

The Effect of Service Quality and Brand Image on Customer Loyalty with Customer Satisfaction as Intervening Variable in Generation Z in the Purchase of Electronic Goods on Tokopedia

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ABSTRACT

The purpose of this study is to analyze the effect of service quality and brand image on customer loyalty with customer satisfaction as an intervening variable among Generation Z in purchasing electronic goods on Tokopedia. This is a quantitative study. The unit of analysis in this study is individual Tokopedia app users in Indonesia. The population in this study is Generation Z Tokopedia app users who purchase electronic goods. The sample used in this study consists of 120 respondents. Data was obtained from respondents through a questionnaire distributed online via Google Forms. The questions provided are structured and closed-ended using a Likert scale. Data analysis uses SEM-PLS with SmartPLS software. The results of this study show that the better the service quality, the greater the satisfaction of Generation Z customers when shopping for electronic products on Tokopedia. The better the brand image, the greater the satisfaction of Generation Z customers when shopping for electronic products on Tokopedia. The better the service quality, the greater the loyalty of Generation Z customers when shopping for electronic products on Tokopedia. The better the brand image, the better the loyalty of Generation Z customers in shopping for electronic products on Tokopedia. The better the customer satisfaction, the better the loyalty of Generation Z customers in shopping for electronic products on Tokopedia. Customer satisfaction mediation plays a role in improving the relationship between service quality and customer loyalty. Customer satisfaction mediation plays a role in improving the relationship between brand image and customer loyalty

INTRODUCTION

After the COVID-19 pandemic, the use of mobile phones and the internet in Indonesia has increased rapidly. The rapid development of technology has made life increasingly inseparable from mobile phones (Wilson, Keni, & Tan, 2021). This is driven by the increasing need to communicate and access information. Sutarsih & Maharani (2022) state that 67.88% of Indonesians are connected to the internet via mobile phones, especially in big cities. Mobile phones are effective data collection tools that serve as a bridge connecting the digital and offline worlds through showrooming and webrooming applications (Kotler et al., 2017). Recognizing the increasing access to the internet, business opportunities in the field of e-commerce have also increased. E-commerce is a technology that involves the use of the internet, websites, and mobile applications through browsers for business transactions (Laudon & Traver, 2019). The results of a survey by Octora et al., 2022, state that 591,991 online businesses sell through e-commerce. Online businesses realize that selling through e-commerce can increase sales more effectively and efficiently. This increase is greatly influenced by internet consumers who are very skilled at interacting with others online (Kotler et al., 2017). In this increasingly developed digital era, e-commerce has become one of the fastest-growing business sectors in Indonesia. Tokopedia competes fiercely with Shopee, Lazada, and Bukalapak. However, even though Tokopedia has succeeded in attracting many users, the challenge of maintaining customer loyalty remains a major issue. Customer loyalty is very important in the e-commerce industry because it is directly related to business sustainability and long-term profits. E-commerce has been present in Indonesia since 2014, founded by Wiliam Tanuwijaya and Leontinus Alpha Edison. Tokopedia has secured portfolios from Softbank and Sequoia and has successfully entered the digital product and fintech businesses, receiving funding from Alibaba Group (\$1.1 million) and Softbank Vision Fund and Alibaba Group (\$1.1 million). Tokopedia became the fastest-growing technology company in Asia Pacific Technology Fast 500 by Deloitte Touche Tohmatsu, and in 2021, Tokopedia and Gojek merged to become Goto and were officially listed on the Indonesia Stock Exchange.

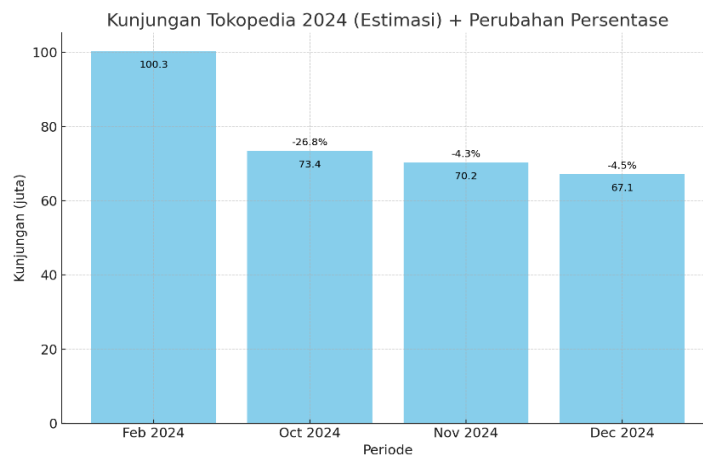
In early 2023, there was a decline in the number of visitors to the Tokopedia website. A decline in visitors is something that businesses must address. Changes in customer purchasing behavior have led to a decline in customer loyalty and have had an impact on the number of customers (Singh & Jain, 2017). Customer loyalty is related to the number of customers, especially in the digital era. The better the customer loyalty, the more likely the number of customers will increase (Leninkumar, 2017). The shopping behavior of Gen Z has characteristics that are different from previous generations. They tend to be

