The Effect of Electronic Service Quality on Increasing Customer Loyalty with a Focus on Adding Diverse Product Segments

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ABSTRACT

Using e-commerce platforms to improve product marketing is the right choice for every business in the digital era. According to recent research, online shopping is increasingly popular among customers who prefer to shop without physically visiting a store. This study aims to investigate the quality of electronic services provided by online e-commerce stores to encourage customer satisfaction and loyalty. This study measures the quality of electronic services in terms of website design, customer service, security/privacy, and fulfillment using the most recent WebQual model. The Partial Least Square method (SmartPLS-v3) was utilized to analyze the sample data collected using 159 respondents who met the specified criteria as the research sample. The research demonstrates that all hypotheses are found to have significant positive results. Positive correlations have been found between the four dimensions of the model and the quality of electronic services, as well as their impact on customer satisfaction and intentions to stay loyal. This study is beneficial for determining the electronic service model customers in online e-commerce stores want to gain customer loyalty.

ABSTRAK

Penggunaan platform e-commerce untuk meningkatkan pemasaran produk merupakan pilihan yang tepat bagi setiap bisnis di era digital. Menurut penelitian terbaru, belanja online semakin populer di kalangan pelanggan, yang lebih suka berbelanja tanpa harus mengunjungi toko secara fisik. Tujuan dari penelitian ini adalah untuk menyelidiki kualitas layanan elektronik yang diberikan oleh toko e-commerce online dalam rangka mendorong kepuasan dan loyalitas pelanggan. Studi ini mengukur kualitas layanan elektronik dalam hal desain situs web, layanan pelanggan, keamanan/privasi, dan pemenuhan menggunakan model WebQual terbaru. Metode partial least square (SmartPLS-v3) digunakan untuk analisis data sampel yang telah terkumpul dengan menggunakan 159 responden yang memenuhi kriteria yang ditentukan sebagai sampel penelitian. Hasil penelitian menunjukkan bahwa semua hipotesis menunjukkan hasil yang positif dan signifikan. Penelitian yang menghubungkan pengaruh model empat dimensi dengan kualitas layanan elektronik dan pengaruhnya terhadap kepuasan pelanggan dan niat loyalitas dan dikonfirmasi positif. Untuk menentukan model layanan elektronik yang diinginkan pelanggan di toko online e-commerce guna mendapatkan loyalitas pelanggan, penelitian ini sangat membantu.

1. INTRODUCTION

The rapid development of the internet provides opportunities for many people to use it to run online businesses (Gefen et al., 2000). The result is a change in customer communication and service delivery, especially for online companies (Demir et al., 2020). It is easier for customers to shop without coming to an offline store to order the desired item and wait for the order to be delivered. Then, they can choose the most preferred payment method (Rita et al., 2019). Therefore, online businesses must adjust the services provided to make customers comfortable shopping online (Gautam, 2015; Huang et al., 2015).

Service is the key to success in influencing customers and business continuity. Physical and online

businesses need to give their clients the best service possible so that a business is considered superior because services can provide experiences to customers and influence repurchasing intentions and loyalty to the company (Gounaris et al., 2010). An excellent environmental system will encourage the growth of sustainable businesses, which can regularly boost economic growth (Wahyudi et al., 2023). Then, online businesses must construct a solid service system as a step from the business that drives economic growth. The higher the quality of the services provided, the more positively correlated to the level of customer satisfaction and benefits the company (Brady & Robertson, 2001). The quality of the website, including the quality of the information and electronic services, is critical to good service quality in the online e-commerce industry (Sharma & Lijuan, 2015).

Studies related to e-service quality are essential because priorities in developing service strategies should include boosting customer satisfaction and fostering loyalty. Research conducted in Taiwan by Tsao et al. (2016) studied that online customer loyalty is formed from online shopping experiences and is associated with the extent to which the perceived e-service quality influences the evaluation of service quality and ultimately shapes online customer loyalty (Rita et al., 2019). Customer satisfaction, repurchase intent, and word-of-mouth (WOM) positively correlated with e-service quality. This study aimed to assess the general quality of e-commerce services. However, it does not consider the assessment of product segment variations and customer loyalty intention variables.

This study investigates the connection between e-commerce electronic service quality through the WebQual hierarchical model by adding product segment variations and customer loyalty variables as additional attributes from previous studies. This research was conducted to develop preceding research by considering aspects that still have limitations. Thus, this study can supply results to see the prior studies from other perspectives and attributes and test these attributes related to their influence on the variables to be studied. In short, the main objective of this research is to examine the characteristics of product segment variations on customer loyalty in e-commerce and assess the comparison of customer satisfaction to e-service quality between services in general and with the addition of product segment variations.

2. THEORETICAL FRAMEWORK AND HYPOTHESES
2.1. E-Service Quality
Customers' expectations of self-service technologies are examined in a 1996 study on e-service quality by Dabholkar, who identified five primary characteristics of e-service quality: ease of use, dependability, delivery speed, pleasure, and control (Dabholkar, 1996). The results showed that the significant factors of e-service quality are control and enjoyment. The other main factor is the ease of use, but subject to high waiting times and the control group, while those that have no impact on e-service quality were delivery speed and reliability. They are measuring service quality with the most general method using the SERVQUAL model (Parasuraman et al., 1985). The popularity of this model continues today and is still widely used (Alrubaiee & Alkaa'ida, 2011; Kitapci et al., 2014; Pooja Kansra and Abhishek Kumar Jha, 2016). Online businesses make most modifications to the SERVQUAL model in particular. The most well-known adaptation model of SERVQUAL is the WebQual model developed by Barnes & Vidgen (2002) and Loiacono (2002), eTailQ compiled by Wolfinbarger & Gilly (2003), E-S Qual compiled by Parasuraman et al. (2005), and the most recent, hierarchical model of the quality of e-services proposed by Blut (2016).

Loiacono (2002) proposed a brand-new scale called WEBQUAL, which has 12 dimensions: business, design, stream, compatibility of information with tasks, innovation, integration of communication, interaction, intuitiveness, reaction time, substitution, trust, and visual appeal. The WebQual model built by Barnes (2001) through communication theory highlighted the connection between customers and e-commerce. As a result, the e-service quality measurement model developed is SITEQUAL (Yoo & Donthu, 2001), using hardware and website design. Due to the distinction between traditional and online businesses, the SERVQUAL method lacks a primary dimension for measuring the quality of online services (Wolfinbarger & Gilly, 2003). Develop eTailQ consisting of a list of four-dimensional attribute categories.

