated into the model as control variables.

3.5 Definition of Operational and Measurement of Research Variable

In this study, four independent variables—interface quality, product quality, product variety, and shopping safety—were examined. A single dependent variable, customer satisfaction, was also examined. This variable was influenced by the four independent variables—interface quality, product quality, product variety, and shopping safety. These factors are measured using a 6-point Likert scale in this study, with 1 denoting Strongly Disagree and 6 denoting Very Agree.

3.5.1 Independent Variable

3.5.1.1 Interface Quality

Interface quality has a substantial relationship to customer satisfaction, according to research by (Ali et al., 2016). According to that research, (Xie et al., 2009) also claimed that features that satisfy user wants and highlight an application's unique selling point are the foundation for how customers judge the quality of the user interface. These indicators are used to gauge this variable:

- a) I feel comfortable with the user interface provided in Grab
- b) I feel it's easy to use the service from Grab
- c) The user interface in Grab is easy to understand
- d) The user interface in Grab is not confusing
- e) The user interface in Grab is presentable

3.5.1.2 Product Quality

(Lestari, 2015) and (DA Susanti, 2016) conducted studies that found a substantial association between product quality and customer satisfaction. According to (Kim & Choi, 2013), product quality has a significant impact on both the performance and customer satisfaction of the product. These indicators are used to gauge this variable:

- a) The product that provided by Grab service is reliable
- b) The product that provided by Grab service is functional
- c) The product that provided by Grab service is consistent
- d) The product that provided by Grab service is convenient
- e) The product that provided by Grab service is punctual

3.5.1.3 Product Variety

Deschamps (1999) explains product variety is the ability to create many product variations to meet any expected demand has quickly become one of the dominant success factors. These indicators are used to gauge this variable:

- a) The product that provided by Grab service has varied price point
- b) The product that provided by Grab service has varied utility
- c) The product that provided by Grab service has varied product
- d) The product that provided by Grab service has varied product availability
- e) The product that provided by Grab service offer what varied people needs

3.5.1.4 Shopping Safety

According to studies by (Noviarni, 2019) and (Ishak, 2012), customers' satisfaction with e-commerce shopping is impacted by security or shopping safety, particularly issues with payment processing and customer personal data. These indicators are used to gauge this variable:

- a) I feel safe while shopping with Grab
- b) Grab services are safe for online transaction
- c) Grab services can be trusted
- d) Grab services will not harm me in any means
- e) Grab services will not leak my personal data to third parties

3.5.2 Dependant Variable

3.5.2.1 Customer Satisfaction

(Zeithaml & Bitner, 2013) claim that perceptions of service quality and pricing, as well as situational and individual characteristics, all have an impact on customer satisfaction. The caliber of the items or products that are delivered to customers during the service delivery process has an impact on customer satisfaction as well. These indicators are used to gauge this variable:

- a) I would recommend Grab to my family
- b) I would recommend Grab to my friends
- c) I don't mind paying a little bit more to purchase from Grab
- d) I will continue using Grab in the future

3.6 Validity and Reliability Test of the Instrument

A measure's (indicator's) ability to accurately reflect the variable it measures is demonstrated by a validity test. If this indicator obtains an item with a correction value of less than 0.30, it is said to be genuine. Cronbach's Alpha tolerance of 0.60 has been used to confirm the reliability of the equipment.

As a result, before distributing the questionnaires to collect the data, the researchers first conducted a pilot test to assess the validity and reliability of the variables and indicators utilized in this research. To carry out a pilot test, researchers gave questionnaires to 50 responders. Regarding the restrictions mentioned above, the validity and reliability of the data collected from the respondents have been examined.

The number of statements in the questionnaire was evaluated as follows:

- a) Interface quality has five indicators
- b) Product quality has five indicators
- c) Product variety has five indicators
- d) Shopping safety has five indicators
- e) Customers satisfaction has four indicators

Table 3. 1 Validity and Reliability Test for Pilot Test

Variable	Measurement	R Counted	Cronbach Alpha	Minimal Score	Description
Interface Quality			.944	0.6	RELIABLE
	IQ1	.851		0.3	VALID
	IQ2	.810		0.3	VALID

Variable	Measurement	R Counted	Cronbach Alpha	Minimal Score	Description
	IQ3	.878		0.3	VALID
	IQ4	.834		0.3	VALID
	IQ5	.869		0.3	VALID
Product Quality			.867	0.6	RELIABLE
	PQ1	.758		0.3	VALID
	PQ2	.689		0.3	VALID
	PQ3	.702		0.3	VALID
	PQ4	.713		0.3	VALID
	PQ5	.621		0.3	VALID
Product Variety			.886	0.6	RELIABLE
	PV1	.620		0.3	VALID
	PV2	.720		0.3	VALID
	PV3	.799		0.3	VALID
	PV4	.783		0.3	VALID
	PV5	.709		0.3	VALID
Shopping Safety			.928	0.6	RELIABLE
	SS1	.839		0.3	VALID
	SS2	.831		0.3	VALID
	SS3	.835		0.3	VALID
	SS4	.870		0.3	VALID
	SS5	.701		0.3	VALID
Customers Satisfaction			.912	0.6	RELIABLE
	CS1	.843		0.3	VALID
	CS2	.851		0.3	VALID
	CS3	.747		0.3	VALID
	CS4	.777		0.3	VALID

Source: Primary Data (Computed), 2023

According to Table 3.1, the adjusted item values for the overall correlation of all the data are larger than 0.30, and the Cronbach Alpha values are likewise higher than 0.6. The data's validity and dependability can be inferred.

3.7 Analysis Technique

Given that the conceptual model for this study consists of three independent variables, two mediating factors, and one dependent variable, structural equation modeling (SEM) was chosen as the technical analysis. With the use of SEM analysis, you can examine the impacts of numerous factors at once (Ghozali & Chariri, 2008). The relationship between service quality, food quality, physical environment quality, customer experience quality, satisfaction, and customer loyalty was therefore examined using this method. Additionally, the analysis was carried out in two parts. Conducting the pilot test is the first stage. As was already said, researchers must carry out the pilot test to determine the accuracy and reliability of the variables and measures used in the questionnaire. The findings of 50 data points are analyzed using SPSS (Statistical Package for Social Sciences). The second phase involves testing hypotheses, analyzing model fitness, and testing normalcy and outliers. In this instance, the researcher made use of AMOS software version 22.0's SEM analysis.

Analysis of Moment Structures (AMOS) is a common approach to data analysis in Structural Equation Modeling (SEM). By utilizing AMOS, the analysis can quickly determine, visualize, and modify models using simple tools. AMOS is capable of assessing model fit, making modifications, and printing the models. Some of the advantages of AMOS include the ability to handle missing data effectively, conduct analyses using data from multiple populations, and provide a clear understanding of path diagrams as model specifications, displaying graphical estimates within the path diagram model.

3.7.1 Respondents Characteristic

This section of the study describes the respondents' demographic makeup. Gender, age, educational background, and monthly expenses are all explained by the demographic variables.

3.7.2 Descriptive Analysis

A concise explanation that describes a set of facts that can represent the complete population or a sample is known as a descriptive analysis. This is done to determine and explain the typical replies to each question and set of indicators.

3.7.3 Model Development on Theory

3.7.3.1 Normality Test

Data processing for SEM modeling requires that the normality of the data be satisfied. The Critical Ratio (CR) of the data used is used to test for multivariate normality; if the CR data values fall within the range of 2.58, the study data can be

regarded as normal.

3.7.3.2 Outlier Test

Outliers are results or observations that stand out from the rest due to particular traits. They might take the form of extreme values for a single variable or a set of variables. Using a study of multivariate outliers based on Mahalanobis Distance values, the outliers can be assessed.

3.7.3.3 Confirmatory Analysis or Goodness of Fit Criteria

Concepts that are constructed utilizing a number of quantifiable indicators are tested using confirmatory analysis. Each indicator's loading factor value is displayed in the first confirmatory analysis. A questionnaire is said to be valid if the questions on the questionnaire are able to reveal anything that is measured by the questionnaire. The loading factor can be used to measure the construct validity. The smallest number of factors loading, or optimal number, is 0.5, according to (Hair Jr et al., 2010). Any figure that is still below 0.5 will be eliminated from further consideration.

a) Chi-Square (χ^2)

The most important measurement method for evaluating the overall version is chi-square statistics. To put it another way, the chi-square statistic is suitable for testing hypotheses and assessing the importance of structural equation modeling. The fitted model covariance matrix and the pattern covariance matrix can differ, as seen by the chi-square value. However, the data should meet the requirements of normality and have a large sample size for the chi-square result to be considered valid. Additionally, chi-square is employed to determine whether the version is good or bad. If the chi-square value is low, the model is regarded favorably. To put it another way, the smaller the value of χ^2 , the better the model is because of $\chi^2 = 0$.

b) CMIN/DF

c) The minimum pattern discrepancy function, or CMIN/DF, is a function that is divided by the degree of freedom. This index, which assesses the link between the goodness of fit model and the number of estimated coefficients that are anticipated to reach a degree of conformity, is known as a sparse conformity index. If the cost of CMIN/DF is less than ≤ 2.00 , which shows model and data acceptance, it may be regarded

as a good suit.

d) Goodness of Fit Index (GFI)

The Goodness of Fit Index (GFI) is a technique used to assess how well a model generated the discovered covariance matrix. These degrees range from zero to one, and as sample sizes increase, their value increases. For the GFI, a cut-off cost of 0.90 has historically been advised. However, according to Miles and Shevlin (cited in Hooper, Coughlan, and Mullen, 2008), simulation studies has shown that a better cut-off of 0.95 is more appropriate when item loadings and sample sizes are low. Absolute fit indices, incremental fit indices, and parsimony fit indices are the three categories of criteria that (Hair et al., 1998) used to classify GOFI (Goodness of Fit Index) criteria. In total, there are 25 criteria for the three categories of GOFIs, however according to Hair Jr et al. (2010), just 4-5 criteria are necessary for the SEM-Amos analysis as long as they include criteria from each of the three types of GOFIs.