more selective, more sensitive to service quality, and very attentive to brand image. In addition, Gen Z is also more critical in assessing the online shopping experience, from the appearance of the application interface, ease of transactions, delivery speed, to after-sales service. They are also greatly influenced by other consumer reviews and trends developing on social media. This shows that in the context of Gen Z, simply providing products at competitive prices is not enough. Tokopedia must ensure that the quality of service provided is able to meet and even exceed customer expectations, while also building a positive brand image that is relevant to Gen Z's identity. Although Gen Z has great potential as consumers, maintaining their loyalty is not easy. Francis & Hoefel (2018) show that 63% of global Gen Z tend not to be loyal to a particular brand, and they try new platforms more often than other generations. This level of disloyalty is also evident in Indonesia, where Gen Z often uses more than one e-commerce application simultaneously, such as Tokopedia, Shopee, Lazada, and TikTok Shop. This phenomenon confirms that Gen Z will not hesitate to switch to another platform if they feel that the shopping experience on one platform is unsatisfactory. Therefore, service quality and brand image are very important variables to maintain, while customer satisfaction acts as a mediator that strengthens the relationship between the two in terms of loyalty. Research on the influence of service quality and brand image on customer loyalty through customer satisfaction is highly relevant when focused on Generation Z. This is because Gen Z is the market of the future. Their large numbers and dominance in internet usage make them a strategic target in the long term. Gen Z demands higher quality services. Their expectations for a seamless digital experience are higher than other generations, and Gen Z is sensitive to brand image. They don't just buy products, but also the values and identity offered by a brand. Gen Z is less loyal by nature. This makes it important to conduct research to identify factors that can strengthen their loyalty. In the context of Tokopedia, this research will provide an empirical overview of how service quality and brand image can increase Gen Z's satisfaction and loyalty, especially in purchasing electronic products. Thus, the results of this research are not only useful for the development of digital marketing theory but also for Tokopedia's strategic decision-making in the face of increasingly fierce competition.

Table 1. Number of Tokopedia Visitors 2019 - 2023

Year	Number of Visitors
2019	66 million
2020	114.67 million
2021	129.1 million
2022	157.2 million
2023	88.9 million

Table 1 shows a 43% decline in the number of Tokopedia visitors in 2023. From 2019 to 2022, Tokopedia showed a continuous increase in customers, and this number continued to increase during the pandemic. The significant decline in visitors in 2023 indicates a problem with customer loyalty. Therefore, efforts are needed to increase the number of visitors by building customer loyalty to Tokopedia. The following is a graph showing the decline in Tokopedia customers compared to other e-commerce platforms from January to November 2023, which shows that visitors continued to decline from January to November 2023.



Graph 1. Tokopedia Visitors 2024

Graph 1 shows that in February 2024, Tokopedia recorded around 100.3 million visits. Entering the fourth quarter of 2024, there was a downward trend in the number of visits. In October 2024, there was a 26.82% decline in visitors from February 2024 to around 73.4 million, then continued to decline to 67.1 million in December 2024. The decline from October to December reached approximately 8.6%. This downward trend indicates that Tokopedia is facing challenges in maintaining visitor traffic at the end of the year. Overall, this data shows a weakening of visits to Tokopedia. This fact indicates a discrepancy between the ideal conditions and the actual conditions. Ideally, Tokopedia

would remain the primary choice of customers with stable growth, but in reality, there has been a significant decline in the number of customers. This data shows a gap in Tokopedia's business phenomenon. The decline in the number of visitors has become a problem for the company's business, requiring a solution to increase it again. The decline in visitors is an early indication of a decline in customer loyalty. It is important to further explore the factors that influence customer loyalty on Tokopedia. This gap is the basis of this study, namely the gap between the real condition of a decline in Tokopedia customers and the ideal condition of maintaining customer growth. Based on the background description, the objectives of this study are as follows:

1. To analyze the effect of service quality on the satisfaction of Generation Z customers in purchasing electronic goods on Tokopedia.
2. To analyze the effect of brand image on Generation Z customer satisfaction in purchasing electronic goods on Tokopedia.
3. Analyzing the influence of service quality on Generation Z customer loyalty in purchasing electronic goods on Tokopedia.
4. Analyzing the influence of brand image on Generation Z customer loyalty in purchasing electronic goods on Tokopedia.
5. Analyzing the influence of customer satisfaction on Generation Z customer loyalty in purchasing electronic goods on Tokopedia.
6. Analyzing the influence of service quality on customer loyalty through Generation Z customer satisfaction in purchasing electronic goods on Tokopedia.

Analyzing the influence of brand image on customer loyalty through Generation Z customer satisfaction in purchasing electronic goods on Tokopedia

LITERATURE REVIEW

Customer Loyalty

According to Oliver (2014), customer loyalty is a deep commitment from customers to consistently repurchase certain products or services despite situational influences and marketing efforts from competitors. Oliver emphasizes that loyalty is formed from the cumulative experience of customers, not from a single transaction. In this case, loyalty is not spontaneous behavior, but rather the result of a process of shaping customer perceptions and emotions towards the value, satisfaction, and trust provided by the brand. Research conducted by Nyadzayo & Khajehzadeh (2016) reinforces this view by stating that customer loyalty today is not only functional, but also highly emotional. Customers are not only loyal because of product quality, but also because of the brand experience that creates psychological closeness. In their study of retail customers in Australia, it was found that emotional and social dimensions play a greater role in shaping loyalty than utilitarian aspects alone.

Furthermore, Hur et al. (2018) emphasized that customer loyalty has two main dimensions: behavioral loyalty and attitudinal loyalty. Behavioral loyalty refers to customers' tendency to consistently repurchase, while attitudinal loyalty relates to the positive attitudes customers show toward a brand, such as emotional attachment, trust, and a sense of pride in being a user of a particular

product. These two dimensions complement each other and strengthen the sustainability of the relationship between customers and the company.

