



## **From Experience to Loyalty: Insights from Indonesian Fashion E-Commerce**

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**Abstract:** *The rapid growth of internet use has transformed shopping behavior in Indonesia, particularly in the fashion e-commerce sector. Increasing competition requires online platforms to enhance user experience and electronic service quality to sustain customer satisfaction and loyalty. This study examines the effects of user experience and electronic service quality on customer satisfaction and loyalty in Indonesia's online fashion industry. Data were collected from 285 respondents who had purchased fashion products through the official websites of five top brands: Adidas, Nike, Converse, H&M, and Uniqlo. Using a two-stage Partial Least Squares Structural Equation Modeling (PLS-SEM) approach, the results reveal that user experience significantly affects electronic service quality and satisfaction, whereas electronic service quality positively influences satisfaction. Customer satisfaction strongly predicts loyalty. Furthermore, both electronic service quality and customer satisfaction play significant mediating roles. User experience indirectly enhances satisfaction through electronic service quality and, in turn, promotes loyalty through satisfaction. This study validates an integrated model in the context of Indonesia's fashion e-commerce using a two-stage analytical approach.*

**Keywords:** *Customer loyalty; Customer satisfaction; E-service quality; E-commerce; User experience*

### **1. Introduction**

Human life today is inseparable from the internet, as indicated by Indonesia's internet penetration rate, which reached nearly 80 percent in 2024 (APJII), reflecting a significant increase driven by the growth in online activity during and after the Covid-19 pandemic. With the convenience and connectivity offered by the internet, almost every aspect of human life is now supported by it, including shopping activities. The shopping behavior of Indonesian consumers has undergone a substantial transformation due to advancements in internet technology. A survey conducted by Badan Pusat Statistik in 2023 found that nearly 20% of internet use in Indonesia is devoted to purchasing goods and services. The shift in shopping preferences from offline to online platforms is further driven by ease of information access, hedonic motivation, and trust (Santo & Marques, 2022). Fashion products are the most frequently purchased items online among Indonesian consumers, according to a 2023 survey conducted by Kredivo and Katadata. This finding aligns with Snapcart's 2025 survey, which reported that 80% of consumers no longer rely on offline channels for fashion purchases. This high level of consumption has intensified competition within the fashion sector, compelling firms to emphasize customer satisfaction and enjoyment, sustainability, and digital engagement strategies (Nadeem et al., 2025).

The intense competition in the fashion industry has prompted companies to focus on customer retention and customer loyalty development. Sustained customer loyalty is a key determinant of business growth, contributing not only to increased market share and profitability but also to greater efficiency through reduced marketing costs (Obafemi et al., 2022). Customer satisfaction serves as an essential determinant of customer loyalty. When customers are satisfied with their experience, they are more likely to purchase from the brand again (Utami et al., 2023). Considering the shift in consumer preferences toward online purchasing in Indonesia, customer satisfaction can no longer be achieved solely through traditional strategies. Instead, managing digital media plays a key role in shaping how customers evaluate service quality (Ighomereho et al., 2023). Therefore, organizations must pay close attention to electronic service quality and user experience, as these two dimensions determine how effectively online service delivery translates into customer satisfaction (Mamakou et al., 2024).

In the competitive e-commerce landscape, companies are increasingly driven to distinguish themselves by providing seamless and engaging digital experiences (Susilawati et al., 2024). As a result, consumers now demand more than just functional systems. They expect platforms that combine aesthetic appeal, well-structured information, and intuitive navigation, all of which contribute to their satisfaction when interacting with online services (Guo et al., 2023). Over time, this growing sophistication has also made users less tolerant of inefficiencies such as slow loading times, complex interfaces, and security concerns, which often lead to purchase abandonment or negative brand perceptions (Adedaja et al., 2022). Nevertheless, despite significant technological advancements, online shopping continues to be perceived by many as impersonal and less reliable due to the absence of direct interaction between buyers and sellers (Millar et al., 2023). Taken together, these developments underscore the importance of examining user experience and electronic service quality, as both constructs reflect the key dimensions of digital interaction that shape consumers' evaluation of online services. Prior studies have further confirmed that user experience and electronic service quality significantly influence customer satisfaction (David, 2023; Effendi & Suyoto, 2023).

Previous studies have demonstrated inconsistencies regarding how electronic service quality affects customer satisfaction. Mamakou et al. (2024) found a significant positive effect of electronic service quality on customer satisfaction, whereas Nasution & Adiwijaya (2024) and Ashiq & Hussain (2024) reported an insignificant relationship between the two variables. The present study builds on Mamakou et al. (2024) by extending the research context and model. This development was conducted in accordance with the authors' recommendation to test the model in a different country and to include the additional variable of customer loyalty. Such a recommendation is reinforced by the research of Ashiq & Hussain (2024), who demonstrated a significant positive influence of customer satisfaction on customer loyalty, and by Nasution & Adiwijaya (2024), who highlighted customer satisfaction as a mediator between user experience and customer loyalty. To date, few studies have examined the effects of user experience and electronic service quality on customer satisfaction and their subsequent impact on customer loyalty simultaneously, within the

context of fashion e-commerce in Indonesia. Therefore, this study seeks to address this research gap.