Zeithaml et al. (2002) considered that the quality of e-services provided by websites enables online retailers to provide services to meet customer requirements during and after shopping. The definition of e-service quality is the breadth to which service provider stores can meet customer expectations and keep customers for a reasonably long time (Santos, 2003).

A study by Parasuraman et al. (2005) divided e-service quality into two different aspects: the e-ser-

vice quality scale (E-S-QUAL) and the restoration of the e-service quality scale (E-RecS-QUAL). The dimensions of E-S-QUAL consist of privacy/security, reliability, fulfillment, and individual interest, whereas E-RecS-QUAL has dimensions including speed of response, compensation, and contact. This study explains that privacy is the primary dimension of high-level customer evaluations through websites.

In online business, e-service quality measurement still has some weaknesses (Blut, 2016), stating that measurement using the E-S-Qual and eTailQ methods does not have criteria for assessing online stores, so customer dissatisfaction and shifting focus to another online store cannot be explained. Furthermore, weaknesses can still be found in predicting customers' actions. Even though eTailQ includes 13 out of 16 electronic service quality attributes, eTailQ, in measuring customer service and security, is less predictive and unsuitable, so it only ranks eighth (Blut, 2016). The existence of WebQual allows for the first time a model capable of predicting customer behavior and only covers a narrow focus area (Rita et al., 2019).

Based on the model, e-service quality measurement contains four dimensions: website design, customer service, security/privacy, and compliance. Information quality, website aesthetics, purchasing process, website convenience, product selection, price quote, website personalization, and system availability are the main elements of website design. Consumers can give a good or bad value based on their website experience, affecting the overall measurement of quality online services.

Customer service can correlate with the value of online services (Blut, 2016). The difference is in the services provided by offline businesses and online businesses. If a customer wants to purchase an online business, sometimes the customer can do the purchase process independently. However, in an offline business, there are always employees who are in charge of serving customers when making the purchasing process. Online help desks, live chat services, social networking sites, and other web-based synchronization media services are usually provided by companies to help customers find information related to the product they want to buy (Turel & Connelly, 2013).

Credit card payment security and information privacy are the primary references for security/privacy (Blut, 2016). To improve service quality and website credibility, websites must prioritize insurance and security measures (Wang et al., 2015). Schmidt et al. (2008) mentioned that the presence of privacy and security shows website effectiveness. Websites need to prioritize security and privacy aspects to assess online service quality. The requirement to fill in personal information like address, phone number, and name, including credit card information, when buying products from online websites (Holloway & Beatty, 2008) causes concerns about the privacy and security of personal information shared on websites.

Fulfillment of customer orders is one aspect of e-service quality. Objective fulfillment guarantees that clients receive what they ordered, including the delivery time, accuracy, and conditions (Blut, 2016). Customers' post-payment dissonance is more likely to occur in online businesses than in offline ones because before buying their products, they cannot see the product directly (Liao & Keng, 2013). Therefore, the assessment of this attribute can only be done after the purchase from the customer. Companies need to prioritize promptness of delivery, conveyance conditions, and delivery conditions to give a superior impression of the quality of service provided (Rita et al., 2019).

2.2. Customer Satisfaction

Customer satisfaction refers to how a company can respond to customer expectations (Zhang et al., 2020). Customer satisfaction is obtained by comparing the expected and actual service quality. This theory was expressed by (Oliver, 1980). Based on the level of customer service relationship described in the "Expectation-Disconfirmation Theory." Therefore, customer satisfaction is obtained when service quality exceeds customers' requirements. A business needs to meet customer expectations regarding the quality of services offered. How well the fulfillment of customer needs is a measure of satisfaction (Ataburo et al., 2017). Service providers have a response relationship based on a single experience regarding satisfaction or dissatisfaction with the services provided (Rust & Oliver, 1994). The company's failure to meet consumer needs regarding information, timely delivery, information security, and efficient request handling can destroy an online business's reputation. Satisfied customers when using the services provided are the ultimate goal of every company because they can provide positive comments from word of mouth, customer loyalty, and sustainable profitability (Greenwell et al., 2002; Liu & Jang, 2009). A component of customer conduct and positive customer intentions in behavior can be directly influenced by satisfaction. A sign indicating a significant relationship between e-service quality and satisfaction in previous research has been confirmed (Blut et al., 2015; Gounaris et al., 2010; Kitapci et al., 2014; Udo et al., 2010). Directly and indirectly, e-service quality can affect customer

satisfaction and customer loyalty intentions. Considering some of the statements stated above, the following is the hypothesis to explore how customer satisfaction in online e-commerce stores is affected by the quality of online services:

H1 The overall quality of e-service positively and significantly affects customer satisfaction.

2.3. Loyalty Intention

Numerous researchers have examined and defined the concept of loyalty intentions from different perspectives. The tendency and intention of customers to repurchase at the same company are considered loyalty (Edvardsson et al., 2000). Increased customer purchase intentions in the future can be influenced by high loyalty (Flavián et al., 2006). The higher the loyalty, the more benefits the company will have. One factor determines a company's success (Flavián et al., 2006). If viewed from several perspectives, loyalty intentions can be shown as choosing a service provider that comes out on top of other options (Mattila, 2001), being willing to suggest (Butcher et al., 2001), and supporting other clients (Butcher et al., 2001). The emergence of loyalty intentions has been the subject of numerous previous studies focusing on the relationship between customer satisfaction and loyalty intention (Ayinaddis, 2022; Suhartanto et al., 2019; Yen & Lu, 2008). In this study, the authors also add the relationship between electronic service quality and loyalty intention as an additional evaluation. In marketing, customer retention and loyalty intention, especially in online stores, are closely related to the quality of electronic services provided to customers through a match between the services and those expected by customers (Yen & Lu, 2008). Previous electronic service quality experience is the majority of consumers' reasons for determining decisions and intentions to make future repurchases (Huang, 2008). Websites with a high quality of service foster consumer confidence to return to the site and maintain loyalty (Zeithaml et al., 1996). Most previous studies show that customer experience when using e-service quality can determine customer loyalty intention (Chang et al., 2014; Jeon & Jeong, 2017; Mihajlovic, 2017; Pee et al., 2019; Zulkarnain et al., 2015). Several other studies have also repeatedly emphasized that there is a direct influence between the quality of electronic services and customer loyalty intentions (Chang et al., 2009; Zeithaml, 2000). Thus, based on the abovementioned details, the hypothesis is formulated as follows.

H2 The overall quality of e-services has a positive and significant effect on loyalty intention.

H3 Customer satisfaction has a positive and significant effect on loyalty intention.

Based on the preceding discussion, the present research framework can be seen in Figure 1.