Two criteria from each type of GOFI were used in this work, namely CMINDF and RMSEA for absolute fit indices, CFI and TLI for incremental fit indices, and PGFI and PNFI for parsimony fit indices.

e) Root Mean Square Error of Approximation (RMSEA)

One of the most illuminating shape indicators is the RMSEA. According to Byrne (cited in Hooper et al., 2008), the RMSEA provides an approximate indication of how well the version is performing while using unidentified but carefully selected parameter estimates that could maintain the covariance matrix of the populations. The following criteria can be used to classify the standard value of RMSEA:

1. If $RMSEA \leq 0.05$, it is considered as close fit.
2. If $0.05 < RMSEA \leq 0.08$, it is considered as good fit.
3. If $0.08 < RMSEA \leq 0.10$, it is considered as mediocre fit.
4. If $RMSEA > 0.10$, it is considered as a poor fit.

f) Adjusted Goodness of Fit Index (AGFI)

(Schermelleh-Engel et al., 2003) claim that AGFI is a tool to change the perception of the model's complexity based on levels of freedom, with more saturated fashions diminishing fit. The range of the AGFI value is 0 to 1. If the index is 0.90, which implies well-fitting models, the model is said to

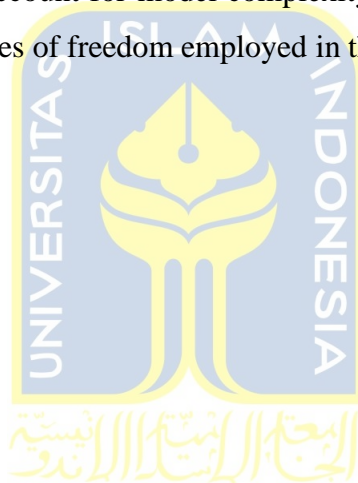
be well-fit. The figure this is larger than 0.85 may be regarded as an acceptable in fit, on the other hand.

g) Tucker Lewis Index (TLI)

The aspect analysis that has been created in SEM is evaluated using the TLI, an incremental fit index. This scale ranges from 0 to 1. If the index is equal to or greater than 0.90, TLI is considered to be well-fitted. A better fit for the model was indicated by a higher TLI value.

h) Comparative Fit Index (CFI)

CFI compares the compatibility of one model with the data against other models using the same data. The relative goodness-of-fit is thus captured by this type of statistic index. Large numbers and CFI levels between 0.0 and 1.0 are preferable. In contrast to other indices, the CFI makes an effort to account for model complexity by directly incorporating factors like the degrees of freedom employed in the model into the calculation.



CHAPTER IV DATA ANALYSIS AND DISCUSSIONS

4.1 Statistics Descriptive

In this section, an explanation is provided regarding the descriptive data of the respondents obtained from the survey results. Descriptive statistics are presented with the aim of examining the data profile of the study and assessing its relationship with the variables used in this research.

4.1.1 Respondents' Classification Based on Gender

The author grouped the respondents based on their gender. In the table below, the frequency and percentage of each gender category are presented.

Table 4. 1 Respondents based on gender

No	Gender	Number (Person)	Percentage
1	Male	98	57,6%
2	Female	72	42,4%
Total		170	100%

Source: Primary Data (Computed), 2023

From Table 4.1, it can be observed that the majority of respondents in this study are male, accounting for 57.6% or a total of 98 individuals. On the other hand, the number of female respondents in this study is 72 individuals, approximately 42.4%. This indicates a difference of approximately 15% between the number of male and female respondents. Additionally, Table 4.1 also suggests that the majority of Grab application users are male.

4.1.2 Respondents' Classification Based on Age

In this study, the respondents have been classified based on age ranges as follows:

Table 4. 2 Respondents based on age

No	Age (Year)	Number (Person)	Percentage
1	16 – 20	39	22,9%
2	21 – 25	79	46,5%
3	26 – 30	30	17,6%
4	>30	22	12,9%
Total		170	100%

Source: Primary Data (Computed), 2023

Based on Table 4.2, it can be observed that in this study, the respondents have been classified based on age ranges. A total of 22.9% of the respondents are aged between 16 and 20 years. 46.5% of the respondents are aged between 21 and 25 years. 17.6% of the respondents are aged between 26 and 30 years, and only about 12.9% of the respondents are above 30 years old. With a total of 79 respondents, or 46.5% of the total respondents, it can therefore be said that the bulk of study participants are between the ages of 21 and 25. However, only 22 responders, or 12.9% of the total, are over the age of 30, which is the lowest percentage.

4.1.3 Respondents' Classification Based on Educational Background

The respondents in this survey have been categorized in the following categories based on their educational backgrounds:

Table 4. 3 Respondents based on educational background

No	Education	Number (Person)	Percentage
1	High School	32	18,8%
2	Undergraduate	91	53,5%
3	Postgraduate	25	14,7%
4	Others	22	12,9%
Total		170	100%

Source: Primary Data (Computed), 2023

Based on Table 4.3, it can be observed that in this study, the respondents have been classified based on their educational background. A total of 18.8% of the respondents have a high school education. 53.5% of the respondents are undergraduates. 14.7% of the respondents have a postgraduate education. Meanwhile, only about 12.9% of the respondents fall into the "others" category. Therefore, it can be concluded that the majority of respondents in this study are undergraduates, totaling 91 respondents or 53.5% of the overall respondents. Meanwhile, only 12.9% of the total respondents, which is 22 individuals, fall into the "others" category, representing the smallest percentage.

4.1.4 Respondents' Classification Based on Job Types

The respondents in this survey have been divided into the following categories based on their jobs:

Table 4. 4 Respondents based on Job

No	Job	Number (Person)	Percentage
1	Student	71	41,8%
2	PNS/ TNI/ Polri	9	5,3%
3	Employee	52	30,6%
4	Enterpreneur	28	16,5%
5	Other	10	5,9%
Total		170	100

Source: Primary Data (Computed), 2023

Based on the data presented in Table 4.4, it can be seen that the majority of respondents in this study are students, with a total of 71 respondents or 41.8% of the overall respondents. On the other hand, the smallest number of respondents belongs to the category of Civil Servants/Military/Police (PNS/TNI/POLRI), consisting of only 9 individuals or approximately 5.3% of the total respondents. From this data, it can be inferred that the majority of Grab application users are students.

4.1.5 Respondents' Classification Based on Monthly Expenses

The respondents in this survey have been divided into the following categories based on their monthly expenses:

Table 4. 5 Respondents based on monthly expenses

No	Monthly Expenses	Number (Person)	Percentage
1	< 3,000,000	83	48,8%
2	3,000,000 – 5,000,000	77	45,3%
3	> 5,000,000	10	5,9%
Total		170	100%

Source: Primary Data (Computed), 2023

According to Table 4.5, it is clear that the majority of study participants spend less than Rp3,000,000 per month. Additionally, the responders that spend more than Rp5,000,000 each month have the lowest percentage.

4.2 Descriptive Analysis

Descriptive analysis was used in this study to give a brief description of the average score value used to determine the respondents' evaluation criteria. The following formula can be used to calculate the average score value interval.

Lowest perception score = 1

Highest perception score = 6

With the detail interval as follows:

1.00	= Strongly Disagree	4.00	= Rather Agree
2.00	= Disagree	5.00	= Agree
3.00	= Rather Disagree	6.00	= Strongly Agree

4.2.1 Interface Quality

The table below, Table 4.6, presents the results of the descriptive analysis regarding interface quality.

Table 4. 6 Descriptive Analysis of Interface Quality

Attributes of Interface Quality	Mean	Category
I feel comfortable with the user interface provided in Grab	4.6765	Agree
I feel it's easy to use the service from Grab	4.8235	Agree
The user interface in Grab is easy to understand	4.6647	Agree
The user interface in Grab is not confusing	4.5353	Agree
The user interface in Grab is presentable	4.6471	Agree

Source: Primary Data (Computed), 2023

According to Table 4.6, the second indicator—"I feel it's easy to use the service from Grab"—had the highest mean with a value of 4.82 and was classified as being into the "Agree" category. The fourth criteria, "The user interface in Grab is not confusing," had the lowest mean and was rated as "Agree" with a value of 4.53.

According to the aforementioned data, the average rating for interface quality indicators among 170 respondents who used the Grab application was 4.669. In light of this, the outcome showed that respondents' perception of interface quality was "Agree".

4.2.2 Product Quality

Results of the descriptive analysis on product quality are shown in Table 4.7 below.

Table 4. 7 Descriptive Analysis of Product Quality

Attributes of Product Quality	Mean	Category
The product that provided by Grab service is reliable	4.4529	Rather Agree
The product that provided by Grab service is functional	4.6294	Agree
The product that provided by Grab service is consistent	4.5412	Agree
The product that provided by Grab service is convenient	4.6294	Agree
The product that provided by Grab service is punctual	4.2706	Rather Agree

Source: Primary Data (Computed), 2023

According to Table 4.7, the second and fourth indicators of product quality—"The product that is provided by Grab service is functional" and "The product that is provided by Grab service is convenient"—had the highest means and were classified as "Agree" categories. These indicators had a mean value of 4.62 each. The fifth criteria, "The product that is provided by Grab service is punctual," had the lowest mean and was rated as "Rather Agree" with a value of 4.27.

According to the aforementioned data, the average rating for product quality indicators among 170 respondents who used the Grab application was 4.5. In light of this, the outcome showed that respondents' perception of product quality was "Agree".

4.2.3 Product Variety

The table below, Table 4.8, presents the results of the descriptive analysis regarding product variety.