In today's digital and e-commerce era, customer loyalty has also been redefined. According to Rather et al. (2021), loyalty is not only measured by repurchase, but also by the level of customer digital engagement. For example, a customer's willingness to provide positive reviews, follow the company's social media accounts, or voluntarily recommend products to others is now a highly valuable indicator of loyalty. Bilgihan (2016) also emphasizes that in the digital environment, customer loyalty is influenced by perceived usefulness, perceived ease of use of the digital platform, and customer experience in using the company's mobile application or website. Loyalty in the online environment is highly sensitive to factors such as service speed, data security, personalization, and user experience (UX). In the context of customer relationships with brands, Iglesias et al. (2020) explain that brand loyalty is a form of psychological attachment that occurs when customers believe that a specific brand offers unique value that competitors cannot provide. They mentioned that loyalty develops thru a three-stage process: brand awareness (cognitive stage), emotional attachment (affective stage), and commitment to repeat brand usage (conative stage).

On the other hand, according to Chou et al. (2020) in their study of online transportation app users, customer loyalty is increasingly determined by personal and real-time interaction factors. They state that loyalty is formed from customer perceptions of "fair value," "real-time responsiveness," and "seamless experience." In this digital environment, loyalty is becoming more dynamic and highly susceptible to even minor service failures.

More specifically, Wasil (2017) emphasizes that the measure of customer loyalty to a brand has the potential to increase company profits in the future. In detail, loyalty has levels that are summarized through a loyalty pyramid. It is mentioned that the lowest level of loyalty is customers who dislike a particular brand; they like to switch brands and are usually very sensitive to price (switchers or price buyers). The second level of loyalty is customers who are satisfied with their purchases and do not switch to other brands because they are already accustomed to the brand (habitual buyers). The third level is customer loyalty due to the perceived additional costs of switching to another brand (switching costs), also known as satisfied buyers. The fourth level is customer loyalty based on closeness to the brand, which is grounded in experience and the high quality of a brand. The fifth is customer loyalty that involves loyalty, pride, and commitment to only one brand. Oliver (2014) states that customer loyalty develops through four sequential stages, which also serve as dimensions and measurement indicators:

1. Cognitive Loyalty, which is the initial stage in the loyalty formation process, where customers choose a brand based on knowledge or rational information about the brand
2. Affective Loyalty, after customers have consistently positive experiences, they begin to develop emotional feelings toward the brand.

3. Conative Loyalty: At this stage, customers not only like the brand but also have a strong intention to repurchase in the future.
4. Action Loyalty, this is the highest stage of customer loyalty, where conative intent is manifested in the form of repeated concrete actions, with customers even willing to overcome obstacles to continue using the brand.

Customer loyalty is a form of commitment demonstrated by customers toward a brand, product, or company, reflected in consistent repurchase behavior and long-term positive attitudes. Wilson et al. (2020) state that customer loyalty is shaped and influenced by five main factors

1. Service Quality, defined as customers' assessment of the excellence and reliability of the services they receive. Consistent and excellent service quality can create positive experiences that strengthen customers' perceptions of the brand or company
2. Customer Satisfaction, the second factor that strongly influences loyalty is customer satisfaction, defined as customers' overall assessment of a product or service after consuming it. Satisfaction is a post-purchase evaluation that reflects the extent to which customers' expectations match or exceed reality
3. Perceived Value is the comparison between the benefits obtained by customers and the sacrifices they make (in terms of cost, time, and effort). Customers who feel they are getting "value for money" tend to be more satisfied and loyal to a brand.
4. Trust, the fourth factor is trust, which is the foundation of a long-term relationship between customers and companies. Trust is the customer's belief that the company will act in a reliable, honest manner and protect the interests of its customers.
5. Customer commitment is a psychological and affective factor that contributes to customer loyalty. Affective commitment is created when customers feel emotionally connected and value a long-term relationship with the brand.

Service Quality

Service quality means being able to identify customer needs and meet their expectations (Ilakkia & Gayathiry, 2024). Research related to service quality has contributed to companies through repeat purchasing behavior because customers obtain satisfaction through the services they find ((Widokarti, Sitaniapessy & Harry (2023); Azmi, Mulyaningsih, & Mahani (2024)). Customer perceptions in interpreting service quality can differ between offline and online channels. Offline services have the advantage of physical transactions but require time and effort for the process. Online services offer flexibility in terms of time, product variety, competitive prices, and no geographical limitations, and are supported by various online payment methods. Company image, service attitude, and fast delivery are part of the quality of online-based services that differ from offline services (Huang, 2023).

Khan & Fasih (2018), in the context of digital banking and e-commerce, found that efficiency (speed and ease of process), service reliability, and security guarantees are significant predictors of customer satisfaction and loyalty. They emphasize that customers in the digital era are not only looking for fast transactions but also risk-free, personalized, and reliable experiences. Furthermore, Jeon et al. (2021) show that in mobile application-based e-commerce platforms, service quality is influenced by interactive features, ease of navigation, and the application's ability to personalize product recommendations. This study concludes that the dimensions of service quality in e-commerce are no longer static but are greatly influenced by technological advances and changes in consumer preferences. Ojekalu et al. (2019) identified five main factors that significantly influence perceptions of service quality, namely:

1. Managerial Competence, the first factor found to be most influential on service quality is managerial competence, which is the ability of service managers or organizational managers to design, implement, and evaluate the service process as a whole
2. Responsiveness, defined as the ability of an organization to respond to customer requests, complaints, and needs quickly and appropriately.
3. Reliability, in the context of service quality, refers to the ability of an organization to deliver promised services accurately and consistently.
4. Empathy, which is a dimension related to the service provider's ability to give individual attention to customers.
5. Assurance refers to an organization's ability to provide customers with a sense of security and trust, which includes staff expertise, organizational integrity, and reliability of information.