3. RESEARCH METHOD

This study involved 159 respondents with specific criteria. The selection of respondents was carried out randomly, with the primary condition being that they had purchased a product, visited, or used services at an online store in e-commerce via the available website without being bound by the frequency of purchases or the last use of services. This study took the target population of adults aged at least 17 years in Indonesia.

The proposed model was tested as part of the questionnaire development process. The method chosen was to collect data by distributing online questionnaires with the help of Google Forms and sharing questionnaire links via social media such as WhatsApp and Telegram. When the respondent clicks on the link, the respondent will be directed to the website to fill in the demographic data and questionnaire on variables. As many as 58 items are measured using a 5-point Likert scale, from "strongly disagree" (= 1) to "strongly agree" (= 5).

The questionnaire is based on the "Brand X" e-commerce online store the respondents have used and the type of product they have purchased. Data collection was carried out for about a month, and respondents' data was obtained with a sufficient number to represent the population of e-commerce online store users in Indonesia.

The perception and evaluation of the dimensions of the quality of electronic services that are virtually available is the primary focus of the overall e-service quality, which is based on the experiences of consumers (Santos, 2003). We adopted three items related to the overall quality of e-services (Blut, 2016). In operationalizing e-service quality dimensions, it utilizes a reflective-formative approach (Ringle et al., 2012) with four primary focuses on measuring electronic service quality through measurements: website design, customer service, security/privacy, and fulfillment (Rita et al., 2019). In the first dimension, website design has eight attributes. The second dimension, namely customer service, has two characteristics.

Additionally, the third dimension of privacy and security possesses two attributes. Finally, the fourth

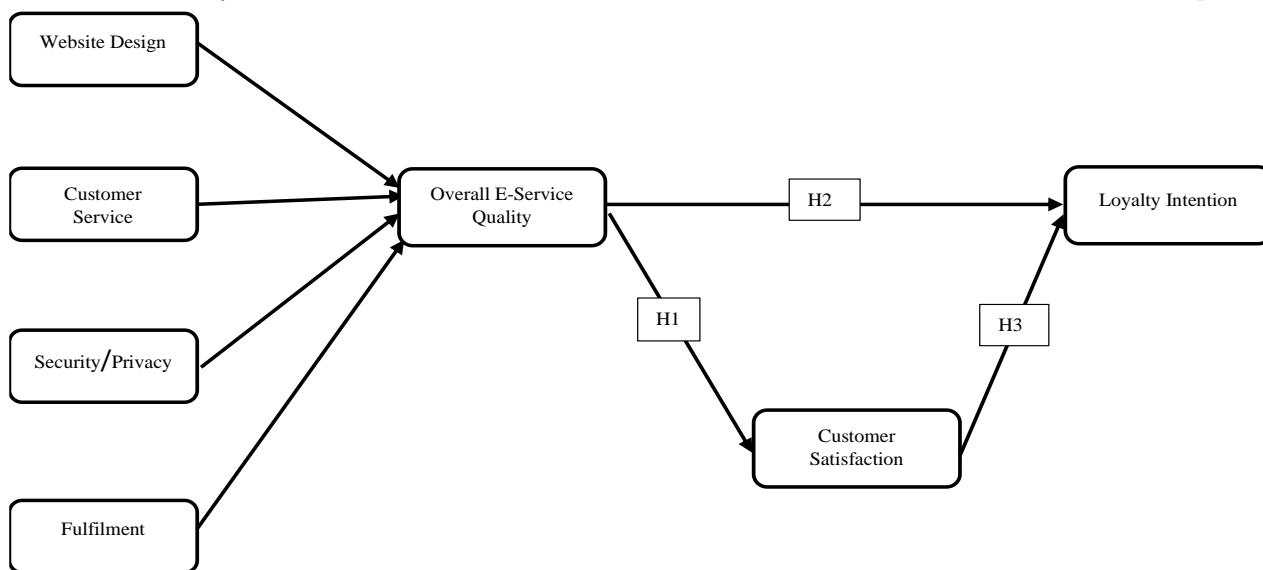dimension, namely fulfillment, has three characteristics. The consumer satisfaction instrument is adopted

Figure 1. Research model

from Fornell (1992), Otto et al., 2020), and (Jöreskog & Sörbom, 1982). Items on loyalty intention are adopted from Fornell & Larcker (1981) and Black et al. (2010) with several modifications but do not eliminate the essence of the core items. The SmartPLS-v3 Partial Least Squares (PLS) model examined the theoretical model. This technique is considered superior to covariance-based structural equation models in the second-generation era. Smart PLS advantages include having an abnormal data distribution with fewer limited assumptions, the complexity between constructs handled better, and providing constructive results to efficiently predict the primary driving constructs (Hair et al., 2012). PLS-SEM with SmartPLS-v3 does not require a large number of samples, and the minimum sample recommendation ranges from 30 to 100 respondents to meet the requirements for PLS algorithm analysis (Ghozali, 2015). Smart PLS will produce an assessment of the validity and reliability of measurements.

4. DATA ANALYSIS AND DISCUSSION
The data in Table 1 shows the traits of the people who responded, consisting of gender, age, education, products purchased, and frequently used e-commerce. Based on these results, female respondents use e-commerce more, with a percentage of 66.3%, compared to male respondents, who only have a percentage value of 33.8%. The age characteristics of the respondents are dominated by the age range of 17-22 years or the Z Generation, with fashion products as the most purchased product. This result aligns with a survey from Kata Data Insight, which states that 85% of e-commerce consumers come from Generation Z and millennials, with 30% of products purchased by consumers coming from the fashion product category (Tempo, 2020). The data also shows that Shopee is the most used e-commerce by respondents.

Convergent validity indicates that a latent construct's observed variables are related. Model reliability and validity tests were obtained from Composite Reliability (CR), Cronbach's alpha (CA), and average variance extracted (AVE). Table 2 shows the results of reliability and validity testing. Various latent variables observed from one latent construct were tested using convergent validity to see their relationship. If the factor loading of individual items composite reliability is more significant than 0.70, more than 0.70, and AVE is more significant than 0.50, then the results are acceptable (Gefen et al., 2000). In the convergent validity test, the factor loading is accepted if its value is more significant than 0.50, and if it is greater than 0.70, it is regarded as solid evidence (Bagozzi & Youjae Yi, 1988). To reach the specified AVE value limit, there are loading factor items that are omitted from the overall e-service quality variable (namely IQ1, IQ3 WA1, PP1, PP2, PP3, WC3, PS1, PO1, PO2, PO3, WP1, SA3, SL1, SL3, RP1, RP3, TD2, DC1, DC3, SQ3) and the significance of Bootstrap t-statistic signal that there is strong evidence of convergent validity. The findings demonstrate that all constructs' composite reliability and AVE values are higher than required. If these values are sorted, the composite reliability value has the smallest value of 0.903, 0.908, to the largest of 0.965, and the value of AVE

has the largest value of 0.664, 0.652, to the smallest 0.509. The composite reliability and AVE results show

