

The Effect of Product Quality and Service Quality on Customer Satisfaction in TikTok Shop: The Mediating Role of Brand Image

Ahmad Yusuf Fauzan Simanjuntak¹, Bryan Carlos Yeremia pardede², Suparman J. Siburian³, Jamaluddin^{4*}

^{1,2,3,4}Department of Management, Faculty of Economics and Business, Universitas Prima Indonesia, Medan, Indonesia
⁴Center for Excellence in Science and Technology: Digital Business and SMEs, Universitas Prima Indonesia, Indonesia.

* Corresponding Author:

Email: jamaluddin@unprimdn.ac.id

Abstract

This study aims to examine the effects of product quality and service quality on customer satisfaction in TikTok Shop, with brand image serving as a mediating variable. This study employed a quantitative research approach. The population consisted of active students in North Sumatra who had purchased products through TikTok Shop. Using purposive sampling, 400 respondents were selected. Data were collected through an online questionnaire measured on a five-point Likert scale and analyzed using Structural Equation Modeling-Partial Least Squares (SEM-PLS) with SmartPLS. The findings reveal that brand image has a positive and significant effect on customer satisfaction. Service quality also has a positive and significant effect on both brand image and customer satisfaction. In contrast, product quality does not have a significant effect on either brand image or customer satisfaction. Furthermore, brand image significantly mediates the relationship between service quality and customer satisfaction, but it does not mediate the relationship between product quality and customer satisfaction. These results suggest that service quality and brand image shape customer satisfaction in TikTok Shop more strongly than product quality. This suggests that, within the social commerce context, consumers place greater emphasis on service experience and digital brand perception in evaluating satisfaction. This study is limited to active students in North Sumatra and focuses only on product quality, service quality, brand image, and customer satisfaction. This study enriches the literature on social commerce by highlighting the dominant role of service quality and brand image in explaining customer satisfaction on TikTok Shop and offers practical insights for sellers in enhancing customer experience and strengthening brand image.

Keywords: Brand Image; Customer Satisfaction; Product Quality; Service Quality; Social Commerce and TikTok Shop.

I. INTRODUCTION

The evolution of digital technology has transformed how businesses and consumers engage in contemporary trade. As a result of these changes, the idea of social commerce has emerged (Huang & Benyoucef, 2015; K. Z. K. Zhang & Benyoucef, 2016). This kind of online shopping combines social media with traditional online payment methods. The more visual content and direct connection there is between vendors and buyers, the more engaging the buying experience is, which is why this type of commerce is becoming more popular. With the introduction of TikTok Shop, which allows users to purchase and sell directly within the app, TikTok has become one of the fastest-growing platforms. This phenomenon demonstrates that social commerce is a key breakthrough in the growth of the global digital commerce ecosystem (Mommentum Work, 2025; Red Stag Fulfillment, 2025). Recently, social commerce has grown substantially globally. Industry estimations project that the value of worldwide social commerce transactions will surpass US\$1.2 trillion by 2025. The rising popularity of online buying through social media platforms fuels this growth (Liu & Zhang, 2024; Statista, 2025). Consumers are shifting their focus to digital platforms for product research and purchases, which is fueling this expansion. These days, people use social media not just to talk to one another but also to sell things directly to consumers. According to Hajli et al. and Momentum Works, social commerce is a crucial factor propelling the expansion of the digital economy worldwide (Hajli et al., 2017; Mommentum Work, 2025). When it comes to social commerce, Indonesia is among the nations seeing the most rapid growth. According to We Are Social & Meltwater and DataReportal, more than 60% of Indonesia's population is active on social media. This translates to more than 167 million people (Data Reportal, 2024; We Are Social & Meltwater, 2024).

People are more likely to use digital platforms for a variety of activities, including online shopping, due to the high internet penetration and smartphone usage. Here, TikTok has exploded in popularity, quickly becoming one of Indonesia's most popular apps. This positions Indonesia as one of the leading Southeast Asian markets for TikTok Shop (Mommentum Work, 2025; Statista, 2025). Online shopping in Indonesia is becoming more valuable every year, which reflects this trend. The value of online purchases in Indonesia is

projected to surpass US\$77 billion in 2023, according to reports (Statista, 2025). This expansion shows that more and more people in Indonesia feel comfortable making digital purchases via different kinds of internet platforms. A new, more convenient, and engaging way for customers to buy things is through social commerce platforms like TikTok Shop. The usage of social commerce platforms by consumers is extremely important (Huang & Benyoucef, 2023; K. Z. K. Zhang & Benyoucef, 2016). On a regional scale, the potential for digital commerce development is particularly high in Medan, a metropolis in North Sumatra. Over 2.5 million people call this city home, and the percentage of residents with internet access is growing every year (Badan Pusat Statistik, 2025). Because of this, people living in Medan could be a potential target market for internet retailers. Another factor fueling the expansion of social commerce in the area is the younger generation's penchant for social media. As a result, Medan is a wonderful place to study how people use TikTok Shop. In an ideal scenario, the level of customer satisfaction would determine a company's success. According to Kotler and Keller (2022) and Armstrong et al. (2021), customer satisfaction is determined by how well a product meets or surpasses the client's expectations (Kotler et al., 2021, 2022).