Table 4. 8 Descriptive Analysis of Product Variety

Attributes of Product Variety	Mean	Category
The product that provided by Grab service has varied price point	4.7353	Agree
The product that provided by Grab service has varied utility	4.6706	Agree
The product that provided by Grab service has varied product	4.7176	Agree
The product that provided by Grab service has varied product availability	4.7882	Agree
The product that provided by Grab service offer what varied people needs	4.6882	Agree

Source: Primary Data (Computed), 2023

According to Table 4.8, the fourth indicator—"The product that is provided by Grab service has varied product availability"—had the highest mean with a value of 4.78 and was classified as falling under the "Agree" group. The second indication, "The product that is provided by Grab service has varied utility," had the lowest mean and was classified as "Agree" with a value of 4.67.

According to the aforementioned data, the average rating for product variety indicators among 170 respondents who used the Grab application was 4.72. As a result, the outcome showed that respondents had a "Agree" attitude regarding product variety.

4.2.4 Shopping Safety

The table below, Table 4.9, presents the results of the descriptive analysis

regarding shopping safety.

Table 4. 9 Descriptive Analysis of Shopping Safety

Attributes of Shopping Variety	Mean	Category
I feel safe while shopping with Grab	4.5941	Agree
Grab services are safe for online transaction	4.6235	Agree
Grab services can be trusted	4.6706	Agree
Grab services will not harm me in any means	4.5882	Agree
Grab services will not leak my personal data to third parties	4.4824	Rather Agree

Source: Primary Data (Computed), 2023

According to Table 4.9, the third indicator—"Grab services can be trusted"—had the highest mean with a value of 4.67 and was classified as falling under the "Agree" category. The sixth criteria, "Grab services will not leak my personal data to third parties," had the lowest mean and was rated as "Rather Agree" with a value of 4.48.

According to the aforementioned data, the average rating for shopping safety indicators among 170 respondents who used the Grab application was 4.59. As a result, the survey's conclusion revealed that "Agree" was the respondents' overall opinion of shopping safety.

4.2.5 Customer Satisfaction

The results of the descriptive study about customer satisfaction are shown in the table below, Table 4.10.

Table 4. 10 Descriptive Analysis of Customer Satisfaction

Attributes of Customer Satisfaction	Mean	Category
I would recommend Grab to my family	4.2824	Rather Agree
I would recommend Grab to my friends	4.6647	Agree
I don't mind paying a little bit more to purchase from Grab	4.3647	Rather Agree
I will continue using Grab in the future	4.6059	Agree

Source: Primary Data (Computed), 2023

According to Table 4.10, the second indicator—"I would recommend Grab to my friends"—had the highest mean and was classified as being under the "Agree" group. It had a value of 4.66. The first indicator, "I would recommend Grab to my family," had the lowest mean and was classified as "Rather Agree" with a value of 4.28.

According to the aforementioned data, the average rating for customer

satisfaction indicators among 170 respondents who used the Grab application was 4.47. As a result, the survey's findings showed that respondents "Rather Agree" about customer satisfaction.

4.3 Structural Equation Model (SEM) Analysis

4.3.1 Development Model Based on Theory

This study builds upon the concept of data analysis discussed in Chapter II to develop a model. The model primarily includes exogenous variables, namely Interface Quality (IQ), Product Quality (PQ), Product Variety (PV) and Shopping Safety (SS). The endogenous variable examined in this research is Customer Satisfaction (CS). Here is a summary of the developed models.

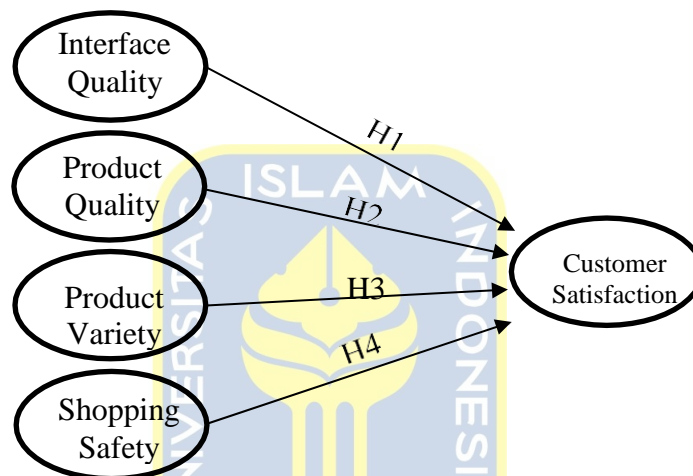


Figure 4. 1 Research Framework

4.3.2 Diagram Flow and Structural Equation

The next step entails creating structural equations and defining causal linkages using a path diagram. It is necessary to complete two tasks: first, structuring the structural model by connecting endogenous and exogenous latent constructs; and second, establishing the model by connecting the endogenous and exogenous latent constructs with indicator or manifest variables.

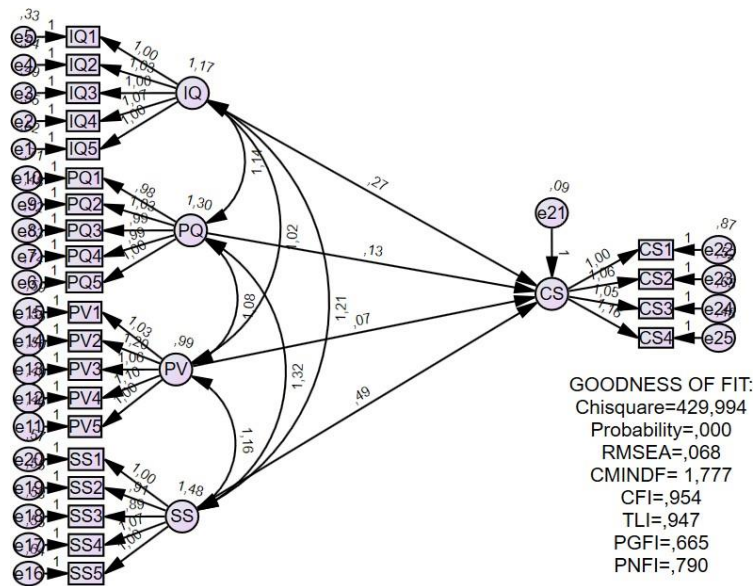


Figure 4. 2 Structural Diagrams

4.3.3 Normality Test

When the data's normality assumption is satisfied, additional processing of the data for SEM (Structural Equation Modeling) is possible. By looking at the Critical Ratio (CR) values of the data under examination, multivariate normality is evaluated. If the CR values fall within the range of 2.58 the data can be considered regularly distributed. The data used in this investigation were assessed for normalcy in the table below.

Table 4. 11 Normality Test Result

Variable	Min	Max	Skew	C.R.	Kurtosis	C.R.
CS4	1	6	-1,153	-6,139	0,536	1,426
CS3	1	6	-0,808	-4,299	-0,131	-0,349
CS2	1	6	-1,033	-5,501	0,404	1,076
CS1	1	6	-0,952	-5,07	0,144	0,384
SS1	1	6	-1,148	-6,11	0,493	1,313
SS2	1	6	-1,336	-7,11	1,288	3,429
SS3	1	6	-1,261	-6,712	1,169	3,112
SS4	1	6	-1,213	-6,457	0,576	1,532
SS5	1	6	-0,988	-5,261	0,204	0,543
PV1	1	6	-1,323	-7,043	1,494	3,977
PV2	1	6	-1,428	-7,6	1,51	4,018
PV3	1	6	-1,27	-6,762	1,358	3,614
PV4	1	6	-1,346	-7,163	1,557	4,143

Variable	Min	Max	Skew	C.R.	Kurtosis	C.R.
PV5	1	6	-1,244	-6,624	1,816	4,834
PQ1	1	6	-1,028	-5,475	0,404	1,076
PQ2	1	6	-1,363	-7,256	1,183	3,15
PQ3	1	6	-1,208	-6,432	1,165	3,1
PQ4	1	6	-1,393	-7,416	1,231	3,277
PQ5	1	6	-0,819	-4,359	0,122	0,325
IQ1	1	6	-1,163	-6,188	1,091	2,904
IQ2	1	6	-1,721	-9,16	2,449	6,517
IQ3	1	6	-1,055	-5,617	0,591	1,572
IQ4	1	6	-1,116	-5,94	0,785	2,089
IQ5	1	6	-1,332	-7,088	1,244	3,311
Multivariate					104,919	19,362

Source: Primary Data (Computed), 2023

The multivariate CR value is still over 2.58, precisely at 19.362, which indicates that the data is not normally distributed, according to the supplied table. It is required to locate and eliminate responder data that contains outliers in order to create a normal distribution. The Mahalanobis Distance table is used to identify outlier responder data. A normality test was performed following the removal of many outlier data from the analysis, with the following outcomes.

Table 4. 12 Modified Normality Test Result

Variable	Min	Max	Skew	C.R.	Kurtosis	C.R.
CS4	1	6	-1,482	-3,827	1,905	2,46
CS3	1	6	-1,377	-3,555	1,79	2,31
CS2	1	6	-1,236	-3,191	1,251	1,615
CS1	1	6	-0,95	-2,453	0,528	0,681
SS1	1	6	-1,963	-5,069	3,863	4,987
SS2	2	6	-1,585	-4,093	2,192	2,829
SS3	1	6	-1,866	-4,817	3,389	4,375
SS4	1	6	-1,721	-4,444	3,008	3,884
SS5	1	6	-1,723	-4,448	3,076	3,971
PV1	1	6	-1,965	-5,073	3,716	4,797

PV2	1	6	-1,699	-4,386	2,675	3,453
PV3	2	6	-1,501	-3,876	1,816	2,344
PV4	1	6	-1,888	-4,874	3,306	4,268
PV5	1	6	-1,973	-5,094	3,693	4,768
PQ1	1	6	-1,909	-4,93	3,794	4,898
PQ2	2	6	-1,369	-3,536	1,583	2,044
PQ3	1	6	-1,673	-4,32	2,809	3,626
PQ4	2	6	-1,521	-3,926	1,812	2,339
PQ5	1	6	-1,031	-2,663	1,383	1,786
IQ1	1	6	-1,839	-4,749	3,63	4,687
IQ2	1	6	-1,831	-4,727	3,297	4,257
IQ3	1	6	-1,965	-5,073	3,716	4,797
IQ4	1	6	-1,909	-4,93	3,794	4,898
IQ5	1	6	-1,627	-4,202	2,669	3,445
Multivariate					81,892	7,33

Source: Primary Data (Computed), 2023

The multivariate CR value was found to be 7,33 after the subsequent normality test, which was below 10,000 but still over 2.58. Data having a multivariate CR value less than 10,000 can still be regarded as normally distributed, according to Ghozali (2006). As a result, the data in this study can be examined using structural equation modeling (SEM).