Table 1. The demographics of respondents

	Category	Total	Percentage
Gender	Male	54	33.8
	Female	105	66.3
Age	17-22	124	78.3
	23-38	30	21.2
	29-34	3	0.3
	35-0	2	0.2
Education	Senior High School	105	66.3
	Associate	5	3.1
	Bachelor Degree	47	29.4
	Master Degree	2	1.2
Purchased Product	Fashion	115	72.5
	Food & Beverage (FnB)	14	8.8
	Electronic	20	12.5
	Jewelry and accessories	2	1.2
	Computer & laptop	3	1.9
	Musical instrument	1	0.6
	Book	2	1.2
	Cosmetic & skincare	2	1.2
Frequently used e-commerce	Shopee	137	86.3
	Tokopedia	19	11.9
	Lazada	1	0.6
	Zalora	1	0.6
	TikTok Shop	1	0.6

that each indicator can be explained by its structure to verify convergent validity.

Cronbach's alpha serves as an evaluation of the instrument's internal consistency and reliability. It needs to have a value of 0.7 or higher, which is better. If used for experimental purposes, anything above 0.6 is acceptable (Hair et al., 2011). Cronbach's alpha is more significant than 0.7 for all reflective variables, as the required values are 0.865, 0.873, and 0.964. So, the test results from Cronbach's alpha can be said to have good results, and this shows that the internal model instrument is consistent in evaluating reliability.

Based on the significance of the path coefficient, the bootstrap method is used to test the hypothesis (Hair et al., 2011) with 5000 iterations of repeated sampling. It is formed by the number of observations made by each bootstrap sample (159 samples in this study). The test results indicate that, out of the seven path coefficients, all hypotheses are supported by significant bootstrap statistical values. Table 3 shows all t-statistic values higher than 1.96 and significantly less than 0.05 resulting from hypothesis testing. Figure 2 depicts the findings of the hypothesis testing process.

The test result supports the H1 that predicts the effect of overall e-service quality on customer satisfaction (β=0.806; t-value=20.229; p<0,01). It uses the quality of the e-services as a whole as a competitive advantage to make customers happy (Sanayei & Jokar, 2013).

Further, the overall e-service quality is also found to positively and significantly affect loyalty intention (β=0.571; t-value=6.491; p<0.01), statistically showing that H2 is supported. The finding on H3 is similar to that it is found significant based on the test result shown in Table 3 (β=0,350; t-value=3,569; p<0.01). In sum, H2 and H3 supported, which found the positive effect of overall e-service quality and customer satisfaction on loyalty intention. It is relevant to the previous research that loyalty intention is positively impacted by overall e-service quality (Khan et al., 2019). Furthermore, many studies have discovered that loyalty intention positively correlates with customer satisfaction (Slack et al., 2020).

All the hypothesis testing reveals that all independent variables significantly affect the dependent variable. In aggregate, these results demonstrate the direct impact of overall e-service quality on loyalty intention and the indirect relationship between these two variables through customer satisfaction. In addition, the dimensions of website design, customer service, security/privacy, and fulfillment positively influence overall e-service quality.

To measure the strength of the relationship between constructs in each hypothesis, this study used

the Cohen value of f² (Cohen, 1988), which defines a small connection if the value is similar to 0.02, a moderate

Table 2. The result of loading factor, reliability, and validity tests

Construct	Indicator	Item Code	Loading	CA	CR	AVE
Overall e-service quality				0.963	0.965	0.509
	Website Design	IQ2	0.687			
		WA2	0.667			
		WA3	0.667			
		WC1	0.766			
		WC2	0.763			
		PS2	0.702			
		PS3	0.673			
		WP2	0.684			
		WP3	0.727			
		SA1	0.695			
		SA2	0.676			
	Customer Service	SL2	0.685			
		RP2	0.680			
	Security/Privacy	SC1	0.728			
		SC2	0.728			
		SC3	0.714			
		PR1	0.670			
		PR2	0.778			
		PR3	0.762			
	Fulfillment	TD1	0.685			
		TD3	0.698			
		OA1	0.714			
		OA2	0.745			
		OA3	0.745			
		DC2	0.679			
	Overall E-Service Quality	SQ1	0.755			
		SQ2	0.774			
Customer Satisfaction				0.865	0.903	0.652
	Satisfaction	SC1	0.856			
		SC2	0.843			
		SC3	0.809			
		SC4	0.775			
		SC5	0.789			
Loyalty Intention				0.873	0.908	0.664
	Loyalty	L1	0.766			
		L2	0.860			
		L3	0.839			
		L4	0.865			
		L5	0.693			