How effectively a product works is closely tied to how satisfied customers are and how likely they are to buy it again. Conversely, customers will be dissatisfied if the products do not meet their expectations. Companies necessitate competent management to influence the myriad factors that influence consumer satisfaction (Suhartanto et al., 2019; Suwarno, 2024). Product quality is a key component that affects consumer happiness. High-quality goods enhance both brand loyalty and customer value (Kotler et al., 2022; Suwarno et al., 2023). Since customers cannot see the goods in person before making a purchase, product quality becomes more important in the context of online shopping. Thus, buyers put a lot of faith in the data offered by vendors on online marketplaces. Customers will be more satisfied if the quality of the product they receive is up to par with their expectations (Hajli et al., 2017; K. Z. K. Zhang & Benyoucef, 2016). The quality of both the product and the service a customer receives greatly influences their level of happiness. Parasuraman et al. and Kotler and Keller state that service quality reflects a company's responsiveness, reliability, and speed in serving customers (Kotler et al., 2022; Noble et al., 2022). Fast replies to consumer questions, punctual deliveries, and expert management of complaints are all examples of satisfactory service in social commerce platforms. Superior customer service improves the buying experience for consumers and fosters a stronger bond between vendors and buyers.

The success of digital firms is heavily dependent on service quality (Huang & Benyoucef, 2015; Jami Pour et al., 2020; Shin et al., 2020). If we do not examine and resolve these concerns quickly, we risk the long-term viability of social commerce. Consumers are less likely to be loyal and make repeat purchases if they are unhappy with the service they receive (Kotler et al., 2022; Suhartanto et al., 2020; Suwarno, 2024). The reputation of a brand can take a serious hit when bad reviews or remarks from unhappy customers make their way online. Such incidents might slow the expansion of trust-based digital companies in the long run. Therefore, it's critical to know what makes customers happy (Hajli et al., 2017; W. Zhang & Banerji, 2017). The research will investigate how brand image influences the relationship between TikTok Shop customers' satisfaction and the quality of the products and services they receive, using this event as a starting point. We anticipate this research to provide a more comprehensive understanding of consumer behavior in the context of social commerce. In addition, the study's findings should theoretically advance the field of digital marketing research. Businesses that use TikTok Shop to sell their products can find some useful ideas in this study, particularly regarding strategies to enhance customer satisfaction and engagement based on the findings related to consumer behavior in Medan City. Therefore, this study is important, particularly for figuring out how satisfied TikTok Shop customers are in Medan City.

Literature Review and Hypothesis Development

The capacity of a product to fulfill its purpose and satisfy customer expectations is what we mean when we talk about product quality. Quality, according to contemporary marketing theory (Kotler et al., 2022), is a measure of how much value consumers place on a company's product features. Some of the most important ways to judge the quality of a product are how well it works, how long it lasts, how reliable it is, how well it meets requirements, its features, and how it looks. Customers will place a higher value on products that operate well, have appealing features, and last a long time. Since customers cannot physically

examine the goods before buying them, product quality takes on added significance in online marketplaces like social commerce. According to studies Delima and Jami Pour, when consumers are satisfied with the goods they receive, it's because the product fits their expectations. Customers are more likely to be satisfied with a product if they believe it to be of excellent quality (Delima, 2017; Jami Pour et al., 2020).

H1: Product quality has a positive effect on customer satisfaction.

Quality of service refers to how well a business meets the needs of its customers during a service contract. A high level of service quality indicates that a business can meet the needs of its customers in a timely, precise, and accommodating manner. According to the SERVQUAL model, which was put forth by Parasuraman et al. (2021) and Kotler and Keller (2022), there are five primary ways in which service quality can be evaluated. These include tangibles, reliability, responsiveness, assurance, and empathy. Reliability shows how consistently and precisely a corporation can deliver services, whereas tangibles pertain to the physical facilities and presentation of those services. Assurance relates to a service provider's competence and trustworthiness, while responsiveness describes their readiness to assist consumers swiftly. When a business shows empathy, it indicates that it cares about its customers as individuals. Customer satisfaction rises when their demands are perceived to have been adequately addressed throughout the transaction, according to research (Choesrani et al., 2025; Huang & Benyoucef, 2015).

H2: Service quality has a positive effect on customer satisfaction.

The term "brand image" refers to the mental representation of a brand that consumers have built via their interactions with the brand and the memories associated with it. When people have a favorable impression of a company's brand, they are more likely to buy its goods and services. Brand strength, originality, and favorability are the three main factors that shape customers' perceptions of a brand, according to marketing theory (Kotler et al., 2022). People prefer to identify brands with perceived value and quality. When products are of excellent quality, it can boost the brand's image. People will think highly of the brand after purchasing products that operate well, last a long time, and have outstanding features. Customers' impressions of a company are often based on their experiences with the quality of the products they have purchased online. As a result, customers have a more favorable impression of a brand when they believe the quality of the product is high (Suwarno, 2021; K. Z. K. Zhang et al., 2016).

H3: Product quality has a positive effect on brand image

The quality of a company's service significantly influences its reputation. The brand's reputation is affected by the product's quality and the customer's service experience. Providing excellent customer service can boost a company's reputation by increasing positive brand perceptions. Customer perceptions of service quality are shaped by the SERVQUAL model's components, which include tangibles (the physical aspects of service), responsiveness (the willingness to help customers), assurance (the knowledge and courtesy of employees), and empathy (the provision of caring and individualized attention) (Noble et al., 2022). Customer trust in a brand can grow when they receive prompt, courteous, and expert service. Poor service, on the other hand, can hurt a company's reputation since consumers will link it with negative experiences. High-quality service can bolster customers' favorable impressions of a brand, according to studies (Huang & Benyoucef, 2015; Sintya et al., 2025; Wijaya & Putra, 2023).