Parasuraman in Ahmed (2020) identifies 7 key dimensions in ES-QUAL

1. Efficiency, which is the ease and speed with which users can access, navigate, and complete their goals on a digital platform without unnecessary obstacles
2. Fulfillment, which is the ability of the system to accurately fulfill service promises, including product delivery, stock availability, and the alignment between expectations and reality
3. System Availability, which is the consistency of the platform in operating without downtime, errors, or technical disruptions that hinder user access.
4. Privacy, which is the protection of personal data and the security of user transactions from leaks or misuse. The importance of privacy is that if a privacy violation occurs, there is a risk of legal sanctions (GDPR) and loss of customer trust.
5. Responsiveness, which is the speed and effectiveness of service providers in responding to user requests, complaints, or questions.
6. Compensation, which is the resolution of problems when services fail, including refunds, vouchers, or other forms of compensation.
7. Contact, which refers to the accessibility of users to contact support services through various channels

Brand Image

Kotler & Keller (2022) define brand image as "a set of consumer perceptions and beliefs about a brand that are formed through various sources of information and experiences related to the product or service." This definition shows that brand image is not directly formed by the company, but is built in the minds of consumers as a result of cognitive and affective processes. Brand image is a mental construct or perception formed in consumers' minds about a brand, based on experience, information, and individual interpretations of various marketing elements carried out by the company. Brand image reflects how consumers "feel" about a brand, both rationally and emotionally, and the extent to which the brand is able to instill a certain impression in their minds.

According to Keller & Swaminathan (2020), brand associations include all forms of information and experiences related to a brand, ranging from attributes and benefits to the emotions felt when interacting with the brand. These associations form a complex cognitive structure that influences how consumers remember, understand, and choose a particular brand. The stronger, more unique, and more positive the brand associations in consumers' minds, the better the brand image. Three criteria for effective brand associations:

1. Strength, which refers to how strongly brand associations are formed in consumers' minds and is determined by exposure frequency, experience intensity, and information credibility.
2. Uniqueness, how unique or different the brand association is compared to its competitors; this differentiation becomes a competitive advantage for the brand.
3. Goodness/Acceptance, how positive the associations formed in the eyes of consumers are. Brands with associations that are relevant and valuable to consumers will be preferred.

Keller & Swaminathan (2020) state that brand image is not only understood descriptively as mere perceptions or associations, but also systematically analyzed through measurable dimensions. These dimensions are important because they serve as benchmarks in evaluating how effectively a brand forms positive perceptions in the minds of consumers, which can generally be classified into attributes, benefits, and consumer attitudes toward the brand.

1. Brand Attributes are descriptive characteristics of a product or service, both those directly related to the product's function and those indirectly related.
2. Brand Benefits focus on the values perceived by consumers when using a product or service.
3. Brand Attitudes reflect consumers' overall evaluation of the brand in question.

Five main factors that determine brand image according to Aaker (2014)

1. Brand Identity is a series of unique associations that companies want to instill in consumers' minds

2. Brand Communication encompasses all communication activities carried out by the company to convey messages about its brand to the public
3. Customer Experience is the most tangible element in brand image formation, encompassing the entire interaction process, from information search, purchase process, product use, to after-sales service.
4. Brand Associations, brand image, is formed from various associations that stick in consumers' minds about the brand.
5. Brand Loyalty: Loyal consumers not only continue to purchase the brand but also become part of a community that supports and promotes the brand voluntarily.

Customer Satisfaction

Sudaryono (2014) states that customer satisfaction is a response to the fulfillment of enjoyment based on the assessment of products or services provided by service providers. It is a feeling of pleasure that arises after comparing the results of a product, where if the customer is happy, the results will be satisfying, and vice versa. In other words, customer satisfaction is the creation of value by customers that creates a harmonious relationship between customers and companies, which leads to recommendations for products that result in increased sales of those products (Sasongko, 2021). Research by Meida, Astuti, and Nastiti (2022) found that a decline in customer satisfaction was caused by a decline in the quality of services provided by service providers who failed to adapt to customers. According to Patrada & Andajani (2020), the impact of declining customer satisfaction is:

1. Receiving negative feedback from customers through bad reviews on e-commerce sites
2. Loss of referrals from customers or electronic word of mouth due to negative experiences when shopping.
3. Loss of customers because e-customers can easily switch to other e-commerce sites.
4. E-commerce companies will get a bad image from customers, which, if not fixed, will result in a drop in sales.

Customer satisfaction is very important for companies as an indicator of success in business. Customers will be interested in making transactions on e-commerce sites if they get positive feedback related to the shopping experiences of other customers. The higher the customer satisfaction, the greater the possibility of customer loyalty being formed.

According to Tjiptono & Chandra (2016), there are five main dimensions in measuring and understanding customer satisfaction, namely:

1. Product Quality, which is an important element in shaping initial customer satisfaction. The indicators of product quality are:
 - Performance: the extent to which the product performs its main functions efficiently.
 - Features: the completeness of features or additional attributes that enrich the basic functions.
 - Reliability: the product's ability to work stably and with minimal errors.

