http://doi.org/10.23925/2179-3565.2025v16i3p201-222

RISUS - Journal on Innovation and Sustainability
volume 16, número 3 - 2025
ISSN: 2179-3565
Editor Científico: Arnoldo José de Hoyos Guevara
Editor Assistente: Vitória Catarina Dib
Avaliação: Melhores práticas editoriais da ANPAD

E- SERVICE QUALITY EVALUATION AND THE MEDIATING ROLE OF PERCEIVED VALUE AND CUSTOMER SATISFACTION IN SHAPING CUSTOMER LOYALTY: CONTEXT OF ONLINE SHOPPING IN SAUDI ARABIA

Avaliação da qualidade de serviços eletrônicos e o papel mediador do valor percebido e da satisfação do cliente na formação da fidelidade do cliente: contexto das compras online na arábia saudita

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ABSTRACT

This paper explores the effects between ESQ and CL of online shopping in Saudi Arabia. As the model structures, the PV and CS become a mediator between ESQ and CL. The diagrammatic picture of the structure is as below: It used quantitative research method, and the study was deductive. The questionnaire data were in a structured online questionnaire circulated via Google Forms. The survey was conducted among 209 valid responses of adult users of the Western Region of Saudi Arabia who had made online purchases of products. The data was analyzed by means of SPSS version 23 and SmartPLS version 4 PLS-SEM. In the study, E-SQ displays a robust positive correlation with both PV and CS that significantly influence CL. Both PV and CS interrupted the entire bond between E-SQ and CL. These results highlight the importance of creating high-quality service experiences that enhance value perceptions and satisfaction to enhance long-term loyalty. In this study, researchers considered only individuals engaged in online shopping in Saudi Arabia, might reduce the extent to which the results are able to be generalized to other locations or countries. The research contributes to the knowledge of digital service quality by integrating e-SERVQUAL dimensions within a loyalty framework. Practical implications include guiding e-commerce platforms and digital marketers in enhancing customer retention by focusing on ESQ, PV, and CS. The insights are particularly relevant to the evolving digital economy in Saudi Arabia.

Keywords: E-service quality, Customer loyalty, Perceived value, Customer satisfaction, Online shopping

SUBMETIDO EM: 29/07/2025
ACEITO EM: 10/09/2025
PUBLICADO EM: 30/10/2025

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AVALIAÇÃO DA QUALIDADE DE SERVIÇOS ELETRÔNICOS E O PAPEL MEDIADOR DO VALOR PERCEBIDO E DA SATISFAÇÃO DO CLIENTE NA FORMAÇÃO DA FIDELIDADE DO CLIENTE: CONTEXTO DAS COMPRAS ONLINE NA ARÁBIA SAUDITA

E- service quality evaluation and the mediating role of perceived value and customer satisfaction in shaping customer loyalty: context of online shopping in Saudi Arabia

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RESUMO

Este artigo explora os efeitos entre ESQ e CL em compras online na Arábia Saudita. À medida que o modelo se estrutura, o PV e o CS tornam-se mediadores entre ESQ e CL. A imagem diagramática da estrutura é a seguinte: utilizou-se o método de pesquisa quantitativa e o estudo foi dedutivo. Os dados do questionário estavam em um questionário online estruturado, distribuído via Google Forms. A pesquisa foi conduzida entre 209 respostas válidas de usuários adultos da Região Ocidental da Arábia Saudita que haviam feito compras online de produtos. Os dados foram analisados por meio do SPSS versão 23 e do SmartPLS versão 4 PLS-SEM. No estudo, o E-SQ exibe uma correlação positiva robusta com PV e CS, que influenciam significativamente o CL. Tanto o PV quanto o CS interromperam todo o vínculo entre E-SQ e CL. Esses resultados destacam a importância de criar experiências de serviço de alta qualidade que aprimorem as percepções de valor e a satisfação para aumentar a lealdade a longo prazo. Neste estudo, os pesquisadores consideraram apenas indivíduos envolvidos em compras online na Arábia Saudita, o que pode reduzir a extensão em que os resultados podem ser generalizados para outros locais ou países. A pesquisa contribui para o conhecimento da qualidade de serviços digitais ao integrar as dimensões do e-SERVQUAL a uma estrutura de fidelização. As implicações práticas incluem orientar plataformas de e-commerce e profissionais de marketing digital na melhoria da retenção de clientes, com foco em ESQ, PV e CS. Os insights são particularmente relevantes para a economia digital em evolução na Arábia Saudita.

Palavras-chave: Qualidade do serviço eletrônico, Fidelidade do cliente, Valor percebido, Satisfação do cliente, Compras on-line

INTRODUCTION

In today's rapidly evolving global economy, the retail sector has undergone substantial changes in how companies function and connect with their customers (Risberg, 2023). The expansion of the internet is one of the key causes of such change, since it has altered the structure of work in the company and transformed the popularity of e-commerce in the sphere of shopping. Online shopping an essential part of the business to consumer (B2C) e-commerce model enables individuals to search for, evaluate, and purchase products through online platforms (Khan et al., 2019). This transformation has challenged the conventional in-store shopping format, pushing traditional retailers to rethink their strategies and integrate digital technologies to stay competitive (Li et al., 2023). Among the key benefits of e-commerce are broader customer access, greater shopping flexibility, operational efficiency and the ability to deliver tailored shopping experiences (Mofokeng, 2021).

Historically, retail was based on physical outlets where consumers engaged directly with products before making a purchase. However, digital advancements and widespread internet access have reshaped consumer habits and expectations (Sagar, 2024). As technology progressed and consumer behavior shifted, e-commerce emerged as a transformative force, redefining how products are marketed and sold (Lakshman et al., 2024). The COVID-19 pandemic further accelerated this shift, with lockdowns placing heavy strain on brick-and-mortar stores. In contrast, digital platforms capitalized on this moment to scale their operations significantly. For instance, during the pandemic, various online platforms in Saudi Arabia experienced significant growth, with sales doubling, the average order value increasing by 50% and application downloads rising by more than 400% (Oxford Business Group, 2020; Alateeg, 2023).