H4: Service quality has a positive effect on brand image.

A customer's mental representation of a brand affects their opinion of that brand's quality. Customers are more likely to be satisfied when they have a positive impression of the brand. Kotler and Keller (2022) state that there are three ways to measure a brand's image: the strength of the brand, the degree to which people like the brand, and the degree to which the brand is unique (Kotler et al., 2022). Customers are more likely to be satisfied with a brand if they have a positive impression of it. Reviews, digital material, and past purchases all play a role in shaping consumers' perceptions of brands in the online shopping environment. According to studies (Suhartanto et al., 2020; Sukarno & Vildayanti, 2025), when customers have a positive impression of a brand, they are more likely to be satisfied with the items and services they receive. Customers are more likely to be satisfied with a firm whose brand they perceive in a positive light.

H5: Brand image has a positive effect on customer satisfaction.

These days, marketers tend to think of brand image as a psychological process that connects how customers feel about a product to the qualities, they think it has. When customers have a satisfactory experience with a high-quality product, they are more likely to have a positive impression of the brand (Kotler et al., 2022). Standard metrics for evaluating product quality include how well it performs, how long it lasts, how reliable it is, the features it has, how well it follows specifications, and how attractive it is. When customers think a product works well, lasts a long time, and has appealing features, they have a positive impression of the brand. When people have a favorable impression of a brand, they are more likely to be satisfied with their purchases since they know the products are of high quality. According to research in this scenario, the mediator between product quality and consumer happiness is a brand image that includes dimensions of brand strength, brand favorability, and brand originality (Cruz & Vitales, 2015; Putra & Dewi, 2023; Sylvia & Ramli, 2024; Tauran et al., 2022). Thus, customer happiness is directly proportional to the strength of the brand image established, which in turn is influenced by how well consumers perceive the quality of the product.

H6: Brand image mediates the relationship between product quality and customer satisfaction.

Both product and service quality influence customer happiness, thereby creating a positive brand impression. When customers are satisfied with the service they receive, they are more likely to think highly of the company's brand. Parasuraman et al. (2022) and Kotler and Keller (2022) state that tangibles, responsiveness, assurance, and empathy are the primary characteristics of service quality that are used to measure how customers perceive the service they receive (Kotler et al., 2022; Noble et al., 2022). Fast, responsive, and dependable service is a key component of a positive customer perception of a brand. This point of view will make customers think more highly of the brand. Customers will be more satisfied with the company's services when they have a positive impression of the brand. According to research, brand image can mediate the relationship between service quality and customer happiness. This phenomenon is because brand image encompasses three dimensions: brand strength, brand favorability, and brand distinctiveness (Arman & Shabbir, 2020; Cruz & Vitales, 2015; Putra & Dewi, 2023).

H7: Brand image mediates the relationship between service quality and customer satisfaction.

II. METHODS

This study employs a quantitative technique to empirically test hypotheses by numerically measuring variables and analyzing statistical data to determine the nature of the relationships between them. The study examines factors such as the quality of products and services, brand perceptions, and happiness with the TikTok Shop feature. Students from North Sumatra Province who were active and had bought things from the TikTok Shop made up the study population. We used a purposive sampling method to select students who were actively involved with their TikTok accounts and had purchased items from TikTok Shop. Four hundred participants who fulfilled the study's inclusion and exclusion criteria were surveyed online. In considering the Partial Least Squares-based Structural Equation Modeling (SEM-PLS) analysis's recommendations, which range from 100 to 400 respondents based on the model's complexity, the sample size was determined (Hair et al., 2024). Also utilized was the 10-times rule originally suggested by Christian M. Ringle, Marko Sarstedt, and Joseph F. Hair Jr. (10 times the number of indicators or the greatest structural path in the research model), which is the minimum sample size. Thus, with 400 respondents, this study meets or exceeds the suggested minimum sample size, which is thought to result in more reliable and valid analysis and more consistent parameter values

Data collection in this study was conducted through the distribution of questionnaires compiled using a five-point Likert scale to measure respondents' perceptions of each research variable indicator. The research instrument included indicators representing the dimensions of product quality, service quality, brand image, and customer satisfaction. This study used the SEM-PLS method, which is a kind of structural equation modeling that is based on partial least squares, and SmartPLS software for data processing. The two primary steps of SEM-PLS analysis were the testing of the measurement model (the outer model) and the testing of the structural model (the inner model). By using indicators like Cronbach's alpha, composite reliability, convergent validity, and discriminant validity, the objective of testing the outer model is to

evaluate the construct's validity and reliability. To evaluate the study hypothesis, we used the path coefficient value, R-square, and significance test using the bootstrapping technique to examine the link between latent variables. We also tested the inner model accordingly (Hair et al., 2022).

III. RESULT AND DISCUSSION

Demographic Result

According to the study's respondent profile (table 1), college students are very engaged online, particularly on social media. The fact that women constitute most respondents suggests that they are more likely to shop online, particularly for items related to clothing, accessories, and personal care. Most respondents are young adults (ages 19–24), who are part of the "digital native" generation that grew up with computers. People in this age bracket often utilize social media for research on products and services as well as making purchases online. The platform's heavy usage, especially of the TikTok Shop feature, suggests that it has a substantial impact on the purchasing habits of college students.