## **2. Literature Review & Hypotheses development**

### **2.1. Expectancy Disconfirmation Theory (EDT)**

The Expectancy Disconfirmation Theory posits that customer satisfaction arises from the interaction between their initial expectations and the degree of disconfirmation experienced after the actual service encounter (Oliver, 1980). The repurchase decision-making process comprises several stages (Hasan et al., 2024). Before making a purchase, customers form an expectation about what they expect from a product or service. Once they experience it firsthand, these expectations evolve into perceptions of actual performance shaped by their initial encounters. At this stage, customers subconsciously engage in a cognitive comparison between what they anticipated and what they received, producing three potential outcomes: positive disconfirmation, when performance exceeds expectations; confirmation, when performance aligns with expectations; and negative disconfirmation, when performance falls short of expectations. This evaluative process ultimately manifests emotional satisfaction or dissatisfaction. Positive disconfirmation evokes a sense of delight, confirmation results in moderate contentment, while negative disconfirmation gives rise to disappointment. Consequently, satisfied customers are more inclined to repurchase or remain loyal, whereas dissatisfied ones are more likely to disengage or switch to alternatives. In the context of fashion e-commerce, the Expectancy-Disconfirmation Theory is highly relevant, as customer behavior is influenced by initial expectations and actual experiences on the platform, where user experience and interface quality determine the extent to which expectations are fulfilled (Ofori, 2024).

### **2.2. User Experience**

The term user experience was originally coined by Norman et al. (1995) to describe all aspects of interface design, including its research and implementation. User experience refers to the response to technology use that extends beyond functional aspects, reflecting a holistic, phenomenological experience in which individuals construct meanings, emotions, and personal interpretations through their interactions with digital artifacts. (Musulin & Strahonja, 2023). Based on the questionnaire developed by Laugwitz et al. (2008), known as the User Experience Questionnaire (UEQ), user experience consists of six dimensions: attractiveness, perspicuity, efficiency, dependability, stimulation, and novelty. User experience is a multidimensional construct that encompasses pragmatic aspects such as usability and functionality, as well as hedonic elements reflecting users' emotions (Rohles et al., 2022).

### **2.3. Electronic Service Quality**

Electronic service quality refers to the extent to which a website enables and supports customers in shopping, purchasing, and receiving products efficiently and effectively (Parasuraman et al., 2005). Compared with traditional services, electronic services present distinct characteristics and challenges, as interactions occur between customers and digital service interfaces rather than through direct human contact, thereby reducing the

applicability of the tangible dimension in the absence of a physical storefront (Maziriri et al., 2023). The concept of e-service quality has evolved alongside technological advancement and increasing customer reliance on digital interfaces. As online environments continue to expand, the precision with which e-service quality is measured becomes essential. Therefore, numerous measures have been developed to assess electronic service quality. In this study, electronic service quality is measured based on the E-S-QUAL model, which comprises four main dimensions: efficiency, system availability, fulfillment, and privacy (Parasuraman et al., 2005).

#### **2.4. Customer Satisfaction**

According to Kotler & Keller (2012), Satisfaction refers to the feeling of pleasure or disappointment that results from comparing perceived performance with expectations toward a product. This is consistent with the Expectancy Disconfirmation Theory, which posits that satisfaction is an additive combination of expectation and disconfirmation (Oliver, 1980). As a psychological construct, satisfaction reflects the extent to which consumers perceive that their expectations have been fulfilled or surpassed. Satisfaction is a key indicator of how well an organization meets the needs and preferences of its consumers (Tufahati et al., 2021). It reflects an affective response that emerges after a cognitive evaluation of product performance. Customers are satisfied when performance meets expectations, disappointed when it falls short, and delighted when it exceeds expectations (Kotler & Keller, 2012).

#### **2.5. Customer Loyalty**

According to Oliver (1999), customer loyalty refers to a persistent and robust commitment to repeatedly purchase or use a preferred product or service over time, despite external influences or marketing efforts that may tempt a switch to competitors. Customer loyalty is widely regarded as the most valuable asset for enhancing a company's profitability (Budianto, 2019). Loyal customers tend to make repeat purchases and recommend products to others, thereby enhancing profitability and reducing costs, typically because they derive high value from their transactions (Obafemi et al., 2022). Customer loyalty also reflects customer confidence in the brand's ability to consistently deliver value and maintain satisfaction over time. Therefore, loyalty functions as both a behavioral outcome and a strategic indicator of sustainable business performance.

#### **2.6. Hypotheses**

A previous study found that user experience positively affects electronic service quality in Greek e-commerce (Mamakou et al., 2024). Although these studies were conducted outside Indonesia, their findings provide a basis for hypothesizing similar relationships in the Indonesian context. In Indonesia, research on mobile coffee-shop applications similarly found that user experience significantly influences electronic service quality (Nasution & Adiwijaya, 2024). In electronic services, there is no direct interaction between consumers and providers; thus, website quality determines the perception of electronic service quality (Ighomereho et al., 2023). User experience significantly influences perceived risk; therefore,

designing a user experience that aligns precisely with user needs, without excess or complexity, can prevent user frustration and minimize errors (Prayoga et al., 2023).

*H<sub>1</sub>: User experience has a positive effect on electronic service quality.*

Research in India found that electronic service quality has a positive and significant effect on customer satisfaction in online retail settings, where the dimensions of contact and privacy played the strongest roles (Ganie & Bhat, 2023). Similarly, a study in Indonesia on university students found that electronic service quality significantly influenced customer satisfaction in the context of fashion product purchases on e-commerce platforms (Utami, 2024). E-commerce platforms must achieve customer satisfaction, which requires improving electronic service quality through adaptations that better meet customer expectations (Pratama et al., 2024). In general, higher electronic service quality increases the chance of meeting customer expectations, which in turn leads to satisfaction. These findings across different national and demographic contexts suggest that electronic service quality likely plays a similar role in shaping customer satisfaction in Indonesian fashion e-commerce environments.

*H<sub>2</sub>: Electronic service quality has a positive effect on customer satisfaction.*

In Greece, research has shown that user experience has a significant positive effect on customer satisfaction in e-commerce platforms (Mamakou et al., 2024). In India, research on e-commerce websites has demonstrated that user experience design factors significantly influence customer satisfaction, with website aesthetics and usability identified as the most influential (Kumar et al., 2023). In the Indonesian context, user experience dimensions such as perspicuity, efficiency, novelty, and usability significantly influence customer satisfaction among JConnect users (Khasanah et al., 2023). On online transportation platforms, users value updates and features that offer varied experiences, leading to higher satisfaction (Sanny et al., 2019). Additionally, website quality, characterized by uniqueness and clarity of use, attracts customers and fosters satisfaction on Indonesian e-commerce platforms (Saputra, 2021).