Since the outbreak of the COVID-19 pandemic in late 2019, online retail in Saudi Arabia has seen exceptional momentum, aligning with global patterns in consumer activity (Al Hamli, 2023). The Kingdom has become a regional leader in e-commerce development in the Middle East and North Africa (MENA) region (Al-Khalidi Al-Maliki, 2021). The undeniable expansion of the market can be attributed to factors such as high-speed internet access, a population proficient in technology and proactive governmental efforts toward digitalization, notably through Vision 2030 and National Ecommerce Strategy. Major digital marketplaces including Amazon and Noon, and other local retailers have thrived by offering diverse product selections. Furthermore, the adoption of digital wallets and online payment options is increasingly replacing traditional cash on delivery methods. Enhanced delivery networks and the rising popularity of mobile commerce have also fueled the sector's continued evolution (Daou & Stephan, 2025).

Nevertheless, this excellent development, there are also a number of challenges facing e-commerce in Saudi Arabia. These are the rivalry, the sophistication of the regulatory meanings, logistics, fulfillment delays, and the issues related to online safety and customer protection (Sarabdeen, 2023). These challenges point to the significance of maintaining high grades of digital services that help to shape customer perceived value that eventually determines their satisfaction and loyalty. As Pham et al. (2023) stress, having high-quality e-servicing is the core of being a success story in online retailing in a sustainable environment. Based on their aggressive digital transformation agenda, it is clear that traditional retailers need to be innovative, invest in technology to fulfill the emerging demands of the consumers.

Despite the fact that the sphere of e-commerce is growing exceptionally fast on the international scale, the growth of internet-based shopping in Saudi Arabia is rather low. This slowdown is usually attributed to poor e-service quality (E-SQ), no consumer confidence and poor customer satisfaction. On-line shopping within the boundaries of the Kingdom remains at a nascent stage with the overall IT transformation of the country as merely 9 percent of the companies have ventured into e-shopping platforms (Al Hamli, 2023). Although traditional service quality has been viewed in Saudi Arabia, there is a substantial gap towards how E-SQ is viewed and understood in the area of determining customer loyalty (CL) through customer perceived value (PV) and customer satisfaction (CS) (Qatawneh et al., 2024). By resolving these questions, it will be possible to promote CS and improve the effectiveness of delivery, besides the speed of developing the digital economy of Saudi Arabia. Furthermore, the effectiveness of E-SQ in shaping the loyalty of customers in the environment of Saudi e-commerce remains uninvestigated empirically (Mir et al., 2023). Hence, there is a need to do more studies to investigate the influence of ESQ on CL.

The study seeks to answer these questions to understand how the e-service quality is influential in generating on-line buying behavior and how there are other mediating variables who can play the roles of middlemen with regards to the relationship between the e-service quality and the customer loyalty. The aim of research is to find the direct and indirect impacts of quality of e-services on loyalty and the mediating impacts arriving to the perceived value and satisfaction. The study presents the necessary regulatory guidelines that can be used in developing better guidelines towards enhancing e-service quality, thus making it relevant in line with the SA vision 2030 in terms of digital transformation and entrepreneurship.

The study aims at examining the impact of ESQ on customer retention in the online malls sector in Saudi Arabia. As the nation rapidly digitalizes its efforts to encourage the growth of e-commerce activities and diversify their economy, it is increasingly becoming important to evaluate the perceptions of forum members on their experiences of online shopping. Therefore, this paper will contribute to the overall agenda of promoting long-term digitalization in Saudi Arabia.

1 LITERATURE REVIEW AND HYPOTHESIS:

1.1 Theoretical Underpinning:

This paper will be using the E-SERVQUAL theory to measure online shopping services quality and how it influences CS and CL. E-SERVQUAL theory is an expansion of the original SERVQUAL theory hence the adaption of the theory to measure the special features of electronic services. As well as the initial theory, SERVQUAL, its modification, E-SERVQUAL, has been widely researched and can prove tremendously successful in outcome forecasts (Alabdali & Husain, 2023). This theory referred to as E-SERVQUAL was an extension on their original SERVQUAL theory (Parasuraman et al., 1988) which measured service quality in terms of tangible and intangible dimensions on service delivery. As opposed to the traditional models, ESERVQUAL takes into consideration the unique aspects of service that are related to online services, such as efficiency, availability of system, and privacy. ESERVQUAL theory could also be used as a theoretical construct to examine the relationship among the E- service quality, customer satisfaction and the perceived value in an attempt to obtain the customer loyalty when dealing with the digital shopping scenario (Umoke et al., 2020).

1.2 E-service quality and Customer loyalty

E-service quality can be defined as the total rating of the service quality by consumers delivered through the Internet (Zeithaml et al., 2000). Some of the dimensions in online retailing environments include efficiency, fulfilment, system availability, privacy and security (Parasuraman et al., 2005). The efficiency is the way in which a customer can visit the site and find the product she or he desires and also access information without much hassle (Wang, 2003). The said dimension is important especially when it comes to building user loyalty and avoiding user frustrations when navigating. Right next to efficiency is that of System availability, that shows the proper technical operation of the site. In addition, Khan et al. (2019) also pointed out that system availability implies that the shopping web site works without any interruptions and page blockages during the session of the user. Another dimension which is critical is fulfillment, this regards the extent of accuracy in the delivery of service promises like inventory and appropriate product productively in the stipulated time (Wang, 2003). In the discussed article, Jain et al. (2015) explained in detail that fulfillment is a multipronged process, which includes the procurement of orders, fulfillment of orders, as well as the returning of products, hence its role in customer satisfaction and building trust. It is the level at which a web site protects the personal information of the users (Elsharnouby and Mahrous, 2015), which has a direct impact on the attitude toward security and trust in the customers. Such dimensions are essential in such marketplaces as Saudi Arabia, where the trend of online purchases has increased exponentially after 2020 due to the influence of digitalization and new consumer trends (Alzaydi, 2021).

In other words, customer loyalty (CL) defines how far a customer clings to a given brand or organization. Ngo et al. (2021) remark that it manifests itself as the consistent attachment of a shopper to a specific set of products or services over and above competition. We will divide customer loyalty into two components in business class: attitudinal loyalty and behavioral loyalty (Na et al., 2023). Attitudinal loyalty deals entirely with the attitudes and positive emotions which a human being develops to a brand or an organization- sort of an emotional attachment.