The wide range of colleges represented among the respondents, however, suggests that students in North Sumatra aren't all using TikTok Shop for their daily purchases. Electronic wallets and other digital payment methods are popular among students, who value convenience, speed, and seamless integration with their online platforms while making purchases. Such usage is indicative of how Indonesia's digital payment environment is maturing, which is helping to fuel the expansion of social commerce. Fashion and food are two of the most popular product categories on TikTok Shop, showing that it serves as more than just a promotional platform; it's also a great way to get your products into people's hands. To understand how product quality, service quality, and brand image affect customer happiness at TikTok Shop, it is helpful to have a good grasp of the demographics of the students who participated in this survey.

Table 1. Respondent Characteristic Result

Respondent Characteristic (N=400)							
Gender	Male	156	39%	Payment Methods	Transfer	53	13%
	Female	244	61%		Credit Card	48	12%
Campus Type	Negeri	126	32%	Age	E-Wallet	191	48%
	Swasta	274	69%		COD	108	27%
From Campus	USU	61	15%	Products purchased on TikTok Shop	19 - 20 years	169	42%
	POLMED	35	9%		21 - 24 years	142	36%
	UNIMED	30	8%		≥ 25 years	89	22%
	UNHAR	27	7%		Skincare & Beauty	81	20%
	UNPRI	102	26%	Fashion & Accessories	121	30%	
	UMA	34	9%	Food & Beverages	87	22%	
	UMSU	44	11%	Home Appliances	17	4%	
	UISU	31	8%	Gadgets & Accessories	68	17%	
	UHN	12	3%	Avg Usage / Month	> 60 Hours	298	75%
	UNIKA	24	6%		< 60 Hours	102	26%

Source: Respondent survey regarding the use and purchase of Ventela shoes in this study in 2026

Questionnaires were then synthesized by student users and frequent customers at TikTok Shop from ten universities in Medan City. The results of the SEM PLS analysis were then obtained.

Results of the Analysis SEM PLS

Based on the results of the outer model test (figure 1) using the Structural Equation Modeling approach based on Partial Least Squares (SEM-PLS), the outer loading value is used to assess the convergent validity of each indicator against the measured latent variable. An indicator is declared valid if it has an outer loading value above 0.70 (Hair et al., 2022). The analysis results show that all indicators in the variables Product Quality, Service Quality, Brand Image, and Customer Satisfaction have outer loading values above the recommended minimum limit. In the Product Quality variable, the outer loading value ranges from 0.747 to 0.936, with the highest indicator in conformance at 0.936, indicating that product conformity with consumer standards or expectations is the strongest dimension in shaping product quality perceptions. Other indicators such as features, durability, performance, perceived quality, reliability, and aesthetics also have high loading values so they can represent the product quality construct well.

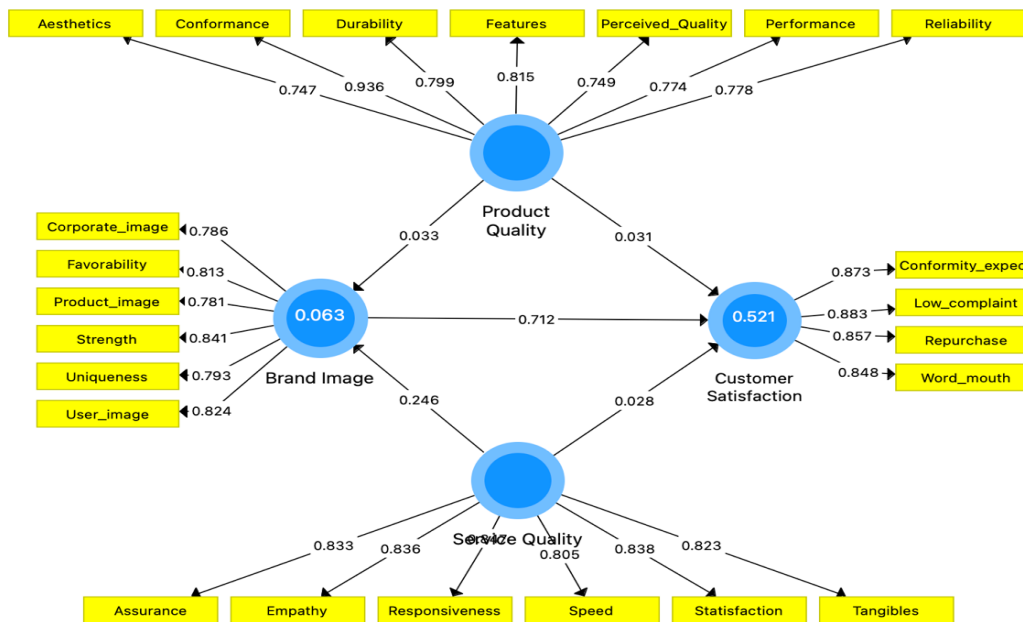


Fig 1. The results of the SEM PLS (Outer Loading)

In the service quality variable, the outer loading value ranges from 0.805 to 0.838, with the speed indicator having the highest value of 0.838, indicating that service speed is an important aspect in the perception of service quality. Other indicators, such as empathy, assurance, responsiveness, tangibles, and satisfaction, also show high loading values and are thus considered valid for measuring service quality. Furthermore, in the Brand Image variable, the outer loading value ranges from 0.781 to 0.841, with the strength indicator having the highest value of 0.841, indicating that brand strength is the main factor in shaping brand image. The outer loading value for the customer satisfaction variable, on the other hand, ranges from 0.848 to 0.883. The low complaint indicator has the highest value of 0.883, followed by the conformity expectation, repurchase, and word of mouth indicators. In general, all the indicators have outer loading values above 0.70 (Hair et al., 2022). This means that the measurement model in this study meets the criteria for convergent validity and is ready for further analysis at the structural model testing stage.