Table 3. Structural relationship test results

| Hypothesis	Hypothesis Statement	Path Coefficient (Sig. Value)	t-Value	F²	Conclusion
H1	The overall quality of e-service positively and significantly affects customer satisfaction.	0.806*** (0.000)	20.229	1.855	Supported
H2	The overall quality of e-services has a positive and significant effect on loyalty intention.	0.571*** (0.000)	6.491	0.497	Supported
H3	Customer satisfaction has a positive and significant effect on loyalty intention.	0.350*** (0.000)	3.569	0.187	Supported
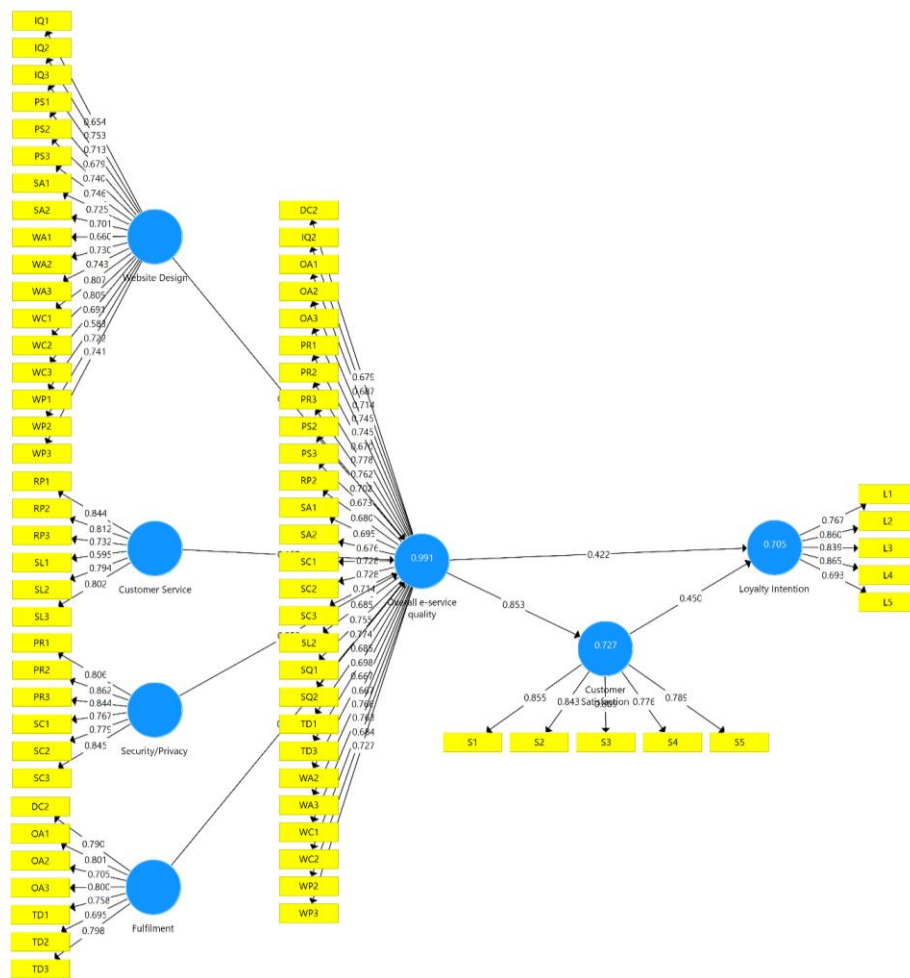
Figure 2. PLS-SEM demonstrates a positive correlation with the variable

connection if the value is similar to 0.15, and a large relationship if the value is above 0.35. The difference in f² between the constructs of each hypothesis is shown in Table 3. The findings indicate that customer satisfaction and loyalty intention are strongly influenced by e-service quality as a whole. Loyalty intention is moderately affected by customer satisfaction. In addition, customer service is a significant factor in the overall quality of e-services. Besides, the overall quality of e-services is significantly affected by website design, privacy and security, and satisfaction.

5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

This study aims to investigate the quality of electronic e-commerce services and give an extensive understanding of e-service quality dimensions as the latest knowledge development. In addition, this study expands on previous research to better understand the impact of e-service quality on consumer satisfaction and loyalty intentions.

This study finds that customer satisfaction and overall e-service quality are positively correlated. Many previous studies have tested and stated a strong connection between the two variables (Lin Yong, 2016; Oliver, 1997; and Taylor & Baker, 1994) and concluded that although service quality and customer satisfaction are two different constructs, customer satisfaction and service quality have a very high degree of inter-correlation. The higher the level of service quality in electronic e-commerce, customer perceptions of the quality of electronic services may impact customer satisfaction (Ighomereho et al., 2022; Lin Yong, 2016). Getting satisfaction from customers is a target that every e-commerce must own regarding these findings. It shows that improving the quality of electronic services is strongly needed.

This research investigation also finds a substantial connection between overall e-service quality and

customer satisfaction and loyalty intentions. Support the previous studies that a close relationship exists between e-service quality and customer satisfaction on loyalty intentions (Khan et al., 2019; Slack et al., 2020). Previous studies conducted by Blut et al. (2015) concluded that the satisfaction variable cannot be used as the only influencing variable to obtain customer loyalty intentions, so other variables are also needed for investigation. The development of previous research that added electronic service quality to loyalty intentions suggested that the overall quality of electronic services has a strong or indirect effect on increasing customer loyalty intentions (Kaya et al., 2019). Consequently, e-commerce must provide electronic services that can give positive ratings from customers to encourage customer satisfaction. From this, the two independent variables will constantly encourage customer loyalty intentions.

This research has managerial implications by advising e-commerce to adapt to changes in customer behavior and provide services according to customer wishes on e-commerce websites, which will undoubtedly positively affect customer satisfaction as the goal of every business. In addition, the value of online services that intensify the focus on product variety is also required by e-commerce. This is because the various dimensions of e-service quality in the research model and variations in product segments shape customer perceptions of the quality of the e-service as a whole and, in the end, play a significant role in customer satisfaction, which encourages the formation of an intention to remain a customer. Therefore, e-commerce needs to design electronic services, raise quality, and consider the variety of product segments consumers desire when using accessible web-based business sites.

Future studies may overcome the limitations of this study. First, the sample in this study is limited to respondents who have purchased products on e-commerce, so they cannot describe conditions in general. Second, this research investigation only examines the impact of electronic service quality on customer loyalty and satisfaction obtained from e-commerce websites so that they can only show the desired quality of electronic services. A more comprehensive examination of the quality of electronic services in subsequent research is needed. This can create customer dissatisfaction and disloyalty to ensure that the measurements taken align with the customer's needs for the quality of the electronic services.

REFERENCES

Alrubaiee, L., & Alkaa'ida, F. (2011). The Mediating Effect of Patient Satisfaction in the Patients' Perceptions of Healthcare Quality – Patient Trust Relationship. *International Journal of Marketing Studies*, *3*(1). https://doi.org/10.5539/ijms.v3n1p103

Ataburo, H., Muntaka, A. S., & Quansah, E. K. (2017). Linkages among E-Service Quality, Satisfaction, and Usage of E-Services within Higher Educational Environments. *International Journal of Business and Social Research*, *7*(3), 10–26. https://doi.org/10.18533/ijbsr.v7i3.1040

Ayinaddis, S. G. (2022). The Relationship Between Service Innovation, Customer Satisfaction, and Loyalty Intention in Emerging Economies: An Evidence from Ethio Telecom. *Journal of the Knowledge Economy*, *April*. https://doi.org/10.1007/s13132-022-01025-7

Bagozzi, R. P., & Youjae Yi. (1988). On the Evaluation of Structural Equation Models. *Journal of the Academy of Marketing Science*, *16*(1), 74–94. https://doi.org/10.1177/009207038801600107

Barnes, S. J. (2001). An evaluation of cyber-bookshops: The WebQual method. *International Journal of Electronic Commerce*, *September*, 11–30. https://doi.org/http://dx.doi.org/10.4018/978-1-878289-89-6.ch002

Barnes, S., & Vidgen, R. (2002). An Integrative Approach to the Assessment of E-Commerce Quality. Journal of Electronic Commerce Research. *Journal of Electronic Commerce Research*, *3*(3), 114–127. http://web.csulb.edu/journals/jecr/issues/20023/paper2.pdf

Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective*. Pearson.