In other words, taking place every time a customer returns to the same store to purchase the same products or services after a long period (Cui et al., 2023). Customer loyalty in the world of e-commerce may result in the form of consistent usage patterns, purchase cycles and, of course, good word-of-mouth (Al-Adwan et al., 2020)

Recent studies show that high customer loyalty significantly increases with the presence of e-service quality. This is due to the increased level of satisfaction, reduction of cognitive dissonance and the propensity of repeat purchase (Eid, 2011). With seamless and secure online customer experience, the customers obtain a better brand image and are willing to maintain a long-term relationship (Bilgihan, 2016). Numerical data also indicate substantial influence of the service dimensions of reliability, correctness of the product information, and speed of customer assistance on loyalty (Pakurár et al., 2019). Furthermore, as depicted by Venkatakrishnan et al., (2023), all the aspects of e-service quality have positive relationship with customer loyalty. Other studies within the context of e-commerce have also demonstrated a positive relationship between e-service quality dimensions and the achievement of customer loyalty (Khan et al, 2019; Shafiee & Bazargan, 2018). Therefore, all these results generalize across industries; for instance, banking has seen the same effects wherein e-service improvements have facilitated customer retention and advocacy behavior (Ayinaddis et al, 2023). This also corroborates the conclusion that ESQ is a general stimulator of digital-based loyalty. Suppose we begin with a hypothesis:

H1. E-service quality has a positive effect on customer loyalty

1.3 The Mediating Role of Perceived Value

Perceived value is commonly defined as the customer's overall assessment of the utility of a product or service based on perceptions of what is received relative to what is given (Zeithaml, 1988). People who shop online do not just consider price when shopping. They consider, also, such factors as usability, convenience, payment security, customization, and privacy. It reflects both functional values, such as ease of navigation and responsiveness, and hedonic value, including enjoyment, trust, and perceived fairness.

E-commerce associates the idea of quality of service is utilized to quantify the advantages that customers derive from interacting with digital platforms. The human elements of business, like usability, clearly stated product information, and robust service support, are just as important as the technical ones, like web design, user experience engineering, and the related technical infrastructure (Pearson et al., 2012).

Research keeps confirming that improving these aspects of e-services raises the PV of the goods or services. Particularly, Nguyen et al. (2023) revealed that the e-service quality has significant implications on customer perceived value. Also, Alqahtani and Albahar (2022) demonstrated the importance of security assurance, highly functional payment systems, and platforms that are easy to use when it comes to shaping the notion of value. Similar findings were observed by researchers in a study conducted by Alarifi and Husain (2021) among online banking customers in Saudi Arabia: they considered efficiency, fulfilment, and privacy to be the key pillars of e-service quality that had a direct impact on the perceived value of the services and, by extension, influenced the customer perception of trust, convenience, and loyalty.

Consumers view positively their transactions in cases where they consider the level of service high, thus, perceiving the transaction as just and worthwhile (Fida et al., 2020). It is consequential in the Saudi environment, where cultural and institutional design may continue to encourage consumer distrust pertaining to digital transactions (Awan et al., 2016).

Vatolkina et al. (2020) further state that product attributes such as the clarity of product information, responsiveness and flexibility to returns play major roles in creating a perceived value, particularly that of mobile phone and home appliances buyers via online stores. All these have the effect of reducing post-purchase anxiety and making the customers more likely to conclude that the interaction was worth the time spent, money spent and the trust placed. Accordingly, we posit:

H2- E-service quality has a positive impact on customer PV.

On the other hand, perceived value is a key determinant of customer loyalty (Marcos & Coelho, 2022). Hsin & Wang (2022) emphasized that when customers perceive substantial value from their online shopping experiences, they are more inclined to engage in loyalty-driven behaviors such as repurchasing, recommending the

platform, and maintaining brand commitment. Similarly, Chang and Wang (2011) and Yang and Peterson (2004) highlighted that perceived value not only exerts a direct influence on customer loyalty but also operates indirectly through customer satisfaction, confirming its multifaceted and relational nature. Customers who consistently derive value from a platform are more forgiving of minor service failures, maintaining loyalty based on the overall positive experience.

Moreover, high service quality enhances perceived value by providing dependable systems, prompt support, and secure transactions, which collectively boost customers' perceptions of fairness and trust (Hsu et al., 2012; Caruana, 2002). When service quality attributes such as personalization and information quality are present, they enrich the perceived value, which subsequently fosters loyalty behaviors. Empirical evidence for this mediating effect is provided by ELSamen (2015), who demonstrated that PV mediates the relationship between ESQ and brand equity. In this sense, perceived value functions as a cognitive lens through which customers interpret service experiences and convert them into loyalty outcomes (Cristobal et al., 2007).

Additionally, in the context of Saudi Arabia, perceived value has been shown to significantly influence repeat purchase intentions and electronic word-of-mouth (Adwan et al., 2020; Ainin et al., 2015; Zhang et al., 2021). Similarly, research in Saudi Arabia's online travel sector found that perceived usefulness and value drive consumers' intentions to continue using online booking websites (Al-Maghrabi et al., 2010). These studies collectively affirm that within the competitive Saudi e-commerce environment, platforms capable of consistently delivering practical and emotional value are better positioned to foster enduring customer relationships.

Accordingly, the hypothesis are as follow:

H3 - CPV has a positive impact on CL

H4 - CPV mediates the connection between ESQ and CL

1.4 The Mediating Role of Customer Satisfaction

The emotional reward that individuals obtain in case of an online shopping session that is good or better than they expected is what is referred to as customer satisfaction in essence. The amount of payoff is measured by the researchers in the way they think their needs have been efficiently and effectively met by the process of checkout (Uzir et al., 2020). Research reveals that users are satisfied when platforms are well designed and offer fast checkout (Wattoo & Iqbal, 2022).

In addition to those material things, sympathy, attentiveness, and tough service renewal processes also count. According to Alzaydi (2021), the customers, whose issues are solved promptly and have clear communication, are more satisfied despite the delivery being slower. Khan et al. (2019) continue to state that the system availability, efficiency, privacy, and fulfillment all increase the emotional service rating, which, in turn, foretells higher satisfaction.

It is also claimed by researchers that customer satisfaction is heightened by the beauty of websites, customization, and perceived security (Cristobal et al., 2007; Uzir et al., 2020). This multidimensional nature is validated by Ayinaddis et al. (2023) who agree that responsiveness, reliability and availability of the systems are among the drivers of customer satisfaction. Research conducted by the Saudi retail sector supports these results: it demonstrates that consumers with a high level of service experience, particularly dependability of the system and customer support are satisfied continually with an online shopper (Eid, 2011).