The results of the convergent validity test in this study (Table 2) were analyzed using outer loading values and Average Variance Extracted (AVE) using a Structural Equation Modeling approach based on Partial Least Squares (SEM-PLS). Based on the previous analysis, all indicators in the variables Product Quality, Service Quality, Brand Image, and Customer Satisfaction had outer loading values above 0.70, thus meeting the convergent validity criteria (Hair et al., 2022). Furthermore, the AVE values for each variable also showed satisfactory results, with Brand Image at 0.650, Customer Satisfaction at 0.749, Product Quality at 0.643, and Service Quality at 0.690. The AVE values, which are all above the minimum of 0.50, show that each construct can explain more than 50% of the difference in its indicator. Therefore, it can be concluded that all variables in this research model meet the convergent validity criteria and adequately represent the constructs being measured.

Table 2. Results of Convergent Validity and Reliability

Variable	Cronbach's Alpha	rho_A	CR	AVE
Brand Image (Z1)	0.893	0.898	0.918	0.650
Customer Satisfaction (Y1)	0.889	0.901	0.923	0.749
Product Quality (X1)	0.926	1.312	0.926	0.643
Service Quality (X2)	0.911	0.931	0.930	0.690

Source: SEM-PLS Processing Results, 2026 (Processed by Researchers)

Furthermore, construct reliability testing was conducted by looking at the Cronbach's Alpha, rho_A, and Composite Reliability (CR) values. The analysis results indicated that the Cronbach's Alpha value for each variable was above 0.70, namely Brand Image at 0.893, Customer Satisfaction at 0.889, Product Quality at 0.926, and Service Quality at 0.911, so that all variables were declared reliable. The Composite Reliability

(CR) value also showed very satisfactory results with a Brand Image value of 0.918, Customer Satisfaction at 0.923, Product Quality at 0.926, and Service Quality at 0.930, all of which were above the minimum limit of 0.70. In addition, the rho_A value for each variable is also in the high category, namely Brand Image at 0.898, Customer Satisfaction at 0.901, Product Quality at 1.312, and Service Quality at 0.931, which indicates very satisfactory internal consistency of the construct. Overall, the results of this test indicate that the measurement model in this study has met the validity and reliability criteria, so it is suitable for use in the next stage of analysis, namely testing the structural model (inner model).

Table 3. Heterotrait-Monotrait Ratio Value Results

Variabel	1	2	3	4
1. Brand Image (Z1)				
2. Customer Satisfaction (Y1)	0.791			
3. Product Quality (X1)	0.051	0.058		
4. Service Quality (X2)	0.266	0.219	0.092	

Source: SEM-PLS Processing Results, 2026 (Processed by Researchers)

The results of the discriminant validity test (table 3) in this study were analyzed using the Heterotrait–Monotrait Ratio (HTMT) method within the Structural Equation Modeling-Based Partial Least Squares (SEM-PLS) approach. The HTMT test is used to ensure that each construct in the research model clearly differs from the others. Generally, a model is considered to have discriminant validity if the HTMT value falls below the threshold of 0.90 (Hair et al., 2022). The HTMT value between the Brand Image (Z1) and Customer Satisfaction (Y1) variables is 0.791, which is still below the recommended maximum limit, as shown in Table 3. This indicates that the two constructs have a good level of discrimination and can be empirically distinguished in the research model.

In addition, the HTMT value between the Product Quality (X1) variable and Brand Image (Z1) is 0.051, and with Customer Satisfaction (Y1), it is 0.058, which indicates a very low level of correlation between constructs, thus strengthening the discriminant validity of the model. Meanwhile, the HTMT value between Service Quality (X2) and Brand Image (Z1) is 0.266, with Customer Satisfaction (Y1) at 0.219, and Product Quality (X1) is 0.092, all of which are also far below the threshold of 0.90. These values indicate that each latent variable in this study has different characteristics and does not overlap in measuring the constructs studied. Thus, this research model has met the criteria for discriminant validity, so each variable can be clearly distinguished and is suitable for use in structural analysis at the next stage.

Table 4. Fornell-Lercker Criterion Results

Variable	1	2	3	4
1. Brand Image (Z1)	0.806			
2. Customer Satisfaction (Y1)	0.721	0.865		
3. Product Quality (X1)	0.053	0.072	0.802	
4. Service Quality (X2)	0.249	0.208	0.083	0.830

Source: SEM-PLS Processing Results, 2025 (Processed by Researchers)

Discriminant validity testing in this study was also conducted using the Fornell-Larcker Criterion within the Structural Equation Modeling-Based Partial Least Squares (SEM-PLS) approach. The Fornell-Larcker method is used to ensure that each construct in the research model has a satisfactory level of discrimination against other constructs. This criterion states that the square root of the Average Variance Extracted (AVE) value located on the main diagonal must be greater than the correlation value between constructs in the same row and column (Hair et al., 2022). Based on the results presented in Table 4, the diagonal values for each variable show quite high results: Brand Image at 0.806, Customer Satisfaction at 0.865, Product Quality at 0.802, and Service Quality at 0.830. These values indicate that each construct has a stronger ability to explain its own indicators compared to its relationship to other constructs in the research model.