*H<sub>3</sub>: User experience has a positive effect on customer satisfaction.*

Previous studies have demonstrated that customer satisfaction positively influences customer loyalty in both Pakistan and Indonesia (Ashiq & Hussain, 2024; Nasution & Adiwijaya, 2024). In Pakistan, Ashiq & Hussain (2024) found that higher e-satisfaction among online shoppers is associated with greater e-loyalty, underscoring the importance of positive customer experiences in fostering continued engagement. This relationship has also been confirmed in the context of leading Indonesian e-commerce platforms, including Lazada, Tokopedia, Bukalapak, and Shopee, where higher satisfaction levels significantly enhanced customer loyalty (Wisnel et al., 2022). Satisfied customers may become loyal customers because positive experiences increase the likelihood of repeat purchases (Malau & Sitanggang, 2024). These findings reinforce the notion that higher satisfaction levels encourage repeat purchases and sustained commitment toward a brand or service.

*H<sub>4</sub>: Customer satisfaction has a positive effect on customer loyalty.*



Studies have shown that electronic service quality mediates the relationship between user experience and customer satisfaction. In Greece, a study found that user experience positively affects customer satisfaction, with electronic service quality partially mediating this effect (Mamakou et al., 2024). In Indonesia, research on Sociolla website users showed that user experience significantly influenced electronic service quality, which, in turn, increased customer satisfaction; electronic service quality partially mediated this relationship (The et al., 2025). Similarly, a study on mobile banking applications also found an indirect relationship (Siregar et al., 2025). Based on these findings, user experience is assumed to indirectly affect customer satisfaction through electronic service quality, as improved user experiences enhance perceived service quality, which ultimately leads to greater satisfaction.

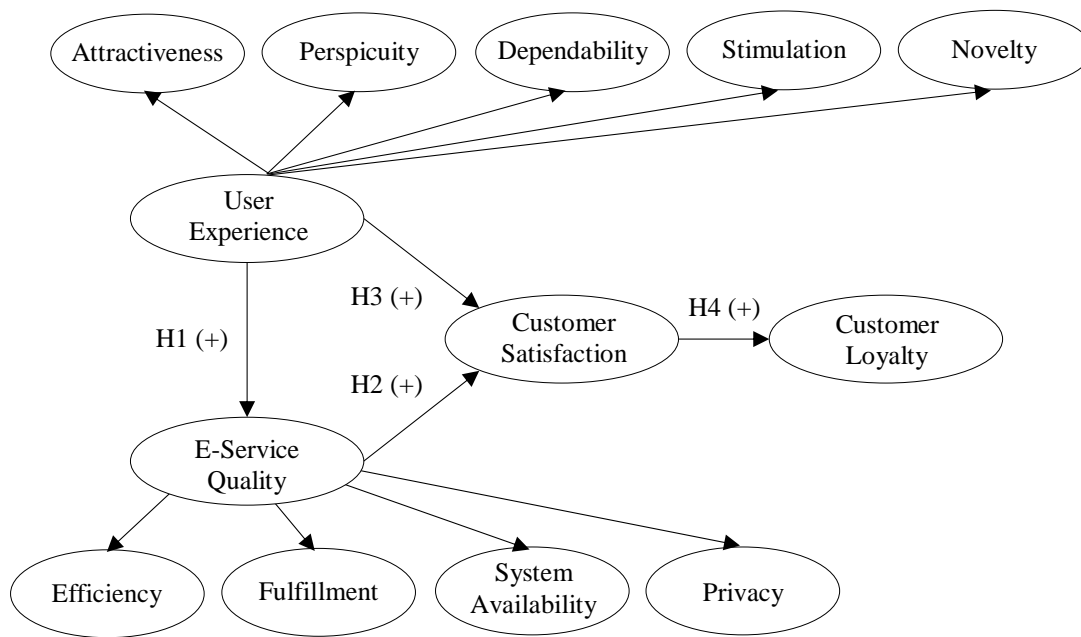
*H5: User experience has a positive effect on customer satisfaction through electronic service quality.*

A previous study states that customer satisfaction mediates the positive relationship between user experience and customer loyalty (Nasution & Adiwijaya, 2024). A similar finding was reported: customer satisfaction mediates the relationship between user experience and customer loyalty in the Shopee e-commerce environment (Saputra, 2021). The homepage, navigation, and color are the aspects most closely related to customer interaction. An attractive homepage draws initial attention, while intuitive navigation and visually appealing colors contribute to a seamless browsing experience (Hasan et al., 2024). Such an experience not only reduces frustration but also increases the likelihood that users feel satisfied and engaged throughout their interactions with the platform. Optimizing the user experience can therefore strengthen customer loyalty (Husna & Wibowo, 2024).

*H6: User experience positively affects customer loyalty through customer satisfaction.*

International evidence supports the mediating role of customer satisfaction in the relationship between electronic service quality and customer loyalty. In Jordan, a study on online shopping consumers found that e-satisfaction mediates the positive effect of electronic service quality on e-loyalty, highlighting that higher service quality enhances satisfaction, which in turn strengthens loyalty (Al-dweeri et al., 2017). In Indonesia, similar findings were reported in several e-commerce contexts. The relationship was observed among Bukalapak users (Purwati et al., 2022) and confirmed for Tiket.com customers (Atmojo & Widodo, 2022). Supporting evidence also emerged from studies of Shopee users (Rifki et al., 2024) and KlikIndomaret users (Susanto & Pandjaitan, 2024), showing that higher electronic service quality increases customer satisfaction, which in turn leads to stronger customer loyalty.