4.3.4 Outliers Test

Outliers are characterized by extreme values for both individual variables and combinations of variables, and they differ dramatically from the rest of the data. Through the use of Mahalanobis Distance values and multivariate outlier analysis, outliers can be found.

$X^2(24; 0.001) = 51,179$ was the result of computing the Mahalanobis Distance test using the chi-square value with 24 degrees of freedom at a significance threshold of $p < 0.001$. The following table contains the findings of the multivariate outlier analysis.

Table 4. 13 Outliers Test Result

Observation number	Mahalanobis d-squared	p1	p2
35	39	0,027	0,67

Observation number	Mahalanobis d-squared	p1	p2
32	35,153	0,066	0,752
6	33,463	0,095	0,743
13	32,759	0,109	0,649
40	32,759	0,109	0,447
34	32,415	0,117	0,325
37	32,4	0,117	0,183
25	32,4	0,117	0,09
12	31,912	0,129	0,066
33	31,132	0,15	0,067
26	30,812	0,159	0,044
36	30,085	0,182	0,048
14	29,966	0,186	0,025
38	29,902	0,188	0,011
27	29,738	0,194	0,006
39	29,698	0,195	0,002
18	29,605	0,198	0,001
31	29,466	0,203	0
19	28,166	0,253	0,002
20	28,055	0,258	0,001
7	27,64	0,276	0,001
1	27,621	0,276	0
30	26,414	0,333	0,001
2	26,042	0,351	0,001
17	26,025	0,352	0
28	24,542	0,431	0,004
10	23,987	0,462	0,005
8	22,346	0,559	0,049
16	20,545	0,665	0,268
15	20,425	0,672	0,191

Observation number	Mahalanobis d-squared	p1	p2
11	19,258	0,738	0,373
3	17,278	0,837	0,804
21	12,31	0,976	1
5	7,122	1	1
9	7,122	1	1
4	4,487	1	1
22	4,487	1	1
23	4,487	1	1
24	4,487	1	1
29	4,487	1	1

Source: Primary Data (Computed), 2023

Table 4.14 illustrates the outcomes of the conducted outlier test, revealing that none of the values exceed 51,179. Hence, it can be inferred that there are no outlier data points within the dataset.

4.3.5 Confirmatory Test Result

The validity test in this study utilizes Confirmatory Factor Analysis (CFA). CFA is employed to assess the unidimensional validity and reliability of the measurement model for constructs that cannot be directly measured. CFA serves two main purposes: to measure the indicators that are conceptually unidimensional accurately and consistently, and to identify the indicators that predominantly form the construct under investigation. By examining the correlations between each variable, both exogenous and endogenous variables, this can be observed through the loading factors of each indicator. If the loading factor is above 0.5, it is considered valid.

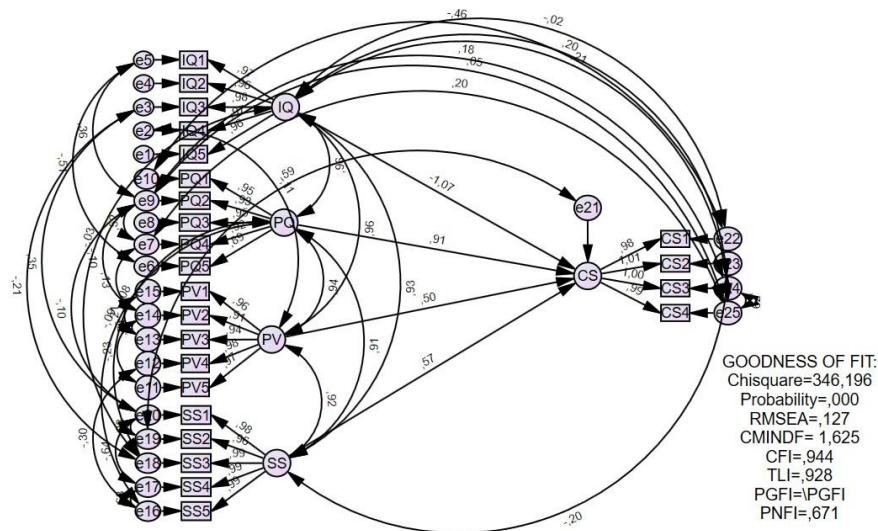


Figure 4. 3 Confirmatory Analysis Model

The loading factor values obtained are as follows:

Table 4. 14 Loading Factors Result

Variable	Indicator	Loading Factors
Interface Quality	IQ5	0,963
	IQ4	0,968
	IQ3	0,983
	IQ2	0,963
	IQ1	0,971
Product Quality	PQ5	0,891
	PQ4	0,924
	PQ3	0,951
	PQ2	0,93
	PQ1	0,95
Product Variety	PV5	0,968
	PV4	0,981
	PV3	0,937
	PV2	0,914
	PV1	0,956
Shopping Safety	SS5	0,985
	SS4	0,991
	SS3	0,995

Variable	Indicator	Loading Factors
	SS2	0,963
	SS1	0,984
Customer Satisfaction	CS1	0,983
	CS2	1,007
	CS3	0,998
	CS4	0,989

Source: Primary Data (Computed), 2023

The analysis results indicate that all indicators have loading factor values of 0.5 or higher, suggesting that all indicators in this research are valid. Moving forward, a confirmatory analysis goodness of fit test was conducted, yielding the following results:

Table 4. 15 Goodness of Fit Result

Fit Index	GOF	Criteria	Cut-off value	Description
Absolute Fit	Chi-square	Expected Little	346,196	Marginal Fit
	Probability	≥ 0.05	,000	Poor Fit
	RMSEA	≤ 0.08	,127	Poor Fit
	CMINDF	$\leq 2,00$	1,625	Fit
Incremental Fit	TLI	≥ 0.90	,928	Fit
	CFI	≥ 0.90	,944	Fit
Parsimony Fit	PGFI	≥ 0.60	\PGFI	Poor Fit
	PNFI	≥ 0.60	,671	Fit

Source: Primary Data (Computed), 2023

The goodness-of-fit test results show that all of the requirements for determining goodness-of-fit are met, supporting the notion that the model employed in this study is a good fit.

4.3.6 Reliability Test

In assessing the reliability of a measuring instrument, it is preferable to have a higher reliability coefficient, closer to 1, as the range of the coefficient is between 0 and 1. A constructive reliability value greater than 0.7 and an extracted variance value exceeding 0.5 are considered indicators of good constructive reliability.

The formula used to calculate construct reliability is as follows:

$$\text{Construct Reliability} = \frac{(\sum \text{loading baku})^2}{(\sum \text{loading baku})^2 + \sum ef}$$

On the other hand, the formula used to calculate extracted variance is as follows:

$$\text{Variance Extracted} = \frac{\sum(\text{loading baku})^2}{\sum(\text{loading baku})^2 + \sum ej}$$

Based on the calculations conducted using the aforementioned formulas, the following results were obtained:

Table 4. 16 Reliability Test Result

Variable	Indicator	Loading Factors	Loading Factors ²	Measurement Error	CR	VE
Interface Quality	IQ5	0,963	0,927369	0,072631	0,99	0,94
	IQ4	0,968	0,937024	0,062976		
	IQ3	0,983	0,966289	0,033711		
	IQ2	0,963	0,927369	0,072631		
	IQ1	0,971	0,942841	0,057159		
Product Quality	PQ5	0,891	0,793881	0,206119	0,97	0,86
	PQ4	0,924	0,853776	0,146224		
	PQ3	0,951	0,904401	0,095599		
	PQ2	0,93	0,8649	0,1351		
	PQ1	0,95	0,9025	0,0975		
Product Variety	PV5	0,968	0,937024	0,062976	0,98	0,91
	PV4	0,981	0,962361	0,037639		
	PV3	0,937	0,877969	0,122031		
	PV2	0,914	0,835396	0,164604		
	PV1	0,956	0,913936	0,086064		
Shopping Safety	SS5	0,985	0,970225	0,029775	0,99	0,97
	SS4	0,991	0,982081	0,017919		
	SS3	0,995	0,990025	0,009975		
	SS2	0,963	0,927369	0,072631		
	SS1	0,984	0,968256	0,031744		
Customer Satisfaction	CS1	0,983	0,966289	0,033711	1	0,99
	CS2	1,007	1,014049	-0,01405		
	CS3	0,998	0,996004	0,003996		

Variable	Indicator	Loading Factors	Loading Factors ²	Measurement Error	CR	VE
	CS4	0,989	0,978121	0,021879		

Source: Primary Data (Computed), 2023

It is clear from table 4.17 that all variables have constructive reliability values of less than 0.7. Additionally, the extracted variance for each variable is greater than 0.5. As a result, it can be said that the research's questionnaire has a satisfactory level of reliability.

4.4 Model Modification and Complete Goodness

In the initial goodness of fit test of the model, it was found that three goodness of fit index criteria did not meet the cut-off values, namely probability, RMSEA, and PGFI. AMOS calculations provide a solution for model re-specification if the tested model does not meet the recommended minimum values. Re-specification can be done by examining the AMOS output for modification indices (MI).