Furthermore, when comparing the correlation values between variables, all diagonal values in the Fornell–Larcker table appear to be greater than the correlation values in the same row or column. For example, the root value of AVE Brand Image (0.806) is greater than its correlation with Customer Satisfaction (0.721), Product Quality (0.053), and Service Quality (0.249). The same thing is also seen in the

Customer Satisfaction variable (0.865), which has a higher value compared to its correlation with other variables, as well as the Product Quality (0.802) and Service Quality (0.830) variables, which also show a similar pattern. These findings indicate that each construct in the research model has clear differences, and there is no overlap between latent variables. Thus, it can be concluded that this research model has met the discriminant validity criteria based on the Fornell–Larcker approach and is suitable for use in structural model analysis in the next stage.

Table 5. R-Square Adjusted & F-Square Value Result

Variable	F-Square				R-Square	
	BI	CS	PD	SQ	R ²	Adjusted
Brand Image (BI)		0.992			0.063	0.058
Customer Satisfaction (CS)					0.521	0.518
Product Quality (PQ)	0.001	0.002				
Service Quality (SQ)	0.064	0.002				

Source: SEM-PLS Processing Results, 2026 (Processed by Researchers)

The results of the R-Square (R²) test on the structural model show the ability of independent variables to explain the dependent variable in the research model analyzed using the Structural Equation Modeling approach based on Partial Least Squares (SEM-PLS) (Hair et al., 2021). Based on Table 5, the R-square value for the Brand Image (BI) variable is 0.063 with an Adjusted R² value of 0.058, which indicates that the Product Quality (PQ) and Service Quality (SQ) variables can explain 6.3% of the Brand Image variation, while the remaining 93.7% is influenced by other variables outside the research model. Meanwhile, the R-square value for the Customer Satisfaction (CS) variable is 0.521 with an Adjusted R² value of 0.518, which means that the Product Quality, Service Quality, and Brand Image variables together can explain 52.1% of the variation in customer satisfaction. Based on the interpretation criteria for the R² value in SEM-PLS, this value indicates that the model has moderate explanatory power for the customer satisfaction variable. Thus, this research model has a good ability to explain customer satisfaction on digital platforms. Next, the results of the F-Square (f²) analysis were used to measure the magnitude of the contribution of each independent variable to the dependent variable in the research model (Hair et al., 2021).

Based on the results displayed in the table, the Brand Image variable on Customer Satisfaction has an f² value of 0.992, indicating a forceful influence in explaining customer satisfaction. Meanwhile, the effect of product quality on brand image has an f² value of 0.001 and on customer satisfaction of 0.002, indicating that these variables contribute very little to the model. The service quality variable on brand image has an f² value of 0.064, indicating a small but still significant influence on brand image formation. Its effect on customer satisfaction, at 0.002, is also very small. Overall, the results of this analysis indicate that brand image plays the most dominant role in influencing customer satisfaction, while the product quality and service quality variables have relatively small contributions to this research model. The model fit test results in this study were conducted to evaluate the extent to which the constructed structural model adequately represented empirical data in Structural Equation Modeling based on Partial Least Squares (SEM-PLS) analysis. According to Table 6, the Standardized Root Mean Square Residual (SRMR) values for the Saturated Model and Estimated Model were each 0.054. SRMR values below the threshold of 0.08 indicate a good fit between the theoretical model and the empirical data (Hair et al., 2020). Furthermore, the d_ULS value of 0.804 and d_G of 0.397 indicate an acceptable level of discrepancy between the empirical correlation matrix and the model-predicted matrix. The Chi-Square value of 936.335 also indicates a tolerable level of model misfit in the SEM-PLS approach, which emphasizes model prediction over absolute model fit.

Table 6. Model Fit Test Results

	Saturated Model	Estimated Model
SRMR	0.054	0.054
d_ULS	0.804	0.804
d_G	0.397	0.397
Chi-Square	936.335	936.335
NFI	0.850	0.850
rms Theta	0.142	

In addition, the Normed Fit Index (NFI) value in this research model is 0.850, which indicates that the model has a satisfactory level of fit because it is close to the ideal value of 1 (Sarstedt et al., 2021). This value indicates that the model built can explain most of the covariance in the research data. Meanwhile, the RMS Theta value of 0.142 indicates the level of residual error in the indicators in the measurement model. Although the RMS Theta value is slightly above the recommended ideal limit, the overall results of the model fit test indicate that the research model is still in the fit category or is suitable for use in structural analysis. Thus, this research model is considered to have an adequate level of fit to test the relationship between product quality, service quality, brand image, and customer satisfaction in the proposed research model.

Table 7. Hypothesis Relationship Results

Hypothesis	Relation	O	M	STDEV	STDEV	P-Value	Note
H 1	BI → CS	0.712	0.712	0.031	22.658	0.000	Accepted
H 2	PQ → BI	0.033	0.023	0.094	0.348	0.728	Rejected
H 3	PQ → CS	0.055	0.052	0.085	0.640	0.523	Rejected
H 4	SQ → BI	0.246	0.247	0.049	5.018	0.000	Accepted
H 5	SQ → CS	0.204	0.205	0.049	4.128	0.000	Accepted
H 6	PQ → BI → CS	0.023	0.016	0.067	0.347	0.729	Rejected
H 7	SQ → BI → CS	0.175	0.176	0.036	4.880	0,000	Accepted

Note: BI (Brand Image), CS (Customer Satisfaction), PQ (Product Quality), SQ (Service Quality)