Blut, M. (2016). E-Service Quality: Development of a Hierarchical Model. *Journal of Retailing*, *92*(4), 500–517. https://doi.org/10.1016/j.jretai.2016.09.002

Blut, M., Chowdhry, N., Mittal, V., & Brock, C. (2015). E-Service Quality: A Meta-Analytic Review. *Journal of Retailing*, *91*(4), 679–700. https://doi.org/10.1016/j.jretai.2015.05.004

Brady, M. K., & Robertson, C. J. (2001). Searching for a consensus on the antecedent role of service quality and satisfaction: An exploratory cross-national study. *Journal of Business Research*, *51*(1), 53–60. https://doi.org/10.1016/S0148-2963(99)00041-7

Butcher, K., Sparks, B., & O'Callaghan, F. (2001). Evaluative and relational influences on service loyalty. *International Journal of Service Industry Management*, *12*(4), 310–327. https://doi.org/10.1108/09564230110405253

Chang, H. H., Wang, Y.-H., & Yang, W.-Y. (2009). The impact of e-service quality, customer satisfaction and loyalty on e-marketing: Moderating effect of perceived value. *Total Quality Management*, *20*(4), 423–443.

Chang, S. C., Chou, P. Y., & Wen-Chien, L. (2014). Evaluation of satisfaction and repurchase intention in online food group-buying, using Taiwan as an example. *British Food Journal*, *116*(1), 44–61. https://doi.org/10.1108/BFJ-03-2012-

0058

Cohen, J. (1988). Statistical power analysis for the behavioral sciences. Routledge.

Dabholkar, P. A. (1996). Consumer evaluations of new technology-based self-service options: An investigation of alternative models of service quality. *International Journal of Research in Marketing*, *13*(1), 29–51. https://doi.org/10.1016/0167-8116(95)00027-5

Demir, A., Maroof, L., Sabbah Khan, N. U., & Ali, B. J. (2020). The role of E-service quality in shaping online meeting platforms: a case study from higher education sector. *Journal of Applied Research in Higher Education*, *13*(5), 1436–1463. https://doi.org/10.1108/JARHE-08-2020-0253

Edvardsson, B., Johnson, M. D., Gustafsson, A., & Strandvik, T. (2000). The effects of satisfaction and loyalty on profits and growth: Products versus services. *Total Quality Management*, *11*(7), 917–927. https://doi.org/10.1080/09544120050135461

Flavián, C., Guinalíu, M., & Gurrea, R. (2006). The role played by perceived usability, satisfaction and consumer trust on website loyalty. *Information and Management*, *43*(1), 1–14. https://doi.org/10.1016/j.im.2005.01.002

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research This*, *18*(1), 39–50.

Fornell, C. (1992). A national customer satisfaction barometer: The Swedish experience. *Journal of Marketing*, *56*(1), 6–21.

Gautam, V. (2015). Service Quality Perceptions of Customers About Mobile Telecommunication Services: A Case of India. *Journal of Global Marketing*, *28*(1), 19–31. https://doi.org/10.1080/08911762.2014.991013

Gefen, D., Straub, D., & Boudreau, M.-C. (2000). Structural Equation Modeling and Regression: Guidelines for Research Practice. *Communications of the Association for Information Systems*, *4*(August). https://doi.org/10.17705/1cais.00407

Ghozali, I. and H. L. (2015). Partial Least Squares Konsep, Teknik, dan Aplikasi Menggunakan Program SmartPLS 3.0 Untuk Penelitian Empiris Edisi 2. Badan Penerbit Universitas Diponegoro.

Gounaris, S., Dimitriadis, S., & Stathakopoulos, V. (2010). An examination of the effects of service quality and satisfaction on customers' behavioral intentions in e-shopping. *Journal of Services Marketing*, *24*(2), 142–156. https://doi.org/10.1108/08876041011031118

Greenwell, T. C., Fink, J. S., & Pastore, D. L. (2002). Assessing the Influence of the Physical Sports Facility on Customer Satisfaction within the Context of the Service Experience. *Sport Management Review*, *5*(2), 129–148. https://doi.org/10.1016/S1441-3523(02)70064-8

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, *19*(2), 139–152. https://doi.org/10.2753/MTP1069-6679190202

Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science*, *40*(3), 414–433. https://doi.org/10.1007/s11747-011-0261-6

Holloway, B. B., & Beatty, S. E. (2008). Satisfiers and dissatisfiers in the online environment: A critical incident assessment. *Journal of Service Research*, *10*(4), 347–364. https://doi.org/10.1177/1094670508314266

Huang, E. Y., Lin, S. W., & Fan, Y. C. (2015). M-S-QUAL: Mobile service quality measurement. *Electronic Commerce Research and Applications*, *14*(2), 126–142. https://doi.org/10.1016/j.elerap.2015.01.003

Huang, L. (2008). Exploring the determinants of E-loyalty among travel agencies. *The Service Industries Journal*, *28*(2), 239–254.

Ighomereho, O. S., Afolabi, T. S., & Oluwakoya, A. O. (2022). Impact of E-service quality on customer satisfaction: a study of internet banking for general and maritime services in Nigeria. *Journal of Financial Services Marketing*, 1–14.

Jeon, M. M., & Jeong, M. (2017). Customers' perceived website service quality and its effects on e-loyalty. *International Journal of Contemporary Hospitality Management*, *29*(1), 438–457. https://doi.org/10.1108/IJCHM-02-2015-0054

Jöreskog, K. G., & Sörbom, D. (1982). Recent developments in structural equation modeling. *Journal of Marketing Research*, *19*(4), 404–416.

Kaya, B., Behravesh, E., Abubakar, A. M., Kaya, O. S., & Orús, C. (2019). The Moderating Role of Website Familiarity in the Relationships Between e-Service Quality, e-Satisfaction and e-Loyalty. *Journal of Internet Commerce*, *18*(4), 369–394. https://doi.org/10.1080/15332861.2019.1668658

Khan, M. A., Zubair, S. S., & Malik, M. (2019). An assessment of e-service quality, e-satisfaction and e-loyalty: Case of online shopping in Pakistan. *South Asian Journal of Business Studies*, *8*(3), 283–302. https://doi.org/10.1108/SAJBS-01-2019-0016

Kitapci, O., Akdogan, C., & Dortyol, İ. T. (2014). The Impact of Service Quality Dimensions on Patient Satisfaction, Repurchase Intentions and Word-of-Mouth Communication in the Public Healthcare Industry. *Procedia - Social and Behavioral Sciences*, *148*, 161–169. https://doi.org/10.1016/j.sbspro.2014.07.030

Liao, T. H., & Keng, C. J. (2013). Online shopping delivery delay: Finding a psychological recovery strategy by online consumer experiences. *Computers in Human Behavior*, *29*(4), 1849–1861. https://doi.org/10.1016/j.chb.2013.03.004

Lin Yong, L. J. (2016). Exploring the service quality in the e-commerce context: A triadic view. *Industrial Management and Data Systems*, *116*(3), 388–415. https://doi.org/10.1108/IMDS-04-2015-0116

Liu, Y., & Jang, S. C. (Shawn). (2009). Perceptions of Chinese restaurants in the U.S.: What affects customer satisfaction and behavioral intentions? *International Journal of Hospitality Management*, *28*(3), 338–348.

https://doi.org/10.1016/j.ijhm.2008.10.008

Loiacono, E. T. (2002). WEBQUAL™: A Web site quality instrument. *Dissertation*, 274.