*H7: Electronic service quality has a positive effect on customer loyalty through customer satisfaction.*



**Figure 1. Research Model**

### **3. Method**

This study employed purposive sampling to select respondents. This study targeted a population consisting of customers who had previously made purchases on the official websites of Adidas, H&M, Converse, Uniqlo, or Nike, with the following characteristics: respondents were Indonesian citizens aged between 18 and 44 years old, had at least a senior high school or equivalent educational background, were male or female customers who had made fashion product purchases (including clothing, footwear, hats, socks, and bags) through the official websites of Adidas, H&M, Converse, Uniqlo, or Nike within the past year, and personally operated the respective websites during their transactions.

The selection of these brands was guided by their prominence and relevance in Indonesia's online fashion market. Amid this competitive environment, they emerged as the five most preferred fashion brands among Indonesian consumers, according to Populix's 2021 survey. These brands consistently demonstrate dominance not only in consumer preferences but also in their digital presence. Data from SimilarWeb indicates that Adidas and Uniqlo websites recorded the highest traffic among single-brand fashion sites in Indonesia between May and September 2025. Complementary data from Semrush indicate that the websites of Uniqlo, Converse, and H&M consistently ranked among the top 10-15 most-visited fashion sites in Indonesia from July to September 2025. Moreover, Adidas, Converse, and Nike were among the top 10 brands in the Top Brand Index for casual footwear in the first half of 2025. This digital popularity and dominance render these brands particularly relevant for examination within the context of user experience, electronic service quality, customer satisfaction, and customer loyalty in Indonesia's online fashion sector, as several previous studies have also employed top or global fashion brands as research objects when analyzing similar variables (Havana & Sihombing, 2025; Sahlani & Ruswanti, 2024; Santoso et al., 2024).

The research instrument (See Table 1 in the appendix) comprised five dimensions and 22 items for the user experience variable, four dimensions and 22 items for the electronic service quality variable, and 3 items for the customer satisfaction variable, all adapted from Mamakou et al. (2024). Additionally, 3 items for the customer loyalty variable were developed based on Ashiq & Hussain (2024). The user experience (UX) and electronic service quality (ESQ) constructs were treated as second-order constructs composed of several first-order dimensions, while customer satisfaction and customer loyalty were modeled as first-order constructs. A seven-point Likert scale was employed, as it provides higher accuracy in measuring participant evaluations and is more suitable for digitally distributed questionnaires without direct supervision (Finstad, 2010).

The data for this study were collected via an online questionnaire distributed via Google Forms, with screening questions at the beginning to ensure that respondents met the purposive sampling criteria. After over two months of data collection, 285 responses were collected and used for analysis. Data obtained from the survey were then analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS. The model estimation followed the disjoint two-stage approach as recommended by Becker et al. (2022). The latent variable scores (LVS) of the first-stage dimensions for user experience and electronic service quality were subsequently used to estimate the constructs in the second-stage model.

#### 4. Result

Before analyzing the data, the first step is to examine the respondents' demographics, as shown in Table 1. The demographic results (Table 1) show that most respondents are female (66.7%) and 18–28 years old (80.4%), indicating that the sample is dominated by Generation Z. Most are students (61.8%) with at least a senior high school education (64.9%), reflecting a young, educated consumer group.

**Table 2. Respondents' Demographic Characteristics**

Profile of the respondent		Frequency (n)	Percentage (%)
Gender:	1. Female	190	66.7
	2. Male	95	33.3
Age:	1. 18-28 years	229	80.4
	2. 29-44 years	56	19.6
Education:	1. Senior High School	185	64.9
	2. Bachelor's Degree	97	34.0
	3. Magister's Degree	3	1.1
Occupation:	1. Student	176	61.8
	2. Private Employee	60	21.1
	3. Public Employee	6	2.1
	4. Academic	7	2.5
	5. Entrepreneur	36	12.6
Most Used Fashion Website:	1. Adidas	48	16.8
	2. Uniqlo	115	40.4
	3. H&M	64	22.5
	4. Converse	28	9.8
	5. Nike	30	10.5
Purchase Frequency (in a year):	1. 1-2 times	186	65.3
	2. 3-4 times	77	27.0
	3. >4 times	22	7.7



**Table 3. First Stage Measurement Model Assessment**

<b>Variables</b>	<b>Dimensions</b>	<b>Items</b>	<b>Loading Factor</b>	<b>AVE</b>	<b>Composite Reliability</b>	<b>Cronbach's Alpha</b>
User Experience	Attractiveness	ATT1	0.743	0.531	0.872	0.823
		ATT2	0.795			
		ATT3	0.714			
		ATT4	0.705			
		ATT5	0.704			
		ATT6	0.708			
	Perspicuity	PER1	0.803	0.672	0.891	0.837
		PER2	0.835			
		PER3	0.848			
		PER4	0.791			
	Dependability	DEP1	0.798	0.607	0.861	0.784
		DEP2	0.730			
		DEP3	0.786			
		DEP4	0.801			
	Stimulation	STI1	0.749	0.580	0.847	0.759
		STI2	0.745			
		STI3	0.787			
		STI4	0.765			
	Novelty	NOV1	0.826	0.681	0.895	0.844
		NOV2	0.831			
		NOV3	0.834			
		NOV4	0.811			
Electronic Service Quality	Efficiency	EFF1	0.766	0.527	0.899	0.872
		EFF2	0.719			
		EFF3	0.760			
		EFF4	0.723			
		EFF5	0.704			
		EFF6	0.708			
		EFF7	0.725			
		EFF8	0.700			
	System Availability	SYS1	0.760	0.615	0.865	0.793
		SYS2	0.779			
		SYS3	0.795			
		SYS4	0.803			
	Fulfillment	FUL1	0.807	0.579	0.906	0.878
		FUL2	0.808			
		FUL3	0.753			
		FUL4	0.763			
		FUL5	0.735			
		FUL6	0.713			
		FUL7	0.743			
	Privacy	PRI1	0.853	0.718	0.884	0.803
		PRI2	0.822			
		PRI3	0.866			
Customer Satisfaction		SAT1	0.880	0.748	0.899	0.832
		SAT2	0.856			
		SAT3	0.860			
Customer Loyalty		LOY1	0.824	0.699	0.875	0.785
		LOY2	0.865			
		LOY3	0.819			