The results of hypothesis testing in this study were conducted using a Structural Equation Modeling approach based on Partial Least Squares (SEM-PLS) by looking at the path coefficient (O), t-statistic, and p-value. Based on Table 7, the H1 hypothesis stating that Brand Image (BI) influences Customer Satisfaction (CS) is accepted with a coefficient value of 0.712, a t-statistic value of 22.658, and a p-value of 0.000, indicating a positive and significant influence. The H2 hypothesis testing the influence of Product Quality (PQ) on Brand Image (BI) shows a coefficient value of 0.033 with a p-value of 0.728, so it is not significant, and the hypothesis is rejected. Similarly, the H3 hypothesis tests the influence of Product Quality (PQ) on Customer Satisfaction (CS) with a coefficient value of 0.055 and a p-value of 0.523, so this hypothesis is also rejected. Conversely, hypothesis H4, which tested the effect of Service Quality (SQ) on Brand Image (BI), was accepted with a coefficient of 0.246, a t-statistic of 5.018, and a p-value of 0.000, indicating that service quality has a positive and significant influence on brand image.

Furthermore, hypothesis H5, which tested the effect of Service Quality (SQ) on Customer Satisfaction (CS), was also accepted with a coefficient of 0.204, a t-statistic of 4.128, and a p-value of 0.000, indicating that service quality has a direct, positive effect on customer satisfaction. In testing the mediation effect, hypothesis H6, which tested the indirect effect of Product Quality (PQ) on Customer Satisfaction (CS) through Brand Image (BI), showed a coefficient of 0.023 with a p-value of 0.729, making it insignificant and rejecting the hypothesis. On the other hand, hypothesis H7, which tests the indirect effect of Service Quality (SQ) on Customer Satisfaction (CS) through Brand Image (BI), is accepted with a coefficient value of 0.175, a t-statistic of 4.880, and a p-value of 0.000, indicating a significant mediation effect. These results indicate that brand image acts as a mediating variable in the relationship between service quality and customer satisfaction but is unable to mediate the relationship between product quality and customer satisfaction. Overall, the findings of this study confirm that service quality and brand image have a more dominant role in increasing customer satisfaction than product quality in the context of shopping through digital platforms.

Discussion

The test results show that brand image has a positive and significant effect on customer satisfaction, thus accepting the first hypothesis. This finding indicates that the more positive the brand image formed in the minds of consumers, the higher the level of satisfaction felt after making a purchase through TikTok Shop. In the context of digital marketing, brand image serves as a representation of consumer perceptions of a brand's reputation, credibility, and value, thus influencing post-purchase evaluations. Brands with a positive image tend to foster consumer trust and confidence in the products and services they offer. Theoretically, a strong brand image will strengthen consumers' positive associations with the brand and encourage customer satisfaction (Keller & Swaminathan, 2020). The results of this study are also in line with

the findings of Tahir et al., who emphasized that brand image is an important determinant in increasing customer satisfaction in various marketing contexts (Tahir et al., 2024). The test results showed that product quality did not significantly influence brand image, thus rejecting H2. This finding suggests that, within the TikTok Shop context, perceived product quality does not directly influence brand image in consumers' minds. This may occur because in social commerce, brand image formation is often more influenced by content presentation, user reviews, seller credibility, and the overall digital experience than by product attributes alone.

Theoretically, Keller and Swaminathan place perceived quality as one of the sources of brand association formation, and Diputra and Yasa also found that product quality has a positive effect on brand image (Diputra et al., 2021; Keller & Swaminathan, 2020). However, the results of this study indicate that in the TikTok Shop environment, the power of visuals, interactions, and platform context appears to be more dominant than perceived product quality in shaping brand image. The test results showed that product quality had no significant effect on customer satisfaction, thus rejecting H3. This finding indicates that customer satisfaction on TikTok Shop is not predominantly influenced by product quality, but rather by factors such as the shopping experience, seller service, response time, or brand image. In video-based commerce and algorithmic recommendations like TikTok Shop, purchasing decisions are often driven by content appeal, live selling, and impulsive buying, so satisfaction evaluations do not always rely directly on product quality. However, theoretically, Kotler et al. asserted that product quality that meets or exceeds customer expectations should increase satisfaction (Kotler et al., 2022), and Gunawan et al. and Khair et al. also found a positive effect of product quality on customer satisfaction (Gunawan, 2022; Khair et al., 2023). Therefore, the results of this study indicate a unique characteristic of social commerce: customer satisfaction is more complex and is not solely explained by product quality dimensions. The test results show that service quality has a positive and significant effect on brand image; thus, H4 is accepted. This finding indicates that fast, responsive, informative, and convincing service can strengthen the brand image in the eyes of TikTok Shop customers.

In the context of digital platforms, service quality is not only understood as direct interaction but also includes the speed of chat responses, clarity of product information, complaint handling, and accuracy of transaction processes. Kotler et al. emphasize that service experience is a crucial part in shaping consumer perceptions of a company (Kotler et al., 2022), and Dam and Dam prove that service quality has a positive effect on brand image (Dam & Dam, 2021). Thus, the results of this study demonstrate that satisfactory service not only creates a pleasant experience but also strengthens the reputation and brand image in the social commerce environment. The test results show that service quality has a positive and significant effect on customer satisfaction; thus, H5 is accepted. This means that the better the service quality received by customers, the higher their level of satisfaction after shopping through TikTok Shop. In this context, service quality can be reflected in the seller's responsiveness, information certainty, order processing speed, and ease of communication during the transaction. This finding aligns with Kotler et al.'s view that service quality is an important determinant of customer satisfaction (Kotler et al., 2022), and Dam and Dam (2021) also showed that service quality has a positive effect on customer satisfaction (Dam & Dam, 2021). Therefore, the results of this study confirm that in social commerce, service experience is one of the main factors shaping customer satisfaction evaluations. The test results show that brand image does not mediate the effect of product quality on customer satisfaction; thus, H6 is rejected. This finding suggests that although product quality can theoretically strengthen brand image, in this study, this indirect pathway is not strong enough to explain TikTok Shop customer satisfaction.