- Compliance with specifications: the extent to which the product conforms to the promised standards or specifications.
 - Aesthetics: the visual appeal and beauty of the product in terms of design, color, and shape.
 - Durability: the product's resistance to wear and tear over long-term use
 - Perceived quality: the customer's overall perception of the product's quality compared to other alternatives.
2. Service Quality, Tjiptono & Chandra (2016) adopted and adapted the SERVQUAL model to explain this dimension, with the following indicators:
 - Physical evidence: Professional and neat appearance, availability of equipment and supporting technology.
 - Reliability: The company's ability to deliver services as promised, accuracy of service without errors.
 - Responsiveness: Staff willingness to assist customers, speed in resolving customer requests or issues.
 - Assurance: The ability of staff to provide clear and accurate information, customer confidence in the competence of the service provider.
 - Empathy: Staff willingness to listen attentively, personalized treatment of customers.
 3. Price Perception: This dimension measures the extent to which customers feel that the price paid is commensurate with the benefits received. Indicators of price perception include Price Fairness, Price Consistency, Price Comparison with Competitors, and Price Transparency.
 4. Emotional Factors: Tjiptono & Chandra (2016) emphasize that customer satisfaction is not only a matter of rational function, but also includes customers' affective or emotional responses during the consumption and interaction process. Indicators include feeling comfortable while using the product or service, feeling happy or excited about the service experience, feeling valued and cared for as a customer, and emotional attachment from interactions with company staff.
 5. Expectation Alignment, this dimension refers to the level of alignment between the customer's initial expectations before purchasing or using a product/service and the actual experience obtained. Customers are satisfied if their expectations are met or exceeded. Indicators of this dimension of expectation fulfillment are: actual experience is not disappointing, customer expectations regarding product/service quality are met or exceeded, consistency between promotional information and reality, and willingness to repeat purchases in the future as a result of satisfaction.

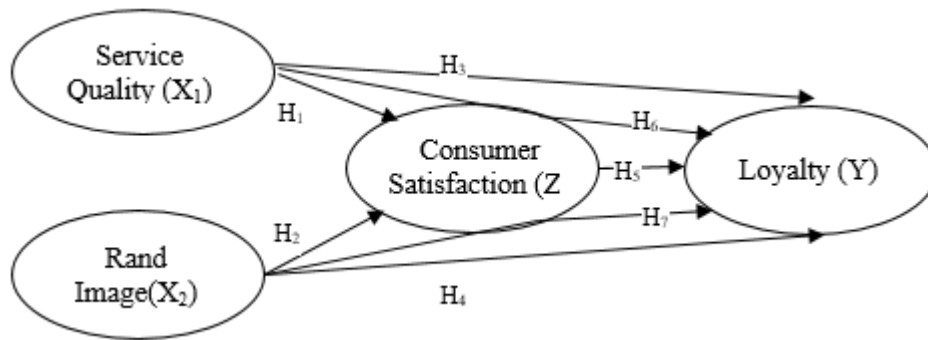


Figure 1. Conceptual Framework

Hypothesis

1. H1: The better the service quality, the higher the satisfaction of Generation Z customers in purchasing electronic goods on Tokopedia.
2. H2: The better the brand image, the higher the satisfaction of Generation Z customers in purchasing electronic goods on Tokopedia
3. H3: The better the service quality, the higher the loyalty of Generation Z customers in purchasing electronic goods on Tokopedia
4. H4: The better the brand image, the higher the loyalty of Generation Z customers in purchasing electronic goods on Tokopedia
5. H5: The better the customer satisfaction, the higher the loyalty of Generation Z customers in purchasing electronic goods on Tokopedia
6. H6: The better the service quality, the higher the customer loyalty through Generation Z customer satisfaction in purchasing electronic goods on Tokopedia
7. H7: The better the brand image, the higher the loyalty of Generation Z customers through their satisfaction in purchasing electronic goods on Tokopedia.

METHODS

This study is quantitative research. According to Sugiyono (2017), quantitative research is a research method that uses numbers and analysis based on statistics. The author conducted this study to determine the effect of service quality and brand image on customer loyalty, with customer satisfaction as an intervening variable, among Generation Z customers purchasing electronic goods on Tokopedia. The unit of analysis is a unit that is compiled before the research begins and focuses on the research aspects. The unit of analysis can be an individual, group, or organization, depending on the focus of the problem. The unit of analysis in this study is Generation Z users of the Tokopedia application in Indonesia. The population is the area of generalization of the objects/subjects that have been determined for study and conclusion (Sugiyono, 2017). The population helps to find limitations in the research to focus on a specific area or scope. If the population is large enough, the researcher can simply take a sample to describe the condition. The population in this study is Generation Z users of the Tokopedia application in purchasing electronic goods. According to Sugiyono (2017), a sample is a characteristic of a population. A sample is a smaller part of the population that represents the

population. Sample collection in this study used the non-probability sampling method, which is a sampling technique that does not give equal opportunity to every member of the population to be selected as a sample. This means that sample selection is based more on the researcher's subjective considerations, so it cannot be fully generalized to the population (Sugiyono, 2017). One type is purposive sampling, which is a technique for determining samples based on specific considerations. This means that samples are deliberately selected by the researcher because they are considered to be the most knowledgeable, most understanding, or have relevant experience with the issue being studied (Sugiyono, 2017). The sample size is determined using the Hair et al. (2021) "ten times rule" formula, which states that the minimum sample size is 10 times the number of indicators in a latent construct. Customer loyalty indicators are used because customer loyalty is a key variable that represents the ultimate goal of marketing. There are 12 indicators in customer loyalty, so the sample size taken is $12 \times 10 = 120$ samples. The data will be distributed through an online questionnaire. This study uses primary data. According to Sugiyono (2017), primary data is data obtained directly from the subjects in the study. The data was obtained from respondents through a questionnaire distributed online via Google Forms to Tokopedia app users. The sorting of each research variable uses previous literature in the form of questions for each respondent. The questions provided were structured and closed-ended using a Likert scale. According to Sugiyono (2017), data collection methods are the ways or techniques used by researchers to obtain the data needed in their research so that the collected data can be used to answer the research questions, test hypotheses, and achieve the research objectives. Data collection was carried out to obtain answers to the questions and test the research hypotheses. The data collection method in this study was through the distribution of questionnaires to respondents via Google Forms online. This study used a 5-point Likert scale with positive questions, where 5 was strongly agree and 1 was strongly disagree. The analysis used was SEM (Structural Equation Model) or PLS (Partial Least Square). Partial Least Squares Structural Equation Modeling (PLS-SEM) is a variance-based multivariate analysis method used to test the relationship model between latent variables (constructs) and their indicators.