In the first-stage assessment, all items exhibited loadings above 0.70, and the AVE exceeded 0.50 (Hair et al., 2017). This indicates that the indicators effectively represent their

respective latent constructs, fulfilling the criteria for convergent validity and confirming their suitability for further analysis. Additionally, the composite reliability and Cronbach's alpha values for each low-order construct were above 0.70, indicating that all constructs met the required reliability standards (Hair et al., 2017).

The Fornell–Larcker Criterion results show that each construct's AVE square root value remained greater than the correlations shared with other constructs, suggesting satisfactory discriminant validity. Furthermore, all Heterotrait–Monotrait (HTMT) ratio values are below 0.90, indicating clear distinctions among the constructs. These results confirm that the discriminant validity criteria have been satisfied. Consequently, all dimensions comprising the user experience (UX) and electronic service quality (ESQ) constructs meet the required validity and reliability standards, demonstrating their suitability as second-order construct indicators in the subsequent stage of analysis.

**Table 4. First Stage Fornell-Larcker Criterion**

	ATT	DEP	NOV	PER	STI	EFF	FUL	PRI	SYS	LOY	SAT
ATT	0.729										
DEP	0.652	0.779									
NOV	0.671	0.582	0.825								
PER	0.622	0.650	0.494	0.820							
STI	0.686	0.636	0.614	0.623	0.762						
EFF	0.660	0.616	0.595	0.574	0.677	0.726					
FUL	0.522	0.588	0.512	0.473	0.571	0.690	0.761				
PRI	0.474	0.489	0.427	0.499	0.578	0.567	0.708	0.847			
SYS	0.474	0.536	0.472	0.502	0.517	0.691	0.743	0.570	0.784		
LOY	0.585	0.541	0.495	0.481	0.526	0.628	0.630	0.515	0.518	0.836	
SAT	0.553	0.601	0.486	0.534	0.585	0.703	0.702	0.586	0.599	0.717	0.865

**Table 5. First Stage Heterotrait-Monotrait Ratio**

	ATT	DEP	NOV	PER	STI	EFF	FUL	PRI	SYS	LOY	SAT
ATT											
DEP	0.813										
NOV	0.804	0.713									
PER	0.748	0.797	0.585								
STI	0.867	0.815	0.769	0.773							
EFF	0.775	0.741	0.694	0.667	0.826						
FUL	0.610	0.706	0.592	0.545	0.696	0.784					
PRI	0.581	0.617	0.518	0.605	0.738	0.673	0.844				
SYS	0.574	0.669	0.566	0.605	0.649	0.825	0.883	0.705			
LOY	0.723	0.687	0.606	0.587	0.676	0.757	0.760	0.649	0.652		
SAT	0.664	0.744	0.579	0.633	0.728	0.823	0.820	0.716	0.728	0.882	

The second-stage measurement model assessment indicates that all constructs meet the criteria for convergent validity and internal consistency reliability. For user experience and electronic service quality, all dimensions have loading factors above 0.70 and AVE values exceeding 0.50, indicating that the indicators effectively represent their constructs (Hair et al., 2017). Similarly, customer satisfaction and customer loyalty demonstrate adequate

loadings and AVE, confirming their validity. Moreover, all constructs show composite reliability (CR) and Cronbach's alpha values above 0.70, fulfilling the standard criteria for internal consistency.

**Table 6. Second Stage Measurement Model Assessment**

Variables	Dimensions	Items	Loading Factor	AVE	Composite Reliability	Cronbach's Alpha
User Experience	Attractiveness		0.868	0.699	0.921	0.892
	Perspiciuity		0.809			
	Dependability		0.847			
	Stimulation		0.858			
	Novelty		0.796			
Electronic Service Quality	Efficiency		0.866	0.747	0.922	0.887
	System Availability		0.865			
	Fulfillment		0.910			
	Privacy		0.813			
Customer Satisfaction		SAT1	0.880	0.748	0.899	0.832
		SAT2	0.856			
		SAT3	0.859			
Customer Loyalty		LOY1	0.824	0.699	0.875	0.785
		LOY2	0.865			
		LOY3	0.819			

Based on the Fornell–Larcker criterion, the square root of the AVE for each construct exceeds its correlations with other constructs, meeting the required threshold (Hair et al., 2017). Likewise, all HTMT ratio values are below 0.90, confirming that each construct is distinct. These results indicate that discriminant validity is well established.

**Table 7. Second Stage Fornell-Larcker Criterion**

	ESQ	LOY	SAT	UX
ESQ	0.864			
LOY	0.667	0.836		
SAT	0.754	0.716	0.865	
UX	0.751	0.629	0.662	0.836

**Table 8. Second Stage Heterotrait-Monotrait Ratio**

	ESQ	LOY	SAT	UX
ESQ				
LOY	0.795			
SAT	0.872	0.882		
UX	0.838	0.749	0.766	

After the measurement model was confirmed to be valid and reliable, the next step was to test the structural or inner model. This stage focuses on examining the causal relationships among latent variables while evaluating the model's explanatory power and predictive capability. The testing was conducted in several stages, including assessing collinearity

among constructs, coefficient of determination ( $R^2$ ), predictive relevance ( $Q^2$ ), effect size ( $f^2$ ), overall model goodness-of-fit, and hypothesis testing.