Mattila, A. S. (2001). The Impact of Relationship Type on Customer Loyalty in a Context of Service Failures. *Journal of Service Research*, 4(2), 91–101. https://doi.org/10.1177/109467050142002

Mihajlovic, N. (2017). The analysis of Serbian customers satisfaction with e-services quality dimensions of lodging e-intermediaries. *The European Journal of Applied Economics*, 14(1), 48–62. https://doi.org/10.5937/ejae14-13242

Oliver, R. L. (1997). Satisfaction: A behavioral perspective on the consumer. Routledge.

Otto, A. S., Szymanski, D. M., & Varadarajan, R. (2020). Customer satisfaction and firm performance: insights from over a quarter century of empirical research. *Journal of the Academy of Marketing Science*, 48(3), 543–564. https://doi.org/10.1007/s11747-019-00657-7

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A Conceptual Model of Service Quality and Its Implications for Future Research. *Journal of Marketing*, 49(4), 41. https://doi.org/10.2307/1251430

Parasuraman, A., Zeithaml, V. A., & Malhotra, A. (2005). E-S-QUAL a multiple-item scale for assessing electronic service quality. *Journal of Service Research*, 7(3), 213–233. https://doi.org/10.1177/1094670504271156

Pee, L. G., Jiang, J. J., & Klein, G. (2019). E-store loyalty: Longitudinal comparison of website usefulness and satisfaction. *International Journal of Market Research*, 61(2), 178–194. https://doi.org/10.1177/1470785317752045

Pooja Kansra and Abhishek Kumar Jha. (2016). Measuring service quality in Indian hospitals : an analysis of SERVQUAL model Pooja Kansra * and Abhishek Kumar Jha. *International Journal of Services and Operations Management*, 24(1), 1–17.

Oliver, R. L. (1980). A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*, 17(4)(November), 460–469.

Ringle, C. M., Sarstedt, M., & Straub, D. W. (2012). Editor's Comments : A Critical Look at the Use of PLS-SEM in "MIS Quarterly" Editor's Comments A Critical Look at the Use of PLS-SEM in MIS Quarterly. 36(1).

Rita, P., Oliveira, T., & Farisa, A. (2019). The impact of e-service quality and customer satisfaction on customer behavior in online shopping. *Heliyon*, 5(10), e02690. https://doi.org/10.1016/j.heliyon.2019.e02690

Rust, R. T., & Oliver, R. L. (1994). Service quality: insights and managerial implications from the frontier. *Service Quality: New Directions in Theory and Practice*, 7(12), 1–19.

Sanayei, A., & Jokar, A. (2013). Determining the Effect of Electronic Services Quality on Electronic Satisfaction and Positive Word of Mouth (Case Study : Different Branches of Shiraz Mellat Bank Customers. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 3(4), 103–111. https://doi.org/10.6007/IJARAFMS/v3-i4/360

Santos, J. (2003). E-service quality: A model of virtual service quality dimensions. *Managing Service Quality: An International Journal*, 13(3), 233–246. https://doi.org/10.1108/09604520310476490

Schmidt, S., Cantallops, A. S., & dos Santos, C. P. (2008). The characteristics of hotel websites and their implications for website effectiveness. *International Journal of Hospitality Management*, 27(4), 504–516. https://doi.org/10.1016/j.ijhm.2007.08.002

Sharma, G., & Lijuan, W. (2015). The effects of online service quality of e-commerce Websites on user satisfaction. *Electronic Library*, 33(3), 468–485. https://doi.org/10.1108/EL-10-2013-0193

Slack, N., Singh, G., & Sharma, S. (2020). The effect of supermarket service quality dimensions and customer satisfaction on customer loyalty and disloyalty dimensions. *International Journal of Quality and Service Sciences*, 12(3), 297–318. https://doi.org/10.1108/IJQSS-10-2019-0114

Suhartanto, D., Helmi Ali, M., Tan, K. H., Sjahroeddin, F., & Kusdibyo, L. (2019). Loyalty toward online food delivery service: the role of e-service quality and food quality. *Journal of Foodservice Business Research*, 22(1), 81–97. https://doi.org/10.1080/15378020.2018.1546076

Taylor, S. A., & Baker, T. L. (1994). An assessment of the relationship between service quality and customer satisfaction in the formation of consumers' purchase intentions. *Journal of Retailing*, 70(2), 163–178.

Tempo. (2020). *85 Persen Konsumen E-commerce Berasal dari Generasi Z dan Milenial*. https://bisnis.tempo.co/read/1372514/85-persen-konsumen-e-commerce-berasal-dari-generasi-z-dan-milenial

Tsao, W. C., Hsieh, M. T., & Lin, T. M. Y. (2016). Intensifying online loyalty! The power of website quality and the perceived value of consumer/seller relationship. *Industrial Management and Data Systems*, 116(9), 1987–2010. https://doi.org/10.1108/IMDS-07-2015-0293

Turel, O., & Connelly, C. E. (2013). Too busy to help: Antecedents and outcomes of interactional justice in web-based service encounters. *International Journal of Information Management*, 33(4), 674–683. https://doi.org/10.1016/j.ijinfomgt.2013.03.005

Udo, G. J., Bagchi, K. K., & Kirs, P. J. (2010). An assessment of customers' e-service quality perception, satisfaction and intention. *International Journal of Information Management*, 30(6), 481–492. https://doi.org/10.1016/j.ijinfomgt.2010.03.005

Wahyudi, H., Suripto, S., & Palupi, W. A. (2023). Long-Term Implications of Economic Complexity and Energy Intensity on the Environment in Lower-Middle-Income Countries in Asia. *International Journal of Energy Economics and Policy*, 13(1), 164–171. https://doi.org/10.32479/ijeep.13737

Wang, L., Law, R., Guillet, B. D., Hung, K., & Fong, D. K. C. (2015). Impact of hotel website quality on online booking intentions: ETrust as a mediator. *International Journal of Hospitality Management*, *47*, 108–115. https://doi.org/10.1016/j.ijhm.2015.03.012

Wolfinbarger, M., & Gilly, M. C. (2003). eTailQ: Dimensionalizing, measuring and predicting retail quality. *Journal of Retailing*, *79*(3), 183–198. https://doi.org/10.1016/S0022-4359(03)00034-4

Yen, C. H., & Lu, H. P. (2008). Effects of e-service quality on loyalty intention: An empirical study in online auction. *Managing Service Quality*, *18*(2), 127–146. https://doi.org/10.1108/09604520810859193

Yoo, B., & Donthu, N. (2001). Developing a scale to measure the perceived quality of an internet shopping site (SITEQUAL). *Quarterly Journal of Electronic Commerce*, *2*(1), 31–45.