This research went through five stages of model re-specification, with each stage involving correlations between latent/indicator/error variables at the highest MI values or removing latent/indicator/error variables that appeared frequently. The following are the stages of model re-specification in this study:

- 1) During the process of examining the modification indices in the AMOS output, 15 relationships with the highest MI values were selected.
- 2) The model re-specification was carried out by correlating or connecting 9 relationships with the highest MI values.
- 3) Next, the model underwent another re-specification by correlating or connecting 9 relationships with the highest MI values.
- 4) Afterwards, a re-specification was conducted by removing 12 variables/indicators/errors that appeared frequently.
- 5) Further, an additional 10 variables/indicators/errors that appeared frequently were removed. As a result of these re-specification steps, the final outcome showed that the values of probability, RMSEA, and PGFI met the specified cut-off values.

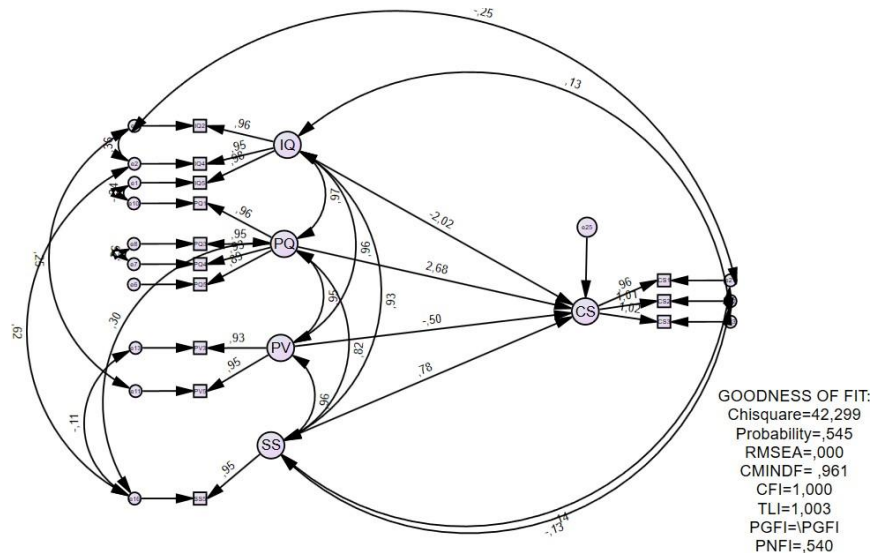


Figure 4. 4 Final Research Model

The comprehensive analysis of the Goodness of Fit model test has revealed that all the specified criteria have been satisfied in the following manner:

Table 4. 17 Complete Goodness of Fit Model

Fit Index	Goodness of Fit	Criteria	Cut-off value	Description
Absolute Fit	Chi-square	Expected Little	42,299	Marginal Fit
	Probability	≥ 0.05	,545	Fit
	RMSEA	≤ 0.08	,000	Fit
	CMINDF	$\leq 2,00$,961	Fit
Incremental Fit	TLI	≥ 0.90	1,003	Fit
	CFI	≥ 0.90	1,000	Fit

Source: Primary Data (Computed), 2023

4.5 Hypothesis Testing

An extensive analysis employing a complete model Structural Equation Model (SEM) analysis was carried out to investigate the theories put forth in this study. Following is a presentation of the study's regression weight test results:

Table 4. 18 Data of Hypothesis Testing

Hypothesis	Estimate	S.E.	C.R.	P	Result
H1 CS <--- IQ	-2,17	0,959	-2,263	0,024	Significant
H2 CS <--- PQ	2,964	1,469	2,018	0,044	Significant
H3 CS <--- PV	-0,519	0,964	-0,539	0,59	Not Significant

Hypothesis				Estimate	S.E.	C.R.	P	Result
H4	CS	<---	SS	0,874	0,437	1,998	0,046	Significant

Source: Primary Data (Computed), 2023

In order to determine the acceptance or rejection of the hypotheses, the Critical Ratio (CR) and probability value (P) from the data processing results are examined. The proposed research hypothesis is accepted if the CR value is higher than 1.96 and the P value is less than 0.05/5%. In accordance with the proposed hypotheses, the research hypothesis testing will be covered in stages. In this study, five hypotheses were proposed and the detailed discussion is presented as follows:

a. H1: IQ significantly affects CS

Based on the data processing, the CR value is -2,263 and the P value is ,024. These results indicate that the CR value is above 1.96 and the P value is below 0.05. Therefore, it can be concluded that IQ has a significant effect on CS and thus, Hypothesis 1 is accepted.

b. H2: PQ significantly affects CS

Based on the data processing, the CR value is 2,018 and the P value is ,044. These results indicate that the CR value is above 1.96 and the P value is below 0.05. Therefore, it can be concluded that PQ has a significant effect on CS, and thus, Hypothesis 2 is accepted.

c. H3: PV not significantly affects CS

Based on the data processing, the CR value is -0,539 and the P value is 0,59. These results indicate that the CR value is below 1.96 and the P value is above 0.05. Therefore, it can be concluded that PV has not a significant effect on CS, and thus, Hypothesis 3 is not accepted.

d. H4: SS significantly affects CS

The data processing results in a CR value of 1,998 and a P value of 0,046. These findings show that the P value is less than 0.05 and the CR value is over 1.96. As a result, it can be said that SS significantly affects CS, and Hypothesis 4 is therefore accepted.

4.6 Result Discussions

4.6.1 The Influence of Interface Quality to Customer Satisfaction

According to the study of the research, interface quality has a favorable and significant influence on users' happiness with the Grab app. The strong impact of interface quality on customer satisfaction is supported by data processing. The P-value of 0.024 and the CR value of -2.263 show that the P-value is less than 0.05 and the CR value is greater than 1.96. Thus, it can be said that interface quality has a big impact on user happiness.

In their conceptual model of the customer experience, (Verhoef et al., 2009) highlighted a number of factors that affect the quality of the consumer experience, such as the social environment, service interface, retail environment, variety, price, and promotion. This article makes the suggestion that one of the factors affecting customer satisfaction is the result of interface quality.

Grab, as Indonesia's leading ride-hailing platform, has recognized the importance of providing a user-friendly and efficient interface to enhance the customer experience. By offering an intuitive and well-designed interface, Grab ensures that users can easily book rides, track drivers in real-time, and make seamless payments (Fitriana & Susanti, 2022). The positive impact of a high-quality interface has led to increased customer satisfaction and strengthened Grab's position as a preferred choice for transportation services in Indonesia.

4.6.2 The Influence of Product Quality to Customer Satisfaction

According to the research's findings, client happiness with the Grab app is positively and significantly impacted by product quality. Data analysis showing a CR value of 2.018 and a P-value of 0.044 supports this. According to these statistical findings, the CR value exceeds 1.96 and the P-value is less than 0.05. Thus, it can be said that consumer satisfaction is highly influenced by product quality.

The study of methods to raise consumer happiness through bettering food, service, and product quality has received very little attention (Al-Tit, 2015). This is a problem for the sector.

As one of the leading ride-hailing platforms in the country, Grab has recognized that good product quality plays a crucial role in creating a satisfying experience for its customers (Paradigma & Sambara, 2019). By providing reliable, safe, and high-quality services, Grab has successfully enhanced customer satisfaction and built strong trust among its users. The focus on product quality has helped Grab maintain its position as the top choice for customers in meeting their transportation needs in Indonesia.

4.6.3 The Influence of Product Variety to Customer Satisfaction

The research analysis has revealed that product variety has a non-significant negative impact on customer satisfaction in the Grab application. Data processing provides substantial evidence that product variety insignificantly affects customer satisfaction. This is evident from the CR value of -0.539 and the P-value of 0.059. The statistical results indicate that the CR value is below 1.96, while the P-value exceeds

0.05. Therefore, it can be concluded that product variety does not have a significant influence on customer satisfaction.

Social relationships are greatly influenced by the physical environment. In other words, customers are more likely to feel content, emotionally fulfilled, and loyal to a place when they interact with the physical elements and positive interactions inside it (Bitner, 1992).

The influence of product variety on customer satisfaction for Grab in Indonesia is not considered significant. Despite offering a diverse range of services, including ride-hailing, food delivery, and logistics, the impact on customer satisfaction is not prominent. Other factors such as service quality, pricing, and overall user experience appear to play a more dominant role in shaping customer satisfaction levels (Wibawa et al., 2022). While product variety may provide some options, it does not have a substantial effect on the overall satisfaction of Grab's customers in the Indonesian market.

4.6.4 The Influence of Shopping Safety to Customer Satisfaction

Previous research conducted consistently demonstrates a significant influence of shopping safety on customer satisfaction. Safety provides users with a sense of comfort, thus aiming to gain consumer trust. Studies have proven the significant influence of perceived safety and privacy (Kinasih & Albari, 2012) as well as trust (Mafitri & Barusman, 2022) on satisfaction in online shopping. Safety is identified as the most influential factor in consumer attitudes towards online shopping, alongside website design, convenience, and time-saving factors (Hermawan, 2017). Hence, safety factors are recognized as crucial for analysis in online marketing research.

According to the analysis done for this study, client happiness with the Grab application is positively and significantly impacted by shopping safety. Data processing, with a CR value of 1.998 and a P-value of 0.046, supports this result. These statistical results show that the P-value is less than 0.05 and the CR value is more than 1.96. Thus, it can be said that customer happiness is highly influenced by shopping safety.

The influence of shopping safety on customer satisfaction is highly significant for Grab in Indonesia. As one of the largest ride-hailing platforms in the country, Grab has recognized the importance of creating a safe and trustworthy shopping environment for its users. By prioritizing safety in every aspect of their services, including real-time driver tracking and secure payment systems, Grab has established a strong sense of trust

among its users (Altino et al., 2018). This positive perception will impact customer loyalty, as they are more likely to return to Grab for their transportation needs in the future.



CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

By developing a more comprehensive model that takes into account the interface quality, product quality, product diversity, and shopping safety, this study investigates the characteristics of the Grab application in the context of customer satisfaction. The data from a questionnaire survey was used to assess the structural links between all of the study's variables. The research sample was made up of Indonesians who have used the Grab app, notably those who lived in Balikpapan. In terms of interface quality, product quality, product variety, shopping safety, and their impact on user satisfaction with the Grab application, the study's findings show both significant and non-significant findings. Not all four of the study's presented hypotheses were found to be true after data analysis. The findings suggest that user happiness with the Grab application is influenced by interface quality, product quality, and shopping safety. Product diversity is the last remaining factor, although it has little impact on how satisfied users are with the Grab app.

This research demonstrates that the Grab application has a good interface quality, product quality, and reliable data security, which contribute to high customer satisfaction. The Grab app provides transportation booking services such as taxis, private cars, and online motorcycle taxis (ojek online). Additionally, Grab also offers food delivery services through GrabFood. Overall, Grab has provided convenience and comfort for users to quickly order transportation or food through the application.

However, this study also shows that, when compared to the other criteria, product variety is the weakest one. To boost client happiness and obtain a competitive edge over rivals, Grab must also concentrate on enhancing product diversity in addition to interface quality, product quality, and shopping safety. Even though the results of this study might not always be applicable to all the criteria looked at, it is crucial for Grab to continuously enhance and broaden its product line to satisfy the various needs of clients.

5.2 Research Limitations

There are a number of restrictions on this study that must be taken into account. Considerations for the research's constraints are as follows:

1. The research sample used does not yet represent the entire user population of the Grab application in Balikpapan. This can affect the generalization of the research findings to

a broader user population.

2. The findings obtained from this study cannot be guaranteed to be similar when the same model is tested in a different application context. Each application has unique characteristics and features, so the findings of this research may not be directly applicable to other applications that differ from Grab.
3. This research only focuses on several variables considered to influence customer satisfaction, such as interface quality, product quality, product variety, and shopping safety. There may be other variables that also contribute to customer satisfaction that were not considered in this study.

By understanding these limitations, this research still provides valuable insights regarding the influence of specific factors on customer satisfaction in the context of the Grab application. However, further research is needed to expand the scope of variables and samples to make the results more representative and generalizable.

5.3 Recommendation

This study has a number of flaws that must be discussed despite its important consequences. First, respondents from Indonesia were recruited for the survey, which took place in Balikpapan. As a result, applying the results of this research to all users has its limitations. Second, the study measured independent and dependent factors, two categories of variables that were investigated. Interface quality, product quality, product variety, and shopping safety are among the independent variables. Customer pleasure is the dependent variable in the meanwhile. The precise function of each sub-dimension needs to be clarified for future research.

Future studies can consider different research frameworks to find a more accurate model in explaining interface quality, product quality, product variety, and shopping safety in applications. Furthermore, future research is recommended to involve different respondents.

Customer satisfaction with the Grab application service can vary for each individual. This can be influenced by each individual's experience when using the Grab application. Users' perceptions are challenging to change. It is expected that Grab can always accept criticism and suggestions from users and prioritize improving the quality of service to customers, considering that the level of customer satisfaction can change significantly. Ultimately, if users have an exceptional experience when using the Grab application, they will provide positive testimonials to others about their experience as Grab app customers.

REFERENCES

- Ahyar, H., Maret, U. S., Andriani, H., Sukmana, D. J., Mada, U. G., Hardani, S.Pd., M. S., Nur Hikmatul Auliya, G. C. B., Helmina Andriani, M. S., Fardani, R. A., Ustiawaty, J., Utami, E. F., Sukmana, D. J., & Istiqomah, R. R. (2020). *Buku Metode Penelitian Kualitatif & Kuantitatif* (A. Husnu Abadi, A.Md. (ed.); Issue March). CV. Pustaka Ilmu.
- Al-Tit, A. A. (2015). The effect of service and food quality on customer satisfaction and hence customer retention. *Asian Social Science*, *11*(23), 129–139.
<https://doi.org/10.5539/ass.v11n23p129>
- Ali, F., Amin, M., & Ryu, K. (2016). The Role of Physical Environment, Price Perceptions, and Consumption Emotions in Developing Customer Satisfaction in Chinese Resort Hotels. *Journal of Quality Assurance in Hospitality and Tourism*, *17*(1), 45–70.
<https://doi.org/10.1080/1528008X.2015.1016595>
- Altino, I. C., Aryadita, H., & Rokhmawati, R. I. (2018). Analisis Pengaruh Kualitas E-Service Grab Terhadap Customer Satisfaction and Loyalty menggunakan E-S-QUAL dan E-RECS-QUAL. *Jurnal Pengembangan Teknologi Informasi Dan Ilmu Komputer (J-PTIHK) Universitas Brawijaya*, *2*(11), 5634–5643.
file:///C:/Users/Asus/Downloads/3368-1-21993-1-10-20180727.pdf
- Andreassen, T. W., & Lindestad, B. (1998). Customer loyalty and complex services. The impact of corporate image on quality, customer satisfaction and loyalty for customers with varying degrees of service expertise. In *International Journal of Service Industry Management* (Vol. 9, Issue 1). <https://doi.org/10.1108/09564239810199923>
- Armstrong, G., & Kotler, P. (2018). Marketing An Introduction. In *Pearson Education*.
- Bitner. (1992). Servicescapes : The Impact of Physical Surroundings on Customers and Employees. *Journal of Marketing*, 1992.
- Cai, C. J., Jongejan, J., & Holbrook, J. (2019). The Effects of Example-Based Explanations in a Machine Learning Interface. *IUI '19: Proceedings of the 24th International Conference on Intelligent User Interfaces*, 258–262.
<https://doi.org/10.1145/3301275.3302289>
- Chipman, J. S., & Moore, J. C. (1978). The New Welfare Economics 1939-1974. *International Economic Review*, *19*(3), 547–584. <https://doi.org/10.2307/2526326>
- DA Susanti. (2016). Analisis Pengaruh Harga, Promosi, Pelayanan, dan Kualitas Produk Online Terhadap Kepuasan Konsumen Online Secara Syariah. *Analytica Islamica*, *5*(2), 450. <https://kamus.tokopedia.com/h/harga/#:~:text=Secara umum%2C harga adalah>

senilai, oleh penjual atau pemilik jasa.

- Eid, M. I. (2011). Determinants of e-commerce customer satisfaction, trust, and loyalty in Saudi Arabia. *Journal of Electronic Commerce Research*, 12(1), 78–93.
- Eri, Y., Aminul Islam, M., & Ku Daud, K. A. (2011). Factors that Influence Customers' Buying Intention on Shopping Online. *International Journal of Marketing Studies*, 3(1), 128–139. <https://doi.org/10.5539/ijms.v3n1p128>
- Ferdinand, A. (2006). *Structural Equation Modeling (SEM) in management research*, Master Program of Management, Diponegoro University. Diponegoro University Press, Semarang.
- Fitriana, S. H., & Susanti, A. (2022). PENGARUH PERCEIVED SERVICE QUALITY, PERCEIVED VALUE, CUSTOMER SATISFACTION TERHADAP CUSTOMER LOYALTY PENGGUNA JASA GRABFOOD DI SOLO RAYA. *Edunomika*, 06(02), 1–15.
- Ghozali, I., & Chariri, A. (2008). Ihyaul Ulum (FE Universitas Muhammadiyah Malang). *Simposium Nasional Akuntansi XI*, 19(19), 1–31.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & William, C. (1998). *Multivariate data analysis*. Upper Saddle River, NJ: Prentice Hall.
- Hair Jr, J. F., Babin, B. J., & Anderson, R. E. (2010). A global p-erspect-ivie. In *Kennesaw: Kennesaw State University*.
- Hermawan, H. (2017). Pengembangan Destinasi Wisata Pada Tingkat Tapak Lahan Dengan Pendekatan Analisis Swot. *Pariwisata*, IV(2), 64–74. <http://ejournal.bsi.ac.id/ejurnal/index.php/jp>
- Ishak, A. (2012). Analisis Kepuasan Pelanggan dalam Belanja Online: Sebuah Studi Tentang Penyebab (Antecedents) dan Konsekuensi (Consequents). *Jurnal Siasat Bisnis*, 16(2), 141–154. <https://doi.org/10.20885/jsb.vol16.iss2.art1>
- Johnson, M. D., & Fornell, C. (1991). A framework for comparing customer satisfaction across individuals and product categories. *American Journal of Physiology - Renal Fluid and Electrolyte Physiology*, 8(1), 44–49. <https://doi.org/10.1152/ajprenal.1980.239.1.f44>
- Kim, H., & Choi, B. (2013). The Influence of Customer Experience Quality on Customers' Behavioral Intentions. *Services Marketing Quarterly*, 34(4), 322–338. <https://doi.org/10.1080/15332969.2013.827068>
- Kinasih, B. S., & Albari, A. (2012). Pengaruh Persepsi Keamanan dan Privasi terhadap Kepuasan dan Kepercayaan Konsumen Online. *Jurnal Siasat Bisnis*, 16(1). <https://doi.org/10.20885/jsb.vol16.iss1.art3>