In general, customer satisfaction is determined by e-service quality as there is significant digitalization of the market. Then, the following theory has been proposed:

H5- Focusing on the present change, empirical studies conducted all the time prove that customer satisfaction is definitely influenced by the quality of e-services used. The correlation between satisfaction and loyalty is also well defined as it has been confirmed with the help of a significant amount of evidence. A customer who may be satisfied has a much high probability of purchasing again and even giving positive feedback (Oliver, 1999; Anderson & Srinivasan, 2003). The effect is particularly high in online environments, where customer

retention is highly based on the quality of the user experience as well as on customer satisfaction (Sheu & Chang, 2022).

The researchers have also indicated that satisfaction is a direct predecessor of acts of loyalty that include repeat buying and platform recommendation. Indeed, in articles by Adwan et al (2020), Mainardes & Freitas (2023), and Albarq (2023), those customers who are emotionally satisfied with the received service demonstrate the willingness to stay with the platform in conditions when the available substitutes cannot become competitive enough in terms of reliability. According to the studies not long ago, emotional satisfaction can be a highly important moderator, which reinforces the bond of loyalty despite the high competition (Uzir et al., 2020; Hsu et al., 2012).

According to the research by the researchers Alshhadat and Amoozegar (2022), satisfaction is described as an emotional lens through which service encounters are assimilated and converted into loyalty. Similar findings were reported by Yum and Yoo (2023), who demonstrated that satisfaction acts as a cognitive-affective bridge linking quality perceptions to future loyalty behaviors. This suggests that quality alone may not guarantee loyalty unless it triggers a positive emotional response. Hence, we hypothesize:

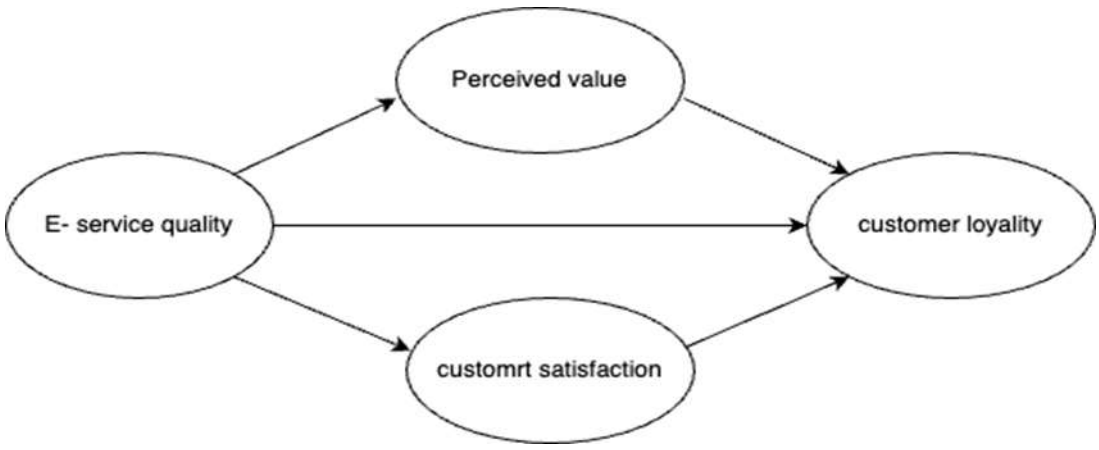
H6: Customer satisfaction has a significant effect on customer loyalty.

H7. Customer satisfaction mediates the relationship between e-service quality and customer loyalty

1.5 Conceptual Model

The conceptual framework of this study is based on the four key dimensions of E-Service Quality (E-SQ), derived from e-SERVQUAL scale developed by Parasuraman et al. (2005), namely: efficiency, system availability, fulfillment, and privacy. These dimensions are collectively considered as a single independent variable ESQ. CL is identified as the dependent variable within this framework. Furthermore, PV and CS function as mediating variables in the relationship between ESQ and CL. It aims to explore the impact of these variables on CL. The subsequent section presents the research methodology employed in this study.

Figure 1 - Conceptual Model



2 RESEARCH METHODOLOGY

2.1 Research Design and Method

The research adopts a positivist philosophy, as it focuses on quantifying phenomena through statistical analysis and objective data interpretation. In order to establish the associations between ESQ with additional variables, PV, CS, and CL with regard to online purchasing in Saudi Arabia, this article use deductive research. In an effort to gain empirical support, an empirical questionnaire was shared with the consumers, the aim of which was to attain the response of the consumers on their perception of the observed phenomena. In terms of methodology, the research is conducted based on a mono-method quantitative study, which is reasonable, considering its purpose of hypothesis testing and the determination of mediating properties of both perceived value and customer satisfaction (Saunders et al., 2015). The cross-sectional data are captured in the form of online survey through self-reported measure where the consumer behaviors and attitude can be captured holistically, and it can reveal the situation of consumer behavior and attitude over a period of time.

2.2 Measurement model

In this study, information is gathered using numbers and a structured survey. The questionnaire presented on the following sheet is shown on Appendix A. The first section captures participants' demographic information, including age, gender, educational background, and frequency of online shopping. The second section comprises 34 items designed to measure E-SQ, PV, CS, and CL. Moreover, no new measurement scales were developed for this study, as existing instruments from the literature were deemed appropriate and well-established.

All measurement items were sourced from previously validated studies published in reputable academic journals. Specifically, the E-SQ dimensions were measured using 22 items adapted from Parasuraman et al. (2005), a widely cited and reliable scale in the context of electronic service quality. Previous research has demonstrated its strong reliability ($\alpha > 0.7$) and validity (factor loadings > 0.7). To assess Perceived Value, four items were adopted from Chang et al. (2009), chosen for their high construct validity and reliability (factor loadings > 0.7; $\alpha > 0.7$). Customer Satisfaction was measured using three items derived from the work of Khan et al. (2019), which also demonstrated high reliability and validity. The same study provided the four items used to assess Customer Loyalty, which likewise showed robust psychometric properties (factor loadings > 0.7; $\alpha > 0.7$).

All scale items were translated into Arabic by the researcher to ensure linguistic and cultural appropriateness. Two academic experts in the relevant fields reviewed the translations to ensure accuracy and clarity. The questionnaire employed a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). In addition, no significant modifications were made to the items following this review process. These established instruments were selected for their proven reliability and validity across prior studies. This study will also measure the reliability and validity of its measures.