**Table 9. Collinearity Assessment & F Square**

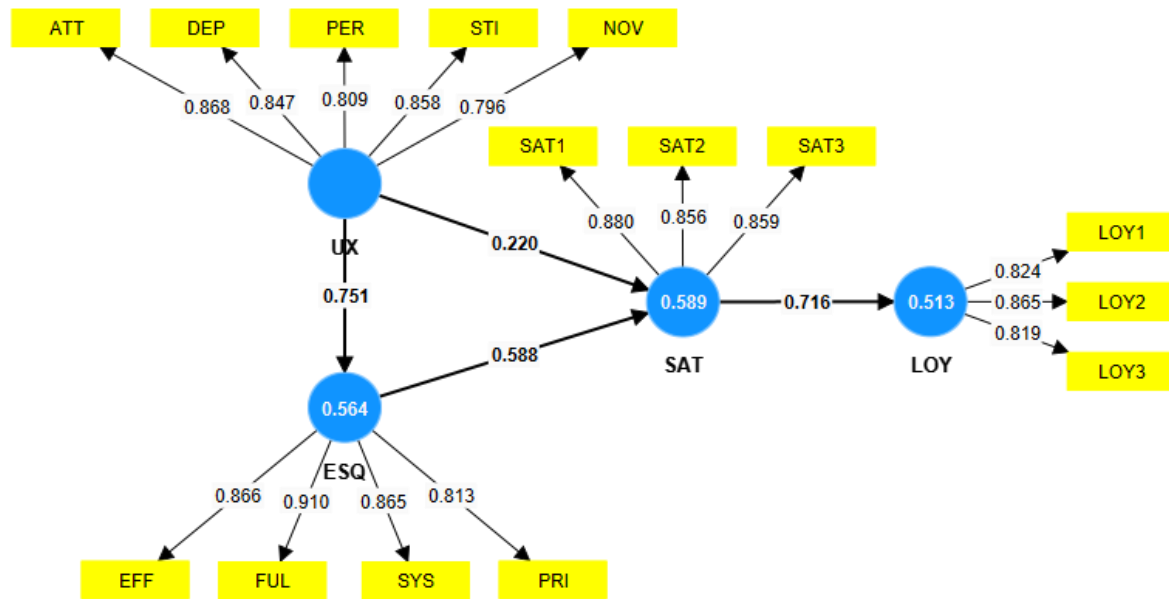
Relationship	VIF	F Square
ESQ => SAT	2.295	0.367
SAT => LOY	1.000	1.055
UX => ESQ	1.000	1.295
UX => SAT	2.295	0.051

**Table 10. R Square and Q Square Test**

	R-square	R-square adjusted	Q-square
ESQ	0.564	0.563	0.412
LOY	0.513	0.512	0.352
SAT	0.589	0.586	0.427

The hypotheses were tested through the bootstrapping procedure. Each hypothesis is deemed supported when the empirical results show a consistent direction with the proposed relationship, the t-value is at least 1.96, or the p-value is less than 0.05 at the 5% significance level ( $\alpha = 0.05$ ). For the direct effects, all proposed hypotheses were supported. The relationship between user experience and electronic service quality showed a positive and significant effect with an original sample value of 0.751 ( $t = 16.220$ ,  $p = 0.000$ ). The effect of electronic service quality on customer satisfaction was also positive and significant (original sample = 0.588,  $t = 7.784$ ,  $p = 0.000$ ). Similarly, user experience had a positive and significant effect on customer satisfaction (original sample = 0.220,  $t = 3.086$ ,  $p = 0.002$ ). In addition, customer satisfaction significantly and positively affected customer loyalty, with an original sample value of 0.716 ( $t = 15.395$ ,  $p = 0.000$ ).

For the indirect effects, all mediating relationships were significant. User experience indirectly influenced customer satisfaction through electronic service quality, with an effect size of 0.442 ( $t = 6.952$ ,  $p = 0.000$ ). This indirect effect co-occurs with a significant direct effect of user experience on customer satisfaction, indicating partial mediation. Furthermore, user experience significantly affected customer loyalty through customer satisfaction (original sample = 0.158,  $t = 3.264$ ,  $p = 0.001$ ), and electronic service quality also had a significant indirect effect on customer loyalty through customer satisfaction (original sample = 0.422,  $t = 5.799$ ,  $p = 0.000$ ).



**Figure 2. PLS-Algorithm Model**

**Table 11. Hypotheses Test (Direct Relationship)**

Hypotheses	Original Sample	Sample Mean	STDEV	T Statistics	P-Values	Results
UX => ESQ	0.751	0.753	0.046	16.220	0.000**	H <sub>1</sub> : Supported
ESQ => SAT	0.588	0.581	0.076	7.784	0.000**	H <sub>2</sub> : Supported
UX => SAT	0.220	0.228	0.071	3.086	0.002**	H <sub>3</sub> : Supported
SAT => LOY	0.716	0.715	0.047	15.395	0.000**	H <sub>4</sub> : Supported

\*\* Sig < 1%

**Table 12. Hypotheses Test (Indirect Relationship)**

Hypotheses	Original Sample	Sample Mean	STDEV	T Statistics	P-Values	Results
UX => ESQ => SAT	0.442	0.438	0.064	6.952	0.000**	H <sub>5</sub> : Supported
UX => SAT => LOY	0.158	0.162	0.048	3.264	0.001**	H <sub>6</sub> : Supported
ESQ => SAT => LOY	0.422	0.417	0.073	5.799	0.000**	H <sub>7</sub> : Supported

\*\* Sig < 1%

## 5. Discussion

Hypothesis 1 proposed that user experience positively affects electronic service quality. The results confirm this assumption, showing a positive and significant relationship. A positive user experience, reflected in usability, functionality, and aesthetic clarity, enhances users' perception of online service performance. According to the Expectation–Disconfirmation Theory, users enter e-commerce platforms with expectations about how the website will function and feel. When these expectations are met or exceeded by actual system performance, positive disconfirmation occurs, leading to higher evaluations of service quality. In Indonesia's fashion e-commerce market, the five leading brands, namely Adidas, Nike, Converse, H&M, and Uniqlo, use clean and user-friendly website designs. This design approach aligns with the view that experiences designed precisely to meet user needs without unnecessary complexity reduce frustration and perceived risk (Prayoga et al., 2023). As

online platforms replace direct seller–buyer interactions (Ighomereho et al., 2023), website clarity and intuitiveness strengthen users’ confidence in service reliability.