- Kotler, P., & Keller, K. L. (2016). Marketing management. In *TA - TT* - (15th, Global ed.). Pearson. <https://doi.org/LK> - <https://worldcat.org/title/921569185>
- Kotler, P., & Zaltman, G. (1997). Social Marketing: An Approach to Planned Social Change. *Social Marketing Quarterly*, 3(3-4), 7-20. <https://doi.org/10.1177/152450049700300301>
- Lestari, S. B. (2015). Shopping Online Sebagai Gaya Hidup. *Jurnal Ilmu Sosial*, 14(2), 24-41. www.amazon.com
- Lupiyoadi, R., & Hamdani, A. (2006). Manajemen pemasaran jasa. *Language*, 18(298p), 26cm.
- Mafitri, V., & Barusman, T. M. (2022). Analisis Strategi Pemasaran Villa Gardenia Dalam Upaya Menarik Minat Pengunjung Pada Masa Pandemi Covid-19. *Sibatik Journal*, 1(9), 1739-1748. <https://publish.ojs-indonesia.com/index.php/SIBATIK/article/view/231>
- Mediti, O. C. S. P., & Widyastuti. (2020). Analisis Pengaruh Harga dan Kualitas Layanan Elektronik terhadap Kepuasan Konsumen pada Pengguna Aplikasi Shopee. *Jurnal Ilmu Manajemen*.
- Mowen, J. C., & Minor, M. (2002). Perilaku Konsumen. *Jakarta : Erlangga*, 90. [http://repo.iain-tulungagung.ac.id/13765/5/BAB II.pdf](http://repo.iain-tulungagung.ac.id/13765/5/BAB%20II.pdf)
- Noviarni, E. N. (2019). Analisis Faktor-Faktor Yang Mempengaruhi Kepuasan Konsumen Online : B2C (Business To Customer) Di Kota Pekanbaru. *Jurnal Al-Iqtishad*, 14(2), 23. <https://doi.org/10.24014/jiq.v14i2.6799>
- Paradigma, J. E., & Sambara, K. (2019). Quality of Service and Customer Satisfaction in Grab Transportation Service Business. *Jurnal Ekonomi Paradigma*, 21(01), 29-39.
- Parasuraman, A., & Grewal, D. (2000). The impact of technology on the quality-value-loyalty chain: A research agenda. *Journal of the Academy of Marketing Science*, 28(1), 168-174. <https://doi.org/10.1177/0092070300281015>
- Philip Kotler, & Keller, K. L. (2007). Manajemen pemasaran. In *Jakarta : Indeks*, 2007 (Vol. 5, Issue 1983).
- Rahmayanti, D., Wirdianto, E., Arief, I., Zahra, A. F., & Ahmad, H. (2021). Factors Affecting Customer Satisfaction In E-Commerce. *Jurnal Ilmiah Teknik Industri*, 20(2), 164-172. <https://doi.org/10.23917/jiti.v20i2.15635>
- Salim, B., Tayib, M., & Abidin, S. (2000). Computer crime and security a survey of financial institution in Malaysia: The Proceedings of International Conference On Electronic Commerce. *Emerging Trends in E-Commerce, Kuala Lumpur, Malaysia, November, Multi Media University*.

- Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *MPR-Online*, 8(2), 23–74.
- Sugiyono, A. (2002). Penggunaan Energi dan Pemanasan Global: Prospek bagi Indonesia. *Tugas Matakuliah Ekonomi Lingkungan*.
- Tjiptono, F. (2013). Kelanggengan Entrepreneurship dalam Bentuk Bisnis Keluarga : Apa yang Telah dan Masih Perlu Diungkap. *Entrepreneur Dan Entrepreneurship*, 2(2), 1–12.
- van Raaij, W. F., & Crotts, J. C. (1995). Introduction: The Economic Psychology of Travel and Tourism. *Journal of Travel & Tourism Marketing*, 3(3), 1–19.
https://doi.org/10.1300/J073v03n03_01
- Verhoef, P. C., Lemon, K. N., Parasuraman, A., Roggeveen, A., Tsiros, M., & Schlesinger, L. A. (2009). Customer Experience Creation: Determinants, Dynamics and Management Strategies. *Journal of Retailing*, 85(1), 31–41.
<https://doi.org/10.1016/j.jretai.2008.11.001>
- Wibawa, B. M., Anggadwita, G., Mardhotillah, R. R., Husin, S. N., Komara Putri, A. Z., & Putri, S. L. (2022). Gojek VS Grab: Which One Is Better in Creating Customer Satisfaction and Loyalty? *Business and Finance Journal*, 7(1), 11–24.
<https://doi.org/10.33086/bfj.v7i1.2607>
- Xie, X., Li, Y., Sun, H., & Liu, L. (2009). Exhaled droplets due to talking and coughing (Xie et al, 2009).pdf. *Journal of The Royal Society Interface*, 6(October), 703–714.
- Yi, Y. (1993). Contextual priming effects in print advertisements: The moderating role of prior knowledge. *Journal of Advertising*, 22(1), 1–10.
<https://doi.org/10.1080/00913367.1993.10673391>
- Yu, C. M., & Abdulai, D. N. (2000). E-commerce and the new economy: The Proceedings of International Conference On Electronic Commerce. *Emerging Trends in E-Commerce, Kuala Lumpur, Malaysia, November, Multi Media University*.
- Zeithaml, B., & Bitner, M. J. (2013). *Services marketing: Integrating customer focus across the firm*.

APPENDIX 1

Research Questionnaires

Identitas Responden

1. Jenis Kelamin

- Laki-laki
- Perempuan

2. Umur

- 16 – 20 Tahun
- 21 – 25 Tahun
- 26 – 30 Tahun
- > 30 Tahun

3. Pengeluaran Perbulan

- < 3.000.000
- 3.000.000 – 5.000.000
- > 5.000.000

4. Pendidikan

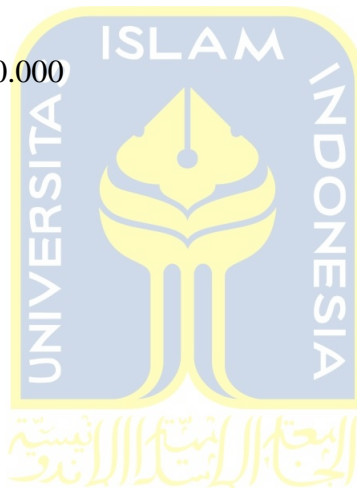
- SMP
- SMA/ Sederajat
- S1
- S2
- Lainnya

5. Latar Belakang Pekerjaan

- Pelajar/ Mahasiswa
- PNS/ TNI/ Polri
- Pegawai Swasta
- Wirausaha
- Lainnya

6. Seberapa sering anda menggunakan aplikasi Grab dalam sebulan?

- < 3 Kali
- 3 – 6 Kali
- > 6 Kali



*Isilah pernyataan berdasarkan pengalaman Bapak/ Ibu/ Sdr/ Sdri menggunakan aplikasi Grab!

- 1 = Sangat tidak setuju
 2 = Tidak setuju
 3 = Agak tidak setuju
 4 = Agak setuju
 5 = Setuju
 6 = Sangat setuju

Interface Quality

1. Saya merasa nyaman dengan user interface yang disediakan di Grab
 1 2 3 4 5 6
2. Saya merasa mudah untuk menggunakan layanan dari Grab
 1 2 3 4 5 6
3. User interface di Grab mudah dimengerti
 1 2 3 4 5 6
4. User interface di Grab tidak membingungkan
 1 2 3 4 5 6
5. User interface di Grab rapi
 1 2 3 4 5 6

Product Quality

1. Produk yang disediakan oleh aplikasi Grab dapat diandalkan
 1 2 3 4 5 6
2. Produk yang disediakan oleh aplikasi Grab berfungsi
 1 2 3 4 5 6
3. Produk yang disediakan oleh aplikasi Grab konsisten
 1 2 3 4 5 6
4. Produk yang disediakan oleh aplikasi Grab nyaman
 1 2 3 4 5 6
5. Produk yang disediakan oleh aplikasi Grab tepat waktu
 1 2 3 4 5 6

Product Variety

1. Produk yang disediakan oleh aplikasi Grab memiliki harga yang bervariasi

- 1 2 3 4 5 6
2. Produk yang disediakan oleh aplikasi Grab memiliki kegunaan yang bervariasi
- 1 2 3 4 5 6
3. Produk yang disediakan oleh aplikasi Grab memiliki produk yang bervariasi
- 1 2 3 4 5 6
4. Produk yang disediakan oleh aplikasi Grab memiliki ketersediaan produk yang bervariasi
- 1 2 3 4 5 6
5. Produk yang disediakan oleh layanan Grab menawarkan beragam kebutuhan masyarakat
- 1 2 3 4 5 6

Shopping Safety

1. Saya merasa aman saat berbelanja dengan Grab
- 1 2 3 4 5 6
2. Layanan Grab aman untuk transaksi online
- 1 2 3 4 5 6
3. Layanan Grab dapat dipercaya
- 1 2 3 4 5 6
4. Layanan Grab tidak akan merugikan saya dengan cara apapun
- 1 2 3 4 5 6
5. Layanan Grab tidak akan membocorkan data pribadi saya kepada pihak ketiga
- 1 2 3 4 5 6

Customer Satisfaction

1. Saya akan merekomendasikan Grab kepada keluarga saya
- 1 2 3 4 5 6
2. Saya akan merekomendasikan Grab kepada teman-teman saya
- 1 2 3 4 5 6
3. Saya tidak keberatan membayar sedikit lebih banyak untuk membeli menggunakan Grab
- 1 2 3 4 5 6
4. Saya akan terus menggunakan Grab di masa mendatang
- 1 2 3 4 5 6

APPENDIX 2
Validity and Reliability Test

Normality Test Result 1

Variable	min	max	skew	c.r.	kurtosis	c.r.
CS4	1	6	-1,153	-6,139	0,536	1,426
CS3	1	6	-0,808	-4,299	-0,131	-0,349
CS2	1	6	-1,033	-5,501	0,404	1,076
CS1	1	6	-0,952	-5,07	0,144	0,384
SS1	1	6	-1,148	-6,11	0,493	1,313
SS2	1	6	-1,336	-7,11	1,288	3,429
SS3	1	6	-1,261	-6,712	1,169	3,112
SS4	1	6	-1,213	-6,457	0,576	1,532
SS5	1	6	-0,988	-5,261	0,204	0,543
PV1	1	6	-1,323	-7,043	1,494	3,977
PV2	1	6	-1,428	-7,6	1,51	4,018
PV3	1	6	-1,27	-6,762	1,358	3,614
PV4	1	6	-1,346	-7,163	1,557	4,143
PV5	1	6	-1,244	-6,624	1,816	4,834
PQ1	1	6	-1,028	-5,475	0,404	1,076
PQ2	1	6	-1,363	-7,256	1,183	3,15
PQ3	1	6	-1,208	-6,432	1,165	3,1
PQ4	1	6	-1,393	-7,416	1,231	3,277
PQ5	1	6	-0,819	-4,359	0,122	0,325
IQ1	1	6	-1,163	-6,188	1,091	2,904
IQ2	1	6	-1,721	-9,16	2,449	6,517
IQ3	1	6	-1,055	-5,617	0,591	1,572
IQ4	1	6	-1,116	-5,94	0,785	2,089
IQ5	1	6	-1,332	-7,088	1,244	3,311
Multivariate					104,919	19,362