Table 2. Research Object

Criteria		Number	
Gender	Male	51	42.14
	Female	69	57.86
	Total	120	100.00%
Occupation	Employee	69	57.14
	Students	30	25.00
	Not working	3	2.14
	Entrepreneur	18	15.71
	Total	120	100.00%

Length of Time as a Tokopedia Customer	Less than 6 months	14	11.43
	7-12 months	41	34.29
	1-2 years	28	23.57
	3-4 years	21	17.14
	Over 5 years	16	13.57
	Total	120	100.00%
Monthly Income	Below 3 million	45	37.86
	3 - 5 million	50	41.43
	5 - 7.5 million	12	10.00%
	7.5 - 10 million	4	3.57
	Above 10 million	9	7.14%
	Total	120	100.00%
Shopping frequency on Tokopedia per month	Less than 2 times	36	30
	3 - 6 times	35	29.29
	7-10 times	25	20.71
	More than 10 times	24	20.00
	Total	120	100.00%

RESULTS

Convergent Validity

Convergent validity testing was conducted to assess the strength of the relationship between the indicators and their latent constructs. According to Hair et al. (2021), indicators are considered convergent valid if the outer loading value is ≥ 0.70 .

Table 3. Outer Loading

	Brand Image	Customer Satisfaction	Service Quality	Customer Loyalty
x1.1			0.910	
x1.10			0.854	
x1.11			0.906	
x1.12			0.905	
x1.13			0.888	
x1.14			0.905	
x1.15			0.937	
x1.16			0.910	
x1.17			0.872	
x1.18			0.893	
x1.19			0.887	
x1.2			0.895	
x1.20			0.892	

x1.21			0.895	
x1.22			0.910	
x1.23			0.899	
x1.24			0.896	
x1.25			0.895	
x1.26			0.906	
x1.27			0.913	
x1.28			0.896	
x1.3			0.868	
x1.4			0.885	
x1.5			0.879	
x1.6			0.883	
x1.7			0.877	
x1.8			0.892	
x1.9			0.874	
x2.1	0.875			
x2.10	0.912			
x2.11	0.901			
x2.12	0.880			
x2.13	0.863			
x2.14	0.891			
x2.15	0.888			
x2.16	0.884			
x2.17	0.886			
x2.18	0.892			
x2.19	0.845			
x2.2	0.835			
x2.20	0.899			
x2.21	0.886			
x2.22	0.841			
x2.3	0.880			
x2.4	0.902			
x2.5	0.898			
x2.6	0.904			
x2.7	0.873			
x2.8	0.882			
x2.9	0.894			
y1				0.872
y10				0.908
y11				0.900
y12				0.892
y13				0.900
y14				0.908
y15				0.891
y16				0.874

y17				0.845
y18				0.840
y19				0.871
y2				0.902
y20				0.890
y21				0.910
y22				0.879
y23				0.852
y24				0.835
y3				0.891
y4				0.845
y5				0.852
y6				0.866
y7				0.871
y8				0.888
y9				0.899
z1		0.864		
z10		0.909		
z11		0.904		
z12		0.889		
z13		0.895		
z14		0.903		
z15		0.886		
z16		0.863		
z17		0.890		
z18		0.877		
z19		0.895		
z2		0.913		
z20		0.901		
z21		0.913		
z22		0.891		
z23		0.891		
z24		0.890		
z25		0.910		
z26		0.881		
z27		0.866		
z28		0.883		
z29		0.879		
z3		0.911		
z30		0.878		
z31		0.880		
z32		0.870		
z33		0.899		
z34		0.861		
z35		0.909		

z36		0.887		
z37		0.880		
z38		0.902		
z39		0.931		
z4		0.882		
z40		0.910		
z41		0.887		
z42		0.890		
z43		0.884		
z44		0.887		
z45		0.892		
z46		0.911		
z47		0.896		
z48		0.882		
z5		0.894		
z6		0.887		
z7		0.891		
z8		0.895		
z9		0.912		

All indicators used in this study are convergent valid and able to represent their respective constructs well

Discriminant Validity

After convergent validity was established, the next step was to test discriminant validity. This test aimed to ensure that each construct in the model was truly distinct from one another and measured unique concepts

1. Fornell-Larcker Criterion

Assessing whether a construct is different (discriminant) from other constructs. This test ensures that each latent variable correlates more strongly with its own indicators than with other constructs. The criterion (Hair et al., 2021) is that the square root of the AVE of the construct must be greater than the correlation between other constructs

root of the AVE of the construct must be greater than the correlation between other constructs

Table 4. Fornell-Larcker Criterion

	Brand Image	Customer Satisfaction	Service Quality	Customer Loyalty
Brand Image	0.895			
Customer Satisfaction	0.873	0.892		
Service Quality	0.889	0.884	0.894	
Customer Loyalty	0.871	0.843	0.859	0.879

The square root of AVE (shown on the thick diagonal) is greater than the correlation between the constructs below it. Therefore, the model meets discriminant validity

1. Heterotrait-Monotrait Ratio (HTMT)

Used as an alternative discriminant validity test that is more sensitive and accurate than Fornell-Larcker. Assesses the extent to which two different constructs are truly separate. Hair et al.'s (2021) criterion, namely an HTMT value ≤ 0.90 , indicates good discriminant validity.