2.3 Data Collection Process and Sampling Selection

The design of the research is the deductive method of a quantitative approach. It employs convenience sampling which is a non-probability sampling that is often applied to both qualitative and quantitative studies, owing to its simplicity and efficacy demonstrated in study (Etikan et al., 2015). Past researches on structural equation modeling (SEM) indicate that the normality of data and the complexity of a model affect the determination of the suitable sample size (Wolf et al., 2013). However, A sample may presently be as small as 200 or equivalent to five or ten observations per estimated parameter as often as not. In accordance with the works of Kuvaas et al. (2020) and Yadav et al. (2019), the researcher used a a priori approach to identify the scale of the most appropriate sample size upon SEM (Soper, 2023). The analysis revealed that 137 needed to be an assumed sample size to conclude a significance of 0.05, a statistical power of 0.8, four latent variables, 34 observed indicators, and medium effect size of 0.3 (Cohen, 2013). The final sample used in the study is 209, exceeds this minimum requirement. In addition, Data collection was carried out using a structured questionnaire developed through Google Forms. The data collection period extended from March 25 to May 7, 2025. The questionnaire was disseminated via social

media platforms such as WhatsApp groups and Telegram. Regarding data collection, 218 questionnaires were returned. After excluding 9 incomplete responses, data from 209 participants were analyzed.

Moreover, regarding the sample characteristics and design, the target sampling included individuals who live in Western region and have experienced online shopping at least once. This sample was selected due to the researcher's convenient access to respondents in this area and because Western region is considered one of Saudi Arabia's most populous regions. A total of 209 valid responses were obtained, representing a wide range of online shopping perceptions within the region.

The analysis was carried out using SPSS 23 and Partial Least Squares Structural Equation Modeling (PLS-SEM). The uses of PLS-SEM have superior syntactical perspectives as it requires the utility to deal with complex relationships between observed and unobserved (latent) variables. This method was selected because it can handle even complex models, it is based on components estimation, and that it can be used with small to medium sample sizes for which many social science studies can be identified. The study was conducted using Smart PLS 4.

The analysis begins by providing the participant profile, the composite validity and discriminate reliability, and the outcomes of the hypothesis testing as we will see in the upcoming section.

2.4 Ethical Considerations

This research followed tight ethical standards to maintain integrity and confidentiality of the information considered. All the respondents gave informed consent prior to data collection, which was the provision of a proper brief on the aims of the research work, the procedures to be followed and the possible benefits of the research work. It was also told to them that they could at all times discontinue with the study without incurring any form of negative effects.

All details could be used to identify the respondents were asked to provide confidentiality and the results stored securely on an encrypted digital platform. In line with ethical research practices, the information was only used in academics.

3 RESULTS

This research considers the service quality of online shopping sites and their impact on customer loyalty. These findings are based on a survey (n = 500 online shoppers) and the data were Validated using SPSS 23 and SmartPLS 4. According to the results, perceived value has no direct influence on the willingness to pay again, but it has an impact on customer satisfaction, which later influences the willingness to pay again. Loyalty is also influenced by perceived value, similarly with satisfaction.

3.1 Profile of participants

Table 1 - Participants' Demographic profiles

Participants' Details (n = 209)	Frequency	Percentage
Gender		
Male	66	31.6 %
Female	143	68.4 %
Age		
Under 20 years old	25	12 %

21 – 25 years old	21	10 %
26 – 30 years old	27	12.9%
31 – 35 years old	41	19.6%
36 – 40 years old	30	14.4%
Above 40 years old	65	31.1%
Region in Saudi Arabia		
Western Region	209	100%
Education Level		
High school diploma or less	61	29.2%
Bachelor	117	56%
Master	23	11%
Ph.D.	8	3.8%
Frequency of online shopping		
More than once a month	65	29.8%
Once a month	48	22%
Once in 3 months	70	32.1 %
Once a year	26	11.9 %
Never	9	4.1%
preferred online shopping website or applications type		
Local Saudi platform – e.g., Noon, Salla	14	6.7%
Global platform – e.g., Amazon, Shein	31	14.8%

Both	164	78.5%

The demographic analysis of 209 participants reveals that the majority are female (68.4%) compared to male participants (31.6%). In terms of age distribution, the largest group of participants is above 40 years old (31.1%), while the smallest group is aged 21–25 (10%). All participants are from the Western Region of Saudi Arabia. Regarding education, most hold a bachelor's degree (56%), followed by 29.2% with a high school diploma or less, and 3.8% with a Ph.D. Regarding the frequency of online shopping, 32.1% shop once every three months, 29.8% shop more than once a month, and 11.9% shop once a year. A small portion (4.1%) indicated that they have never shopped online; however, these 9 responses were excluded from the final sample, as the study targeted individuals with prior online shopping experience. As for platform preferences, a significant majority (78.5%) prefer using both local and global online shopping platforms.

3.2 Measurement model

To evaluate construct validity, a Confirmatory Factor Analysis (CFA) was performed. The fit indices demonstrated acceptable model fit (Hair et al., 2021), with $\chi^2/df = 3.154$, GFI = 0.879, CFI = 0.856, NFI = 0.803, and RMSEA = 0.102.

3.2.1 Descriptive analysis of measurement scales

Table 2 - Descriptive analysis of measurement scales

Factor	Items	Mean	SD	Loading	VIF	Skewness	Kurtosis
E- service quality							
Efficiency	EF1	5.80	1.381	0.848	4.864	-1.443	1.812
-	EF2	5.75	1.424	0.825	3.797	-1.492	1.881
-	EF3	5.67	1.523	0.835	5.167	-1.645	2.265
-	EF4	5.60	1.330	0.824	3.384	-1.306	1.833
-	EF5	5.41	1.642	0.841	4.103	-1.194	.414
-	EF6	5.83	1.252	0.810	3.201	-1.675	3.466
-	EF7	5.75	1.450	0.793	3.303	-1.661	2.301
-	EF8	5.60	1.424	0.893	5.306	-1.339	1.336
System Availability	SA1	5.82	1.288	0.768	2.969	-1.618	3.092
-	SA2	5.73	1.430	0.819	3.315	-1.571	1.949