One possible explanation is that consumers on this platform first form perceptions based on visual stimuli, content, and social interactions, so product quality is not the primary trigger for brand image formation, which then leads to satisfaction. However, Keller and Swaminathan emphasize the importance of brand associations in consumer evaluations (Keller & Swaminathan, 2020), and Diputra and Yasa found that product quality influences both brand image and customer satisfaction (Diputra et al., 2021). Thus, the results of this study indicate that brand image mediation of the relationship between product quality and customer satisfaction does not always occur in the context of social commerce, which is heavily influenced

by digital experience and platform characteristics. The test results show that brand image mediates the effect of service quality on customer satisfaction; thus, H7 is accepted. This finding means that good service not only directly increases satisfaction but also first forms a positive brand image, which then strengthens customer satisfaction. In the context of TikTok Shop, responsive, friendly, and trustworthy service will create a professional impression of the seller or brand so that customers feel more confident and satisfied with their shopping experience. Dam and Dam showed that service quality has a positive effect on brand image and customer satisfaction (Dam & Dam, 2021), while Tahir et al. emphasized that brand image is key to determining customer satisfaction (Tahir et al., 2024). Therefore, the results of this study confirm that brand image functions as a psychological mechanism that bridges the influence of service quality on customer satisfaction on social commerce platforms.

IV. CONCLUSION

This study shows that brand image and service quality are the main factors influencing customer satisfaction among TikTok Shop users among active university students in North Sumatra. The results of the hypothesis testing prove that brand image has a positive and significant effect on customer satisfaction, so that a satisfactory brand image can increase customer satisfaction after making a purchase. In addition, service quality is also proven to have a positive and significant effect on brand image and customer satisfaction, which means that it is an important aspect of building positive perceptions and a satisfying shopping experience. Conversely, product quality has little effect on brand image or customer satisfaction, making it a less dominant factor in explaining customer satisfaction in this study. Thus, the main formulation of this research problem is answered: customer satisfaction on TikTok Shop is more determined by service experience and brand image than by product quality directly. The findings of this study also indicate that brand image acts as a mediating variable in the relationship between service quality and customer satisfaction, and does not mediate the relationship between product quality and customer satisfaction. These results confirm that excellent service quality not only has a direct impact on customer satisfaction but also forms a more positive brand image, which ultimately increases customer satisfaction. Conversely, product quality does not form a strong mediating pathway through brand image, so its indirect effect on customer satisfaction is unproven. These findings answer the research question regarding the mediating role of brand image and also explain that not all independent variables have the same pathway of influence in the social commerce environment. Therefore, this research model shows that the relationship between variables in

TikTok Shop is more dynamic and influenced by the unique characteristics of digital interactions. The novelty of this research lies in the finding that, in the context of TikTok Shop, service quality and brand image are more dominant than product quality in shaping customer satisfaction. This finding expands marketing theory, which has emphasized product quality as the primary determinant of customer satisfaction, by showing that in video-based social commerce, service experience and brand perception are actually more decisive. This research also provides a theoretical contribution by proving that brand image is only effective as a mediator in the relationship between service quality and customer satisfaction, but not in the relationship between product quality and customer satisfaction. This suggests that customer satisfaction theory in the context of social commerce needs to consider the role of digital experience, visual communication, and platform interaction as elements that shape satisfaction. Thus, this research adds value to the development of digital marketing theory and enriches the literature on consumer behavior on the TikTok Shop platform. For further research, it is recommended that the respondent population be expanded beyond active students in North Sumatra to include other consumer groups, such as workers, housewives, or the general public from different regions. Expanding respondent characteristics will provide a broader picture of TikTok Shop consumer behavior and increase the generalizability of the research results.

Future research can also add other variables, such as trust, price perception, electronic word of mouth, impulse buying, or user experience, to explain customer satisfaction more comprehensively. Furthermore, the use of mixed methods can be considered so that researchers not only obtain statistical results but also understand the deeper reasons behind consumer behavior in social commerce. With these

developments, future research is expected to overcome the limitations of the current model and strengthen both theoretical and empirical contributions. For companies or sellers utilizing TikTok Shop, the results of this study demonstrate the importance of prioritizing service quality improvement and brand image enhancement in their digital marketing strategies. Companies need to ensure responsiveness, clarity of product information, accuracy of the ordering process, and professional complaint handling to ensure a positive customer shopping experience. Furthermore, companies need to build a consistent brand image through engaging, credible content that aligns with the characteristics of their target market to strengthen consumer perceptions of the brand. While product quality must still be maintained, the results of this study indicate that companies will achieve a greater impact on customer satisfaction by focusing on service and brand image. Therefore, business strategies for TikTok Shop should be directed at managing the overall customer experience to create satisfaction, loyalty, and sustainable competitive advantage.

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