Hypothesis 2 is also supported. The findings reveal that electronic service quality has a significant positive influence on customer satisfaction, suggesting that when customers perceive that fashion e-commerce platforms assist them in shopping and deliver products efficiently and effectively, they tend to feel more satisfied. This is consistent with Expectation–Disconfirmation Theory, which posits that satisfaction occurs when perceived performance meets or exceeds initial expectations. Prior studies have shown that customers generally expect e-commerce platforms to provide efficient, easy-to-use, and secure services to ensure smooth online shopping experiences (Adedaja et al., 2022). Therefore, maintaining high levels of electronic service quality becomes essential to meet these expectations and generate satisfaction when service performance exceeds them (Rita et al., 2019; Utami, 2024).

The findings reveal support for Hypothesis 3, suggesting that user experience significantly contributes to customer satisfaction. When interacting with fashion e-commerce platforms, an attractive, easy-to-understand, reliable, creative, and enjoyable interface design serves as a medium to enhance customer satisfaction. In line with the Expectation–Disconfirmation Theory, such experiences generate positive disconfirmation because the system performs better than users initially expect regarding how the website will function and feel. A design that prioritizes user comfort and minimizes cognitive effort encourages satisfaction by reducing frustration and uncertainty (Husna & Wibowo, 2024). In this context, the presence of a clear structure and distinctive visual identity further supports positive feelings and reinforces customers’ overall satisfaction with the online shopping experience (Saputra, 2021).

Hypothesis 4, which states that customer satisfaction positively influences customer loyalty, is also supported by the data. This suggests that when customers feel satisfied with their shopping experience on fashion e-commerce platforms, they are more likely to continue purchasing and even recommend the platform to others. In digital shopping environments, distrust often acts as a barrier to continued use (Millar et al., 2023). However, when customers experience satisfaction through consistent and reliable platform performance, this distrust gradually diminishes and transforms into engagement, which fosters confidence and repeat purchasing behavior as customers believe they will continue to receive good service (Malau & Sitanggang, 2024). According to the Expectation–Disconfirmation Theory, this process reflects continuous positive disconfirmation, where satisfaction accumulated over time strengthens customers’ confidence and willingness to repurchase. Continuous satisfaction strengthens emotional bonds and fosters behavioral loyalty over time (Ashiq & Hussain, 2024; Nasution & Adiwijaya, 2024; Wisnel et al., 2022).

Hypothesis 5 is confirmed, as electronic service quality significantly mediates the relationship between user experience and customer satisfaction. This finding implies that a positive user experience enhances perceived service quality, which in turn leads to higher satisfaction. This suggests that a positive user experience, characterized by visual appeal,



ease of understanding, efficiency, reliability, and stimulation, shapes customers' perceptions of the service's performance. When customers find the platform pleasant to use and easy to navigate, they tend to perceive the system as efficient, reliable, and secure, which enhances satisfaction. This pattern aligns with the Expectation–Disconfirmation Theory, in which satisfaction arises when system performance matches or exceeds users' expectations regarding how the website will function and feel. In this sense, user experience underpins perceived electronic service quality, which in turn enhances customer satisfaction (Mamakou et al., 2024; The et al., 2025).

The test results provide evidence supporting Hypothesis 6, indicating that user experience has an indirect effect on customer loyalty through customer satisfaction. This suggests that satisfaction is the key mechanism linking customers' experiences on fashion e-commerce platforms to their loyalty intentions. When customers perceive the platform as efficient, dependable, easy to understand, visually engaging, and stimulating, they experience satisfaction that encourages continued use. Within the framework of the Expectation–Disconfirmation Theory, repeated positive experiences that meet or surpass users' expectations create lasting satisfaction, which gradually evolves into loyalty. A well-designed and enjoyable user experience fosters positive emotions and confidence, leading to stronger attachment and long-term loyalty toward the platform (Husna & Wibowo, 2024). By optimizing UX, businesses can enhance customer satisfaction, thereby sustaining commitment and loyalty in the digital marketplace (Nasution & Adiwijaya, 2024; Saputra, 2021).

Finally, Hypothesis 7 is also supported. The results show that electronic service quality indirectly influences customer loyalty via customer satisfaction. This suggests that customers who perceive online services on fashion e-commerce platforms as efficient, consistently available, trustworthy, and privacy-conscious tend to be more satisfied, and this satisfaction ultimately fosters stronger loyalty toward the platform. Based on the Expectation–Disconfirmation Theory, customer loyalty develops when the actual performance of electronic service quality, which is reflected through efficiency, system availability, fulfillment, and privacy, meets or exceeds prior expectations, resulting in satisfaction that reinforces continued trust and repurchase intentions. Thus, high electronic service quality is one of the key foundations through which satisfaction translates into long-term customer loyalty in fashion e-commerce (Atmojo & Widodo, 2022; Purwati et al., 2022).

From a practical perspective, fashion e-commerce platforms should enhance the user experience by improving both visual and functional aspects, ensuring that websites are attractive, intuitive, and reliable. The design should not only be aesthetically appealing but also stimulate users and provide novelty to sustain engagement. In terms of e-service quality, platforms must ensure efficient navigation and checkout, maintain system availability to avoid downtime, deliver orders accurately and promptly, and uphold strong privacy protections to build consumer trust. By strengthening these dimensions, customer satisfaction can be consistently elevated, leading to stronger emotional attachment and repeat

purchase intention. Ultimately, nurturing satisfaction through a seamless user experience and reliable service quality directly contributes to customer loyalty and positive word-of-mouth.