-	SA3	5.11	1.644	0.784	3.175	-.885	-.076
-	SA4	5.50	1.582	0.851	4.234	-1.365	1.111
Fulfillment	F1	5.04	1.706	0.764	3.508	-.887	-.168
-	F2	5.19	1.557	0.820	4.999	-.963	.271
-	F3	5.03	1.682	0.802	4.524	-.897	-.149
-	F4	5.57	1.409	0.751	2.480	-1.573	2.192
-	F7	4.86	1.674	0.774	2.981	-.790	-.360
Privacy	P1	5.11	1.647	0.660	2.753	-.986	.287
-	P3	5.26	1.472	0.676	2.547	-.957	.553
Perceived Value	PV1	5.11	1.399	0.912	3.327	-.855	.503
-	PV2	5.41	1.370	0.888	2.978	-1.182	1.198
-	PV3	5.05	1.582	0.892	2.876	-.970	.339
-	PV4	5.14	1.427	0.826	2.058	-.847	.342
Customer Satisfaction	CS1	5.63	1.353	0.846	2.250	-1.353	2.028
-	CS2	5.49	1.421	0.925	4.033	-1.283	1.261
-	CS3	5.45	1.417	0.893	3.397	-1.088	.742
-	CS4	5.73	1.343	0.892	2.835	-1.425	1.989
Customer Loyalty	CL1	5.00	1.610	0.704	1.455	-.811	-.293
-	CL2	5.27	1.643	0.886	2.628	-1.043	.157
-	CL3	5.30	1.500	0.899	2.814	-1.035	.622
-	CL4	5.60	1.369	0.876	2.444	-1.239	1.386

In Table 2, the descriptive analysis of the measurement scales is presented. The results show that most items recorded relatively high mean scores, suggesting a strong level of agreement among participants. Standard deviations (SDs) were generally low, indicating consistent responses across the sample. The majority of factor loadings exceeded the recommended threshold of 0.70 (Hair et al., 2011), confirming good construct reliability for instance, items such as PV1 (0.912), and CS2 (0.925) demonstrate strong loadings. However, items like P3 (0.676) are slightly below the ideal threshold but still within acceptable limits.

To assess multicollinearity, the Variance Inflation Factor (VIF) was examined for each item. According to Hair et al. (2019), VIF values below 5 indicate no multicollinearity concerns. The VIFs in this table range from 1.455 to 5.306. Therefore, most values are comfortably within the acceptable range.

According to Byrne (2010) and Hair et al. (2010), data are considered normally distributed when skewness values fall between ±2, and kurtosis values range between ±7. As shown in Table 2, the skewness values for all measurement items ranged from −1.675 to −0.790, and the kurtosis values ranged from − 0.360 to 3.466. Since all values fall within the acceptable thresholds, the data distribution normality.

3.2.2 Convergent validity

Table 3 - Measurement Model

-	**Cronbach's alpha**	**Composite reliability (rho_a)**	**Composite reliability (rho_c)**	**Average variance extracted (AVE)**
CL	0.864	0.883	0.908	0.714
CS	0.912	0.912	0.938	0.791
E-service quality	0.968	0.969	0.971	0.638
PV	0.902	0.904	0.932	0.774

Table 3. examines the reliability and validity of the constructs in the measurement model using four key indicators: Cronbach's alpha, composite reliability (both rho_a and rho_c), and average variance extracted (AVE). Cronbach's alpha measures the internal consistency of items within a construct. According to Cortina (1993), values above 0.70 are considered acceptable. The results show that all constructs, including CL (0.864), CS (0.912), E-SQ (0.968), and Perceived Value (0.902), exceed this threshold, indicating strong internal consistency.

Composite reliability, reflected by rho_a and rho_c, further supports these findings by incorporating factor loadings into the assessment. All constructs demonstrate robust reliability, with rho_a values ranging from 0.883 to 0.969, and rho_c values between 0.908 and 0.971 well above the 0.70, indicating high construct reliability (Hair et al., 2021).

The AVE values for all constructs also exceed the recommended minimum of 0.50, with values such as 0.714 for CL and 0.791 for CS. These results confirm adequate convergent validity, as each construct explains a substantial portion of variance in its items, minimizing measurement error and supporting the overall measurement quality (Hair et al., 2021).

3.2.3 Discriminant Validity

The table shows the findings regarding discriminant validity which was conducted by the Heterotrait-Monotrait Ratio (HTMT) and the Fornell-Larcker requirement. The off diagonal includes the correlations among

the various constructs, whereas the values above the diagonal are the square roots of the Average Variance Extracted (AVE) of the various constructs. With the Fornell-Larcker criterion, the diagonal element of any construct must be higher than its correlations with any other construct in the row or column. In this study, each construct such as CL, CS, E-SQ and PV, meets this requirement, confirming that the constructs are conceptually distinct from one another.

Additionally, HTMT values (marked with "h") offer further validation of discriminant validity. Hair et al. (2019) recommend that HTMT values remain below 0.90 to confirm that constructs are sufficiently differentiated. In the table, most HTMT values meet this condition. However, the HTMT value between CL and CS reaches 0.952, slightly exceeding the threshold, which may suggest a potential overlap between these two constructs. Despite this, the remaining HTMT values such as 0.853 (CL and E-SQ) and 0.852 (CL and PV), stay within acceptable limits, indicating satisfactory discriminant validity across the model.

Table 4 - Discriminant validity (Fornell-Larcker) criterion and Heterotrait ratio (HTMT)h

Parameters	CL	CS	E-service quality	PV
CL	**0.845**	0.952h	0.853h	0.852h
CS	0.850	**0.890**	0.888h	0.851h
E-service quality	0.787	0.836	**0.799**	0.847h
PV	0.756	0.771	0.792	**0.880**

3.3 Structural model

In this section of the analysis, the evaluation was conducted at the construct level. The examination of collinearity within the inner model revealed no concerns regarding multicollinearity, as all constructs and interaction terms reported Variance Inflation Factor (VIF) values below the critical threshold of 5, as suggested by Hair et al. (2021) and shown in Table 5. These findings support the stability of the model and confirm its suitability. The R-squared (R^2) values demonstrate that the model has substantial explanatory power. In particular, the construct CL recorded an R^2 of 0.754. The corresponding adjusted R^2 value of 0.751 confirms the appropriateness of the model's structural specification and implies a low potential for overfitting.

3.3.1. Collinearity statistics (VIF)

Table (5) displays VIF values used to assess multicollinearity in the inner model. All values are below the critical threshold of 5, indicating no multicollinearity concerns. Notably, E-SQ shows complete independence when predicting CS and PV (VIF = 1.000). The structural model is thus well-specified, with no risk of multicollinearity affecting standard error estimates (Hair et al., 2021).