Normality Test Result 2

Variable	min	max	skew	c.r.	kurtosis	c.r.
CS4	1	6	-1,654	-5,648	1,965	3,356
CS3	1	6	-1,07	-3,656	0,849	1,45
CS2	1	6	-1,207	-4,121	1,008	1,721
CS1	1	6	-0,94	-3,21	0,367	0,626
SS1	1	6	-1,7	-5,808	2,328	3,976
SS2	1	6	-1,655	-5,654	2,129	3,636
SS3	1	6	-1,701	-5,812	2,309	3,943
SS4	1	6	-1,609	-5,496	2,106	3,597
SS5	1	6	-1,615	-5,517	2,112	3,608
PV1	1	6	-1,617	-5,523	2,147	3,667
PV2	1	6	-1,569	-5,358	1,857	3,172
PV3	1	6	-1,569	-5,361	1,836	3,135

PV4	1	6	-1,567	-5,351	1,926	3,29
PV5	1	6	-1,741	-5,946	2,472	4,223
PQ1	1	6	-1,588	-5,426	2,051	3,502
PQ2	1	6	-1,669	-5,701	2,119	3,619
PQ3	1	6	-1,626	-5,554	2,118	3,617
PQ4	1	6	-1,715	-5,857	2,178	3,719
PQ5	1	6	-1,152	-3,935	1,21	2,067
IQ1	1	6	-1,755	-5,994	2,753	4,702
IQ2	1	6	-1,737	-5,933	2,443	4,171
IQ3	1	6	-1,748	-5,971	2,527	4,316
IQ4	1	6	-1,591	-5,434	2,133	3,643
IQ5	1	6	-1,544	-5,275	1,914	3,269
Multivariate					88,725	10,506

Normality Test Result 3

Variable	min	max	skew	c.r.	kurtosis	c.r.
CS4	1	6	-1,482	-3,827	1,905	2,46
CS3	1	6	-1,377	-3,555	1,79	2,31
CS2	1	6	-1,236	-3,191	1,251	1,615
CS1	1	6	-0,95	-2,453	0,528	0,681
SS1	1	6	-1,963	-5,069	3,863	4,987
SS2	2	6	-1,585	-4,093	2,192	2,829
SS3	1	6	-1,866	-4,817	3,389	4,375
SS4	1	6	-1,721	-4,444	3,008	3,884
SS5	1	6	-1,723	-4,448	3,076	3,971
PV1	1	6	-1,965	-5,073	3,716	4,797
PV2	1	6	-1,699	-4,386	2,675	3,453
PV3	2	6	-1,501	-3,876	1,816	2,344
PV4	1	6	-1,888	-4,874	3,306	4,268
PV5	1	6	-1,973	-5,094	3,693	4,768
PQ1	1	6	-1,909	-4,93	3,794	4,898
PQ2	2	6	-1,369	-3,536	1,583	2,044
PQ3	1	6	-1,673	-4,32	2,809	3,626
PQ4	2	6	-1,521	-3,926	1,812	2,339
PQ5	1	6	-1,031	-2,663	1,383	1,786
IQ1	1	6	-1,839	-4,749	3,63	4,687
IQ2	1	6	-1,831	-4,727	3,297	4,257
IQ3	1	6	-1,965	-5,073	3,716	4,797
IQ4	1	6	-1,909	-4,93	3,794	4,898
IQ5	1	6	-1,627	-4,202	2,669	3,445
Multivariate					81,892	7,33

Mahalanobis Distance from Test 3/ Outliers

Observation number	Mahalanobis d-squared	p1	p2
35	39	0,027	0,67

32		35,153	0,066	0,752
6		33,463	0,095	0,743
13		32,759	0,109	0,649
40		32,759	0,109	0,447
34		32,415	0,117	0,325
37		32,4	0,117	0,183
25		32,4	0,117	0,09
12		31,912	0,129	0,066
33		31,132	0,15	0,067
26		30,812	0,159	0,044
36		30,085	0,182	0,048
14		29,966	0,186	0,025
38		29,902	0,188	0,011
27		29,738	0,194	0,006
39		29,698	0,195	0,002
18		29,605	0,198	0,001
31		29,466	0,203	0
19		28,166	0,253	0,002
20		28,055	0,258	0,001
7		27,64	0,276	0,001
1		27,621	0,276	0
30		26,414	0,333	0,001
2		26,042	0,351	0,001
17		26,025	0,352	0
28		24,542	0,431	0,004
10		23,987	0,462	0,005
8		22,346	0,559	0,049
16		20,545	0,665	0,268
15		20,425	0,672	0,191
11		19,258	0,738	0,373
3		17,278	0,837	0,804
21		12,31	0,976	1
5		7,122	1	1
9		7,122	1	1
4		4,487	1	1
22		4,487	1	1
23		4,487	1	1
24		4,487	1	1
29		4,487	1	1

Standardized Regression Weights/ Loading Factors

			Estimate
CS	<---	IQ	-1,067
CS	<---	PQ	0,909
CS	<---	PV	0,505
CS	<---	SS	0,566
IQ5	<---	IQ	0,963

IQ4	<---	IQ	0,968
IQ3	<---	IQ	0,983
IQ2	<---	IQ	0,963
IQ1	<---	IQ	0,971
PQ5	<---	PQ	0,891
PQ4	<---	PQ	0,924
PQ3	<---	PQ	0,951
PQ2	<---	PQ	0,93
PQ1	<---	PQ	0,95
PV5	<---	PV	0,968
PV4	<---	PV	0,981
PV3	<---	PV	0,937
PV2	<---	PV	0,914
PV1	<---	PV	0,956
SS5	<---	SS	0,985
SS4	<---	SS	0,991
SS3	<---	SS	0,995
SS2	<---	SS	0,963
SS1	<---	SS	0,984
CS1	<---	CS	0,983
CS2	<---	CS	1,007
CS3	<---	CS	0,998
CS4	<---	CS	0,989

Goodness of Fit

Fit Index	GOF	Criteria	Cut-off value	Description
Absolute Fit	Chi-square	Expected Little	346,196	Marginal Fit
	Probability	≥ 0.05	,000	Belum Fit
	RMSEA	≤ 0.08	,127	Belum Fit
	CMINDF	$\leq 2,00$	1,625	Fit
Incremental Fit	TLI	≥ 0.90	,928	Fit
	CFI	≥ 0.90	,944	Fit
Parsimony Fit	PGFI	≥ 0.60	\PGFI	Belum Fit
	PNFI	≥ 0.60	,671	Fit

Reliability Test Result

			loading error	loading factor 2	Measurement error	CR	VE
IQ5	<---	IQ	0,963	0,927369	0,072631	0,99	0,94
IQ4	<---	IQ	0,968	0,937024	0,062976		
IQ3	<---	IQ	0,983	0,966289	0,033711		

IQ2	<---	IQ	0,963	0,927369	0,072631		
IQ1	<---	IQ	0,971	0,942841	0,057159		
Total			4,848	4,700892	0,299108		
Total 2			23,5031				
PQ5	<---	PQ	0,891	0,793881	0,206119	0,97	0,86
PQ4	<---	PQ	0,924	0,853776	0,146224		
PQ3	<---	PQ	0,951	0,904401	0,095599		
PQ2	<---	PQ	0,93	0,8649	0,1351		
PQ1	<---	PQ	0,95	0,9025	0,0975		
Total			4,646	4,319458	0,680542		
Total 2			21,58532				
PV5	<---	PV	0,968	0,937024	0,062976	0,98	0,91
PV4	<---	PV	0,981	0,962361	0,037639		
PV3	<---	PV	0,937	0,877969	0,122031		
PV2	<---	PV	0,914	0,835396	0,164604		
PV1	<---	PV	0,956	0,913936	0,086064		
Total			4,756	4,526686	0,473314		
Total 2			22,61954				
SS5	<---	SS	0,985	0,970225	0,029775	0,99	0,97
SS4	<---	SS	0,991	0,982081	0,017919		
SS3	<---	SS	0,995	0,990025	0,009975		
SS2	<---	SS	0,963	0,927369	0,072631		
SS1	<---	SS	0,984	0,968256	0,031744		
Total			4,918	4,837956	0,162044		
Total 2			24,18672				
CS1	<---	CS	0,983	0,966289	0,033711	1	0,99
CS2	<---	CS	1,007	1,014049	-0,01405		
CS3	<---	CS	0,998	0,996004	0,003996		
CS4	<---	CS	0,989	0,978121	0,021879		
Total			3,977	3,954463	0,045537		
Total 2			15,81653				

Modification Model for Goodness of Fit

Fit Index	Goodness of Fit	Criteria	Cut-off value	Description
Absolute Fit	Chi-square	Expected Little	42,299	Marginal Fit
	Probability	≥ 0.05	,545	Fit
	RMSEA	≤ 0.08	,000	Fit
	CMINDF	$\leq 2,00$,961	Fit
Incremental Fit	TLI	≥ 0.90	1,003	Fit
	CFI	≥ 0.90	1,000	Fit

Hypotesis Test Result

Hypothesis				Estimate	S.E.	C.R.	P	Result
H1	CS	<---	IQ	-2,17	0,959	-2,263	0,024	Significant
H2	CS	<---	PQ	2,964	1,469	2,018	0,044	Significant
H3	CS	<---	PV	-0,519	0,964	-0,539	0,59	Not Significant
H4	CS	<---	SS	0,874	0,437	1,998	0,046	Significant