Table 5. HTMT

	Brand Image	Customer Satisfaction	Service Quality	Customer Loyalty
Brand Image				
Customer Satisfaction	0.812			
Service Quality	0.811	0.837		
Customer Loyalty	0.822	0.836	0.844	

The HTMT values between variables ranged from 0.811 to 0.844, all of which were < 0.90 . Thus, these results confirm that each construct in the model is unique and empirically separate

Construct Reliability and Validity

Assessing internal consistency or construct reliability, which is the extent to which indicators in a construct provide consistent results. Hair et al.'s (2021) criteria, namely $CR \geq 0.70$, indicate good reliability; Cronbach's Alpha ≥ 0.70 indicates reliability; AVE ≥ 0.50

Table 6. Reliability and Validity Test

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Brand Image	0.987	0.987	0.988	0.783
Customer Satisfaction	0.995	0.995	0.995	0.795
Service Quality	0.991	0.991	0.991	0.799
Customer Loyalty	0.987	0.987	0.988	0.772

CR value ≥ 0.70 ; Cronbach's Alpha ≥ 0.70 ; AVE ≥ 0.50 means that all items forming the construct have a strong and consistent relationship in measuring the same concept.

R-Square

R Square assesses the ability of the structural model to explain the variation in the dependent variable. This is measured through the R Square (R^2) value. According to Hair et al. (2021), an R^2 value of 0.75 indicates a strong model, 0.50 indicates a moderate model, and 0.25 indicates a weak model.

Table 7. R-Square

	R Square	Adjusted R Square
Customer Satisfaction	0.993	0.993
Customer Loyalty	0.970	0.969

With R^2 values of 0.993 and 0.970, this model has a very high explanatory power, meaning that the independent variables in the model are able to explain almost all of the variation that occurs in the dependent variable.

F-Square

F-square measures the magnitude of the influence of one construct on another. According to Hair et al. (2021), an f^2 value of 0.02 indicates a small influence, 0.15 indicates a moderate influence, and 0.35 indicates a large influence.

Table 8. F-Square

	Brand Image	Customer Satisfaction	Service Quality	Customer Loyalty
Brand Image		0.494		0.564
Customer Satisfaction				1.264
Service Quality		0.470		0.591
Customer Loyalty				

f^2 values in this study were above 0.35, indicating that each variable had a strong substantive influence on the targeted dependent construct.

Q-Square

The Q-square (Q^2) or predictive relevance test was conducted to assess the model's ability to predict data not used in the estimation process. According to Hair et al. (2021), a Q^2 value > 0 indicates that the model has predictive relevance, while a value closer to 1 indicates a very high predictive ability

Table 9. Q-Square

	SSO	SSE	$Q^2 (=1-SSE/SSO)$
Brand Image	2640,000	2640,000	
Customer Satisfaction	5,760,000	1,248,527	0.783
Service Quality	3,360,000	3,360,000	
Customer Loyalty	2,880,000	743,585	0.742

A Q^2 value above 0.70 in this study means that the PLS-SEM model is very good at predicting dependent variables, so the model used has strong predictive validity.

Hypothesis Test

Table 10. Hypothesis Test

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Val ues
Brand Image -> Customer Satisfaction	0.424	0.469	0.097	4.198	0.004
Brand Image -> Customer Loyalty	0.469	0.404	0.153	5.832	0.000
Customer Satisfaction -> Customer Loyalty	0.692	0.508	0.035	9.627	0.000
Service Quality -> Customer Satisfaction	0.535	0.530	0.097	4.802	0.009
Service Quality -> Customer Loyalty	0.355	0.374	0.136	5.865	0.000
Brand Image -> Customer Satisfaction -> Customer Loyalty	0.282	0.305	0.134	3.666	0.012
Service Quality -> Customer Satisfaction -> Customer Loyalty	0.210	0.253	0.176	3.559	0.023

DISCUSSION

The Effect of Service Quality on Customer Satisfaction

The analysis results show that Service Quality has a positive and significant effect on Customer Satisfaction (H1) is accepted. The path coefficient value of 0.535 indicates a positive direction of influence, while the t-statistic value (4.802) > 1.96 and p-value (0.009) < 0.05 indicate a statistically significant relationship. This finding means that the higher the quality of service perceived by Tokopedia customers, the higher their level of satisfaction.

The Effect of Brand Image on Customer Satisfaction

The analysis results show that Brand Image has a positive and significant effect on Customer Satisfaction (H2) is accepted. The path coefficient value of 0.424 indicates a positive direction of influence, while the t-statistic value (4.198) > 1.96 and p-value (0.004) < 0.05 indicate a statistically significant relationship. This finding supports the theory that a strong brand image can foster customer trust and pride, which ultimately increases their satisfaction with the services provided.

The Effect of Service Quality on Customer Loyalty

The analysis results show that Service Quality has a positive and significant effect on Customer Loyalty (H3) is accepted. The path coefficient value of 0.355 indicates a positive direction of influence, while the t-statistic value (5.865) > 1.96 and p-value (0.000) < 0.05 indicate a statistically significant relationship. This means that improving service consistency, response speed, and system reliability on Tokopedia will strengthen customers' intention to continue using the platform.

The Effect of Brand Image on Customer Loyalty

The analysis results show that Brand Image has a positive and significant effect on Customer Loyalty (H4) is accepted. The path coefficient value of 0.469 indicates a positive direction of influence, while the t-statistic value (5.832) >

1.96 and $p\text{-value } (0.000) < 0.05$ indicate a statistically significant relationship. These findings indicate that Tokopedia's positive brand image is able to create customer loyalty through trust and psychological satisfaction with the brand.