Table 5 - Collinearity assessment, VIF inner model

	VIF
CS → CL	3.718
E-SQ → CL	4.035
E- SQ → CS	1.000
E- SQ → PV	1.000
PV → CL	2.997

3.3.2 Structural model and Hypothesis testing:

As recommended by Hair et al. (2019), this study employed bootstrapping with 10,000 subsamples to assess the significance of the path coefficients. Table 6 presents the structural model results, indicating a mixture of supported and unsupported relationships among the constructs.

The analysis shows that E-service Quality (E-SQ) does not have a statistically significant direct effect on Customer Loyalty (CL) ($\beta = 0.161$; $p = 0.054$), and therefore this path is unsupported. However, E-SQ significantly influences Perceived Value (PV) ($\beta = 0.792$; $p = 0.000$), which in turn positively affects CL ($\beta = 0.190$; $p = 0.010$), suggesting that when customers perceive value in the service, they are more likely to remain loyal.

The mediation analysis reveals that the indirect effect of E-SQ on CL through PV (E-SQ → PV → CL) is statistically significant ($\beta = 0.150$; $p = 0.013$), indicating full mediation. Additionally, E-SQ has a strong positive influence on Customer Satisfaction (CS) ($\beta = 0.836$; $p = 0.000$), which itself strongly affects CL ($\beta = 0.569$; $p = 0.000$). The indirect path E-SQ → CS → CL ($\beta = 0.476$; $p = 0.000$) is also significant, confirming that CS mediates the relationship between E-SQ and CL.

In conclusion, although the direct path from E-SQ to CL is not supported, all other hypothesized relationships and mediating effects are statistically significant ($p \leq 0.013$), reinforcing the theoretical model and emphasizing the key roles of satisfaction and perceived value in driving customer loyalty in the context of electronic service quality.

Table 6 - Structural model and Hypothesis testing

Hypothesis	**Relationships**	**Path coefficient**	**P values**	**Decision**
H1	**E-SQ → CL**	0.161	0.054	Unsupported
H2	**E-SQ → PV**	0.792	0.000	Supported
H3	**PV → CL**	0.190	0.010	Supported
H4	**E-SQ → PV → CL**	0.150	0.013	Supported

H5	**E-SQ → CS**	0.836	0.000	Supported
H6	**CS → CL**	0.569	0.000	Supported
H7	**E-SQ → CS → CL**	0.476	0.000	Supported

4 DISCUSSION

The first proposed hypothesis, which proposed a positive relationship between (E-SQ) and (CL), was not statistically supported (β = 0.161, p = 0.054). This finding is consistent with several previous studies that questioned the direct impact of service quality on loyalty in digital or service-driven environments. For instance, Alabdali and Husain (2023) found no significant relationship between telemedicine platform quality and patient loyalty. Similarly, Kiran and Diljit (2011) reported a non-significant association between web-based library service quality and customer loyalty. Additionally, Anabila et al. (2022) demonstrated that service quality in the hotel industry did not significantly influence customer loyalty. In relation to the correlation between (E-SQ) and (PV), the analysis of the results found the existence of a robust and significant effect ( ) (E-SQ) = 0.792, p = 0.000) in this study. This observation correlates with the previously available scholarly literature in terms of the significant role played by e-service quality in forming customer perceptions of value. An example of this was a report of Nguyen et al. (2023) which noted a direct and significant impact of (E-SQ) on (PV) on a system-wide level of digital platforms. On the same note, Alqahtani and Albahar (2022) asserted that other specific features of e-services like security guarantee, efficient payment system, and easy design, make a significant contribution to the perception of value by customers. Alarifi and Husain (2021) also support this statement by studying online banking in Saudi Arabia and concluding that the concept of e-service quality predictors and dimensions, i.e., efficiency, fulfillment, and privacy, played a significant role in the assessment of the perceived value of customers. The results also coincide with those of Fida et al. (2020), which commented that when perceived service quality is high, the customer perceives his/her experience more favorably and tends to view that transaction as being fair, efficient, and personally rewarding.

In addition, in the case of the correlation between (PV) and (CL) there was a positive and significant correlation (with 0.190 effect and 0.010 standard error). Such finding is consistent with other studies which had highlighted the importance of (PV) in determining the behavior of loyal customers. Indicatively, Marcos and Coelho (2022) had stated that the perceived value holds significant determinant power in customer loyalty and Hsin and Wang (2022) had arrived at the findings that customers who feel valuable via online shopping settings will have tendencies of developing loyalty-related behaviors. Just like these authors, Chang and Wang (2011) together with Yang and Peterson (2004) illustrated that there is a positive and direct correlation between (PV) and (CL). This further confirms the agreement of past study results to the outcomes of this study.

The fourth hypothesis was confirmed in the research in which the PV mediated the association between ESQ and CL in a significant manner (b = 0.150, p = 0.013). The service quality attributes when they exist increase the perceived value of the customers in the receiving end who consequently develop behavior of loyalty. This mediating role has been empirically verified by ELSamen (2015), who became able to observe that the dimension of perceiving the value is very important in the extension of the relationship between favorableness of online services and brand equity. Similarly, Cristobal et al. (2007) likewise stated that perception value really works as a mental prism wherein customers get a hold of their service experiences and convert them into loyalty effects.

This finding suggests that the relationship between ESQ and CS is strong and very significant (0.836, p < 0.000), which means that the ESQ has significant influence on CS. This is in tandem with the results of Wattoo and Iqbal (2022) who reiterated the constructive influence of service quality on online shopper satisfaction. Alzaydi (2021) emphasized that the satisfaction could also be promoted by the intangible factors, such as empathy and responsiveness. Parallel to it, Khan et al. (2019) studied that the availability, efficiency, and privacy of systems promote higher emotional judgments of service quality that contributes to satisfaction outcomes. Furthermore, both Cristobal et al. (2007) and Uzir et al. (2020) research indicated that satisfaction is positively affected by the

aesthetics of the websites, personalization, and the security perceptions. Ayinaddis et al. (2023) also validated that the factor of responsiveness, reliability, and system availability is vital in the development of satisfaction.