Zeithaml, V. A. (2000). Service quality, profitability, and the economic worth of customers: what we know and what we need to learn. *Journal of the Academy of Marketing Science*, *28*, 67–85.

Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing*, *60*(2), 31–46.

Zeithaml, V. A., Parasuraman, A., & Malhotra, A. (2002). Service quality delivery through web sites: A critical review of extant knowledge. *Journal of the Academy of Marketing Science*, *30*(4), 362–375. https://doi.org/10.1177/009207002236911

Zhang, Q., Cao, M., Zhang, F., Liu, J., & Li, X. (2020). Effects of corporate social responsibility on customer satisfaction and organizational attractiveness: A signaling perspective. *Business Ethics*, *29*(1), 20–34. https://doi.org/10.1111/beer.12243

Zulkarnain, K., Ismael, Y., Haque, A. K. M., & Anmed, S. (2015). Ksstors Online Food ordering services success fac. *Kuala Lumpur, Malaysia*, *50*(December), 19 pages.

APPENDICES

Appendix A: Evaluation of latent construction

Construct			Item
Website Design	InformationQuality	IQ1.	This website provides much information that I need to do a product search at the online store "Brand X".
		IQ2.	The online store website "Brand X" is quite informative for me.
		IQ3.	For finding products, the information on the "Brand X" online shop website is very useful.
	Website Aesthetics	WA1.	The visual appearance of the "Brand X" online store website is pleasing.
		WA2.	The "Brand X" online shop website features a fun design.
		WA3.	The online store website "Brand X" is visually appealing.
	Purchase Process	PP1.	The "Brand X" online shop website has a service to facilitate online payments.
		PP2.	The buying process on the "Brand X" online store website is easy.
		PP3.	My purchases are easier to complete through the "Brand X" online shop website than by telephone or e-mail.
	Website Convenience	WC1.	The "Brand X" online store website displays content that is easy to read visually.
		WC2.	Product descriptions on the online store website "Brand X" are easy to understand.
		WC3.	The service features available on the "Brand X" online shop website are easy to understand.
	Product Selection	PS1.	The online shop website "Brand X" was able to complete all my purchase.
		PS2.	The online store website "Brand X" has a great selection.
		PS3.	The site of the web-based store "Brand X" has a extensive variety of items that interest me.
	Price Offer	PO1.	Discounts and free shipping are available at "Brand X," a website for online shopping.
		PO2.	The online store website "Brand X" has affordable product prices.
		PO3.	Product prices are lower at "Brand X," an online retailer, than at brick-and-mortar establishments.
	Website Personalization	WP1.	The online store website "Brand X" allows me to search for the desired product information.
		WP2.	The website for "Brand X" has interactive features that make it easier for me to buy products.
		WP3.	The online store website "Brand X" provides product information that fits my particular needs.
	System Availability	SA1.	There is very little delay between my action and the website's response when I use the "Brand X" online store website.
		SA2.	The online store website "Brand X" loads quickly.
		SA3.	The loading time of the "Brand X" online store website is long.
Customer Service	Service Level	SL1.	You can reach them at the telephone number provided by the online store "Brand X."
		SL2.	The online store "Brand X" has a customer service that can be accessed online.
		SL3.	If there is a problem, customers can talk directly to customer service at the online store "Brand X".
	Policies & Handling of Returns	RP1.	I have a convenient means of returning products through the online store "Brand X".
		RP2.	Product returns are well handled by the online store "Brand X".
		RP3.	A guarantee for product returns is provided by the online store "Brand X".
Security/Privacy	Security	SC1.	I feel safe in transacting with the online store "Brand X".
		SC2.	The online store "Brand X" has adequate security features.
		SC3.	The online store website "Brand X" protects my credit card information.
	Privacy	PR1.	I believe the online store "Brand X" will safeguard my personal information.

		PR2.	I am confident that the website owner of the online store "Brand X" will not misuse my personal information.
		PR3.	My online shopping habits are protected by the online store "Brand X".
Fulfillment	Timeliness of delivery	TD1.	The products of the online shop "Brand X" were delivered according to the promised time.
		TD2.	The online store website "Brand X" can provide timely delivery schedules.
		TD3.	The online store "Brand X" was fast in delivering my order.
	Order Accuracy	OA1.	I received an order for the product I ordered from "Brand X," an online store.
		OA2.	The website of the online store "Brand X" delivers the ordered products.
		OA3.	The online store website "Brand X" is honest about its product offerings.
	Delivery Conditions	DC1.	The products of the online store "Brand X" were damaged during shipment.
		DC2.	Products ordered from the online store "Brand X" arrived in excellent condition.
		DC3.	When the items from the online store "Brand X" arrived, they were badly damaged.
Overall E-Service Quality		SQ1.	My overall buying experience with the online store "Brand X" has been very good.
		SQ2.	The overall services offered by the online store "Brand X" are very high quality.
		SQ3.	My overall feeling of the online store "Brand X" is very satisfied.
Customer Satisfaction		CS1.	I am satisfied with the online shop "Brand X".
		CS2.	The "Brand X" online store is the best place for me to shop.
		CS3.	The online store "Brand X" always meets my needs.
		CS4.	The online shop "Brand X" was exactly what I expected.
		CS5.	Choosing the online store "Brand X" for shopping is a wise choice.
Loyalty Intention		L1.	If someone asks me for advice regarding online stores, I will recommend "Brand X".
		L2.	I spoke highly of the online store "Brand X".
		L3.	I plan to keep shopping at the web-based store "Brand X".
		L4.	I will keep on shopping at the web-based store "Brand X".
		L5.	Despite the increase in price, I will continue to shop at "Brand X," an online retailer.