The Effect of Customer Satisfaction on Customer Loyalty

The analysis results show that Customer Satisfaction has a positive and significant effect on Customer Loyalty (H5) is accepted. The path coefficient value of 0.692 indicates a positive direction of influence, while the t-statistic value (9.627) > 1.96 and $p\text{-value } (0.000) < 0.05$ indicate a statistically significant relationship. This finding shows that Generation Z customers who are satisfied with their shopping experience on Tokopedia tend to make repeat purchases and recommend the platform to others.

Indirect Effect of Service Quality on Customer Loyalty through Customer Satisfaction

The analysis results show that Service Quality has a positive and significant effect on Customer Loyalty through Customer Satisfaction (H6) is accepted. The path coefficient value of 0.210 indicates a positive direction of influence, while the t-statistic value (3.559) > 1.96 and $p\text{-value } 0.023 < 0.05$ indicate a significant mediating effect. This means that customer satisfaction acts as an intermediary that strengthens the relationship between service quality and Tokopedia customer loyalty.

Indirect Effect of Brand Image on Customer Loyalty through Customer Satisfaction

The analysis results show that Brand Image has a positive and significant effect on Customer Loyalty through Customer Satisfaction (H7) is accepted. The path coefficient value of 0.282 indicates a positive direction of influence, while the t-statistic value (3.666) > 1.96 and $p\text{-value } 0.012 < 0.05$ indicate a significant mediating effect. This indicates that a strong brand image not only has a direct impact on loyalty but also increases customer satisfaction, which in turn strengthens that loyalty.

CONCLUSIONS AND RECOMMENDATIONS

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In terms of service quality, the item with the lowest average score is x1.10 (average = 4.03). This statement relates to certain aspects of service that are considered less than optimal compared to other indicators, such as clarity of information, accuracy of features, or ease of navigation. Although still in the "Good" category, this relatively lower average score indicates that there is still room for improvement in service quality, especially in areas related to the

presentation of accurate information, policy transparency, or response in certain situations. In other words, although respondents are generally satisfied, they still have high expectations for the perfection of Tokopedia's services. This is in line with the critical and selective nature of Generation Z, who are accustomed to fast and barrier-free digital service standards.

In the brand image variable, the item with the lowest score was x2.2 (average = 3.91), which had the lowest average score among all statements in the brand image variable. This item relates to the consistency of Tokopedia's brand messaging or visual/emotional appeal compared to its competitors. This lower score indicates that some respondents feel that Tokopedia's brand image still needs to be strengthened in terms of differentiation and emotional appeal. Although Tokopedia is already widely known, the main target audience (Generation Z) tends to want a stronger, more creative brand identity that is relevant to their digital lifestyle. Thus, Tokopedia's main challenge is not only to maintain its positive reputation, but also to highlight the uniqueness and emotional value of its brand in order to remain relevant amid increasingly fierce e-commerce competition. This shows that Tokopedia still needs to strengthen its brand communication to be closer and more emotional towards Generation Z, for example through digital campaigns that are more personal, innovative, and oriented towards modern lifestyle values.

In terms of customer satisfaction, the item with the lowest score was z18 (average = 4.00). This item had the lowest average score among all statements. This shows that although customers are generally satisfied, there are still aspects that are considered less than optimal, such as the refund process, variety of promotions, or speed of response in certain situations. This score remains in the "Good" category, but indicates room for improvement in operational aspects or after-sales service in order to make the customer experience more consistent. Thus, even though Tokopedia has succeeded in creating high customer satisfaction in general, strengthening additional services and customer problem handling can still improve the overall satisfaction score.

In the customer loyalty variable, the item with the lowest score was y24 (average = 3.73), which had the lowest average score among all customer loyalty indicators. This shows that some respondents have not yet demonstrated strong long-term loyalty, for example in the form of exclusive loyalty or a commitment to continue using Tokopedia even if there are attractive promotions from other platforms. This score is still in the "Fairly Good" category, but it indicates the potential for switching behavior among some Generation Z users. This group is known for its rational and dynamic shopping behavior, so they tend to switch platforms if they find more attractive prices or features. Tokopedia can improve this aspect by strengthening its customer loyalty program, personalizing offers, and providing exclusive benefits for users who consistently shop on the platform.

FURTHER STUDY

Although this study was conducted with a systematic design and in-depth analysis, the researchers acknowledge that the results of this study still have several limitations that may affect the generalization and depth of the findings. These limitations are explained as follows:

Limitations in the Number and Distribution of Respondents

The of 120 respondents is considered to meet the minimum requirements for analysis with SmartPLS, but this number is still relatively small to represent the entire population of Tokopedia users in Indonesia, which is very large and diverse. Most of the respondents were students, university students, and young employees in urban areas, so the results of this study reflect the behavior of digitally literate urban consumers rather than all Tokopedia users, including non-urban communities. Thus, the results of this study are contextual and represent the behavior patterns of Generation Z in urban digital environments.

Limitations of the Variables Studied

This study only used four main variables, namely service quality, brand image, customer satisfaction, and customer loyalty. In practice, customer loyalty in e-commerce can also be influenced by other factors such as price, promotions, seller trust, ease of application navigation, and user engagement. Since these variables were not included in the research model, the results do not comprehensively reflect all factors that can shape customer loyalty.

Limitations in Research Time and Conditions

This research was conducted over a relatively short period of time and only recorded customer conditions during a specific period. However, the behavior of digital consumers, especially Generation Z, is very dynamic and easily changes in line with technological trends, new features in applications, and changes in Tokopedia's promotional strategies. Therefore, the results of this study describe the state of customer loyalty at the time of the research, rather than changes in behavior over the long term.

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