The findings of this study also support and confirm the existence of the link between customer loyalty and customer happiness (beta = 0.569, p = 0.000), which verifies that increased satisfaction leads to an increased customer loyalty. This corresponds with the current findings on satisfaction as the direct antecedent of loyalty behaviors (Adwan et al., 2020; Mainardes & Freitas, 2023; Albarq, 2023). This connection is even more important in the scenario of digital services, where retention mostly depends on user satisfaction with the product and service (Sheu & Chang, 2022). This offers another area of correspondence between the findings of the prior research and that of the present study.

Furthermore, it also confirms that customer satisfaction is an intermediate between e-service quality and customer loyalty (0.476, p = 0.000) signifying that it is significant. This was empirically proven by Alshhadat and Amoozegar (2022), who found that customer satisfaction mediates this relationship and, therefore, can be viewed as an emotional filter through which customers subjectively define the experience with service and translate it into the loyalty behavior. In the same way, the mediation effect was confirmed by Yum and Yoo (2023) with satisfaction serving as a cognitive-affective mediator between the perceived service quality and customer loyalty. The discovery points out to the fact that e-service quality on its own cannot be used as a loyalty driver without eliciting a positive satisfaction reaction, especially in cases where the service is delivered in a digital context.

CONCLUSION

The research examined the influence of the ESQ on CL in cases when individuals are purchasing online. The researchers believed that two mediating variables existed ESQ and CL that are, PV and CS. Their results supported a conceptual model and demonstrated that good-quality electronic services increase PV and CS, which, consequently, drives customers toward loyalty. As the results also showed, the relationship between ESQ and CL can only be possible when CS and PV mediate the association completely, indicating that both emotional and cognitive evaluations are of significance in the development of online behavior. Moreover, it appears that the perceived value is a great predictor of both CL as well as CS as it is both the outcome of ESQ as well as the determinant of the customer loyalty intentions. These findings suggest that online retailers should not only focus on improving technical and functional service features but also ensure that customers derive meaningful value and satisfaction from their digital experiences. Therefore, by integrating e-SERVQUAL dimensions into a broader loyalty framework, this research offers both theoretical and practical contributions, especially within the rapidly evolving Saudi digital economy. The present study can provide a good foundation to future studies and can offer valuable recommendations to digital service providers who want to retain their clients through enhancement of service quality, value delivery, and customer satisfaction management.

Theoretical implications

The study highlights the impact of e-service quality on customer loyalty, with perceived value and customer satisfaction acting as mediating variables. The findings suggest that high quality e-services enhance the perceived value of the service and improve customer satisfaction, both of which are critical pathways to building long term customer loyalty in digital commerce environments. This relationship is particularly important in online shopping contexts by explaining how service quality perceptions are translated into long term behavioral intentions.

Moreover, by positioning perceived value and satisfaction as central mediators, the model provides a nuanced understanding of how customers interpret and react to service quality in non-physical, technology-driven environments. It suggests that the development of loyalty is not merely a direct outcome of service performance but rather the result of sequential cognitive and emotional evaluations shaped by users' digital service experiences.

This theoretical framework contributes to the literature by integrating e-SERVQUAL dimensions into a broader model of customer loyalty. It provides a structured foundation for exploring customer behavior in digital marketplaces and underscores the significance of perceived value and satisfaction in shaping loyalty outcomes. Therefore, this study adds a concrete model that links e-service quality to customer loyalty, positioning perceived

value and satisfaction as core drivers offering meaningful insights into consumer dynamics in the context of Saudi Arabia's rapidly evolving digital economy.

Practical implications

This paper provides real-life experience to online merchants and e-commerce companies doing business in Saudi Arabia, particularly with the nation pushing to improve its digital transformation agenda as catalyzed by its Vision 2030 policy. It describes the impact of e-service quality on perceived value, satisfaction, and loyalty of the customers. The research makes practical recommendations that can be used to enhance the digital service experience based on these findings. Businesses need to invest on the core components of e-service quality to develop lasting customer relations and become competitive. Considering these dimensions is capable of significantly elevating the perceived value of the service and boosting customer satisfaction, subsequently causing a greater intention of the customer loyalty. This implies that brand trust and engagement by consumers online is vital to invest in fast response times, an easy-to-learn digital interface, and strong privacy practices.

The findings also suggest that companies should regularly assess customer feedback to refine their digital strategies in line with evolving consumer expectations. By adopting a customer centric approach that aligns with the psychological and emotional needs of online shoppers, e-commerce platforms can foster a more personalized and satisfying experience. Moreover, the insights from this study are particularly relevant for small and medium-sized enterprises (SMEs) aiming to scale their digital presence. With limited resources, SMEs must strategically allocate investments toward service quality enhancements that have the highest impact on customer loyalty. Implementing targeted interventions such as personalized customer support, loyalty programs, and seamless checkout processes, can help maximize customer retention in competitive online markets. In summary, this study serves as a strategic guide for organizations aiming to strengthen their digital customer engagement. It emphasizes the importance of delivering high-quality online services that not only meet functional expectations but also enhance value perception and customers satisfaction, key drivers of sustainable loyalty in the digital age.

Limitation and Future Research Directions

This research examines the influence of the electronic service quality on customer loyalty in terms of the perceived value and the customer satisfaction and is subject to numerous limitations. On the one hand, the research is based on self-reported survey data, which may reflect the bias in the responses, as the participants may report what they perceive or expect, not what they actually do. In the future, a mixed-methods or behavioral data (such as a history of transactions and platform analytics) might be used to improve the objectivity and validity of the findings. The research design applied in the study is also cross-sectional; hence, it is unable to establish a trend in customer perceptions or loyalty over time. The longitudinal design would assist in future research, where the observed value and satisfaction would be tracked over time, while individuals continue to use the platforms to shop. The nature of online shopping is dynamic and seeing how these factors change with time will assist in enhancing our knowledge. This research did establish that perceived value and satisfaction was fairly a good mediator between the quality of e-service and customer loyalty. It however did not consider moderate factors which may influence these relationships. Studies might be conducted to scrutinize trust and digital literacy, or the levels of involved consumers, and these might also affect the consumer responses towards e-service quality in online shopping.

Finally, the sample was limited to customers in Saudi Arabia who had previously engaged in online shopping. While this provides a focused understanding of consumer behavior within the Saudi digital market, cultural and contextual factors may limit the generalizability of the results. Future studies are encouraged to replicate this model in different cultural and regional contexts to validate the findings and enrich the theoretical applicability across global e-commerce environments.

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