## **6. Conclusion, limitations, and suggestions for the future**

This study examined the relationships among user experience, electronic service quality, customer satisfaction, and customer loyalty within Indonesia's fashion e-commerce industry. The results confirmed all proposed hypotheses, showing that user experience influences electronic service quality and customer satisfaction, whereas electronic service quality, in turn, affects satisfaction, which subsequently leads to customer loyalty. Satisfaction was found to mediate the relationships between both user experience and electronic service quality with loyalty, indicating its central role in linking customer interactions to behavioral outcomes. Electronic service quality also mediates the effect of user experience on satisfaction, demonstrating the interdependence between experiential and functional aspects in shaping customer responses. In accordance with the Expectation–Disconfirmation Theory, satisfaction arises when experience and service performance meet or exceed expectations, leading to continued use and loyalty toward fashion e-commerce platforms in Indonesia.

This study focuses on the top global fashion e-commerce brands in Indonesia, which may limit the generalizability of the findings. Future research could compare global and local fashion platforms to identify possible differences in customer behavior (Heriyati et al., 2024). The cross-sectional design also limits causal interpretation; therefore, longitudinal studies are suggested to better capture how satisfaction and loyalty evolve (Khalil et al., 2025). Moreover, this study examined only user experience and electronic service quality as antecedents of satisfaction and loyalty; future research could include additional factors, such as trust and brand image, to enhance model comprehensiveness and explanatory power (Ashiq & Hussain, 2024; Rita et al., 2019; Sahlani & Ruswanti, 2024).

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**Table 1. Research Instrument**

Variables	Instrument
User Experience (Mamakou et al., 2024)	<p><b>Attractiveness:</b></p> <ol style="list-style-type: none"> <li>1. This website feels enjoyable to use when I'm doing shopping activities</li> <li>2. This website is good because of its visual appearance and content arrangement</li> <li>3. This website provides a delightful experience during transactions</li> <li>4. This website feels comfortable because its color combination, design, and layout are well-matched</li> <li>5. This website has an attractive appearance that draws my attention to explore it further</li> <li>6. This website is easy to use because its design is simple and user-friendly</li> </ol> <p><b>Perspiciuity:</b></p> <ol style="list-style-type: none"> <li>1. The navigation on this website is easy to understand, so I can use all the menus</li> <li>2. The navigation on this website is easy to learn, even for new users accessing it for the first time</li> <li>3. The navigation on this website is simple, making it easy to search for products or make transactions</li> <li>4. The navigation on this website is clearly displayed, so I can easily find the menus and features I need</li> </ol> <p><b>Dependability:</b></p> <ol style="list-style-type: none"> <li>1. The navigation on this website is predictable because the flow and menu layout are consistent</li> <li>2. The navigation on this website supports me in completing my shopping process smoothly from start to finish</li> <li>3. The navigation on this website feels safe because the steps shown are clear</li> <li>4. The navigation on this website meets my expectations because it is reliable</li> </ol> <p><b>Stimulation:</b></p> <ol style="list-style-type: none"> <li>1. This website is useful because it helps me find the fashion products I'm looking for more easily</li> <li>2. This website feels exciting to use because it provides an enjoyable shopping experience</li> <li>3. This website captures my attention as it displays designs and content relevant to my shopping needs</li> <li>4. This website motivates me to make purchases because its appearance and information increase my confidence</li> </ol>
User Experience (Mamakou et al., 2024)	<p><b>Novelty:</b></p> <ol style="list-style-type: none"> <li>1. The design of this website looks creative because it has a unique appearance compared to other websites</li> <li>2. The design of this website is inventive because it presents new ideas in displaying products</li> <li>3. The design of this website is cutting-edge because it follows the latest trends and offers a more modern experience</li> <li>4. The design of this website is innovative because it introduces new features that make it easier for users</li> </ol>
Electronic Service Quality	<p><b>Efficiency:</b></p> <ol style="list-style-type: none"> <li>1. This website makes it easy for me to find what I'm looking for</li> <li>2. This website makes it easy for me to move to any section within the site</li> </ol>



(Mamakou et al., 2024)	3. This website allows me to complete transactions quickly
	4. The information on this website is well-organized, making it easy for me to understand product descriptions
	5. This website loads each page quickly
	6. This website is simple to use because its layout and features are easy to understand
	7. This website allows me to access it quickly because the page loading time is short
	8. This website is well-organized because its products, categories, and information are neatly arranged, making it easy for me to find what I need
	<b>System Availability:</b>
	1. This website is always available whenever I want to make a purchase
	2. This website runs properly right away when I open it without any issues
	3. This website does not experience disruptions (crashes)
	4. The pages on this website do not freeze when I enter order information
	<b>Fulfillment:</b>
	1. The company delivers orders as promised on the website
Customer Satisfaction	2. The company provides goods to be shipped within an appropriate timeframe
	3. The company delivers the items I ordered quickly
	4. The company sends the exact items I selected on the website
(Mamakou et al., 2024)	5. The company maintains product stock as shown on the website
	6. This website is honest in presenting its offers
	7. This website provides accurate promises regarding product delivery
Customer Loyalty	<b>Privacy:</b>
	1. This website protects my online shopping behavior information
	2. This website does not share my personal information with other parties
(Ashiq dan Hussain, 2024)	3. This website secures my credit card or other payment data
	1. I am satisfied with my most recent purchase through this website
	2. I enjoy shopping on this website
	3. Overall, I am satisfied with the experience provided by this website
Customer Loyalty	1. I make repeat purchases on this website
	2. I recommend this website to people who ask for my advice
	3. I say positive things about